Factors and Barriers Associated with the Knowledge, Perceptions, and Utilization of Contraceptive, STI & HIV Services Among Adolescents in Mugombwa Refugee Camp, Gisagara District Rwanda

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DECLARATION

We, Oluwatomi Olunuga and Autumn Eastman, hereby declare that the practicum capstone thesis has been written by me without any external unauthorized help, that it has been neither presented to any institution for evaluation nor previously published in its entirety or in parts. Any parts, words, or ideas of the thesis, however limited, which are quoted from or based on other sources, have been acknowledged as such without exception.

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Dedication

We dedicate this research to everyone who contributed to our success at the University of Global Health Equity and believed intensely in our ideas and dream for the world.

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ABSTRACT

Introduction

Adolescents experience exacerbated vulnerability in refugee settings, where there is often an increase in sexual violence and a deficient emphasis on their right to access SRH services. Mugombwa refugee camp in Rwanda is home to 11,304 refugees from the DRC, of which 18.4% are between the ages of 12-17. In 2021, there were 47 adolescent childbirths, and in 2022, five positive cases of HIV between the ages of 12-17. This study aimed to understand the knowledge, perceptions, and utilization of SRH services among female and male adolescents following the health belief model via a feminist intersectional approach. This study also centers on the voices of adolescents to explore their barriers and recommendations.

Methods

This study employed a convergent parallel mixed-methods study design. Simple random and purposive sampling methods were used to select 422 quantitative and 32 FGD participants, respectively. A semi-structured questionnaire was used to collect quantitative data on knowledge, perceptions, and utilization of SRH services, while FGD guide collected information on barriers and recommendations. Descriptive statistical analysis, bivariate analysis, and multinomial logistic regression were performed on quantitative data. Qualitative data were transcribed, translated, and analyzed using deductive thematic content analysis.

Results

Under half of all adolescents had low SRH knowledge, and males had higher SRH knowledge than females. Predictive factors of high SRH knowledge among males were being 15-19 years old, ever having sex, and not being disabled, and among females, being 15-19 and having a child. The vast majority of adolescents had high knowledge of SRH services in Mugombwa camp. Predictive factor of high service knowledge among females was a high level of SRH knowledge. Most adolescents had positive perceptions toward contraceptive services; however, some felt service providers were judgmental. Of the participants who had ever had sex, 38.3% had never utilized contraceptives, mainly due to fear of side effects. Predictive factors of contraceptive utilization among males were high SRH knowledge and being out of school. More males had ever been tested for STIs than females, and while 91.0% of adolescents reported the desire to know their HIV status, only 48.1% had ever tested. Common predictive factors of testing for HIV and STIs were being out of school, being 15-19 years old, and having high SRH knowledge.

The five major themes surrounding barriers and recommendations were: 1) socio-cultural factors; 2) the need for improved SRH service delivery; 3) parents as SRH stakeholders; 4) lack of knowledge preventing contraceptive utilization; and 5) negative perceptions preventing STI and HIV utilization.

Conclusion

Many adolescents have low SRH knowledge, positive perceptions of SRH services, and yet sub-optimal utilization of contraceptive, STI, and HIV services. The intersectional identities and socio-cultural factors associated with being an adolescent refugee impact the knowledge, perceptions, and utilization of contraceptive, STI, and HIV services and must be further prioritized to curb teenage pregnancy, STIs, and HIV among adolescent refugees. Increasing the regularity of SRH training and human resource capacity and training youth and parents as champions of SRH in Mugombwa Refugee camp are recommended.

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List of Abbreviations

AFA	Assigned Female At Birth
AHA	Africa Humanitarian Action
AIDS	Acquired Immune Deficiency Syndrome
AMAB	Assigned Male At Birth
ASRH	Adolescent Sexual and Reproductive Health
CHW	Community Health Worker
DRC	Democratic Republic of Congo
FGD	Focus Group Discussion
GBV	Gender-Based Violence
IRB	Institutional Review Board
HIV	Human Immunodeficiency Virus
PwD	People with Disability
SRH	Sexual and Reproductive Health
SSA	Sub-Saharan Africa
SPSS	Statistical Package for Social Science
STI	Sexually Transmitted Infection
UGHE	University of Global Health Equity
UNFPA	United Nations Population Fund
UNHCR	The United Nations Refugee Agency
WHO	World Health Organization

CHAPTER ONE: INTRODUCTION

1.1 Overview

The sexual and reproductive health of adolescents, particularly in developing countries, is one of the key public health and development concerns of governments, non-governmental organizations, policymakers, and state actors around the world. Sexual and reproductive health (SRH) is vital to ensure the highest well-being of adolescents across genders. The World Health Organization (WHO) states that reproductive health "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 the reproductive system and to its functions and processes..."(WHO, 2022). Adolescents, defined between the ages of 10-19, represent a particularly vulnerable population due to their entry into puberty and sexual experiences (World Health Organization, 2014). Puberty and early sexual experiences inform adolescents' sexual and reproductive health for a lifetime (A. M. Moore et al., 2007). Early sexual experiences have been predictive of future sexual behaviors, including contraceptive use, sexual agency and decision making, sexual health-seeking behavior, and whether their behavior will result in unintended pregnancies, STIs including HIV, or sexual subjugation (Moore et al., 2007). Adolescents in low-middle income countries (LMIC) possess the largest global burden of SRH poor outcomes, including unplanned pregnancies, unsafe abortion, and HIV/ STIs (Grose et al., 2020).

Globally, adolescents face disproportionate sexual and reproductive health burdens. Twenty-six percent of maternal deaths occur among adolescents (UNFPA, n.d.), and 75% of all new HPV infections occur in individuals between the ages of 15-25 (Dempsey, 2008). Additionally, in several countries, 10-15% of the total annual fertility is from adolescent pregnancies between the ages of 15-19 (A. M. Moore et al., 2007). In sub-Saharan Africa (SSA) specifically, most unintended pregnancies are adolescent pregnancies (Moore et al., 2007), where one in five adolescents become pregnant during their adolescent years (Yakubu & Salisu, 2018). Beyond, unplanned pregnancy, adolescents are predisposed to high risk of HIV and STIs. In 2006 alone, 40% of new global HIV cases occurred among young people between 15-24 years old (A. M. Moore et al., 2007). The susceptibility of adolescents to HIV and other STIs is underpinned by gender-based violence due to gender norms and unequal power relations (Grose et al., 2020). Adolescents also possess unique biological vulnerabilities, such as the cellular formation of their cervix, which renders them more susceptible to the negative consequences of gender-based violence (GBV), such as HIV and STIs (Grose et al., 2020). In addition to adolescent females, males have significant SRH needs that inadvertently affect the SRH of adolescent females (Lunde et al., 2021). Males that engage in unsafe sexual behavior predispose females to the risk of unplanned pregnancy, HIV and STIs. Ensuring both male and female adolescents have the resources to protect themselves from pregnancy, HIV and STIs exerts a mutually beneficial affect on the lives of the adolescents themselves and their families. Beyond the gender binary, gender-diverse adolescents also face unique experiences of SRH due to frequent stigma and discrimination in accessing SRH services (Lunde et al., 2021).

Furthermore, being an adolescent in a refugee setting exacerbates SRH risks. Refugee settings pose a particular challenge to adolescent SRH due to a lack of protective societal structures and transient resources (Endler et al., 2020). Refugee camps experience constrained access to education, employment, participation, and protection, which puts adolescent refugees at the mercy

of what is provided in the camp itself (Williams et al., 2018). Adolescents experience compounded vulnerability in refugee settings, where there is often a lack of emphasis on their SRH rights and the politicization of SRH issues and access to services (Endler et al., 2020). Female refugees are at an increased risk of sexual violence and abuse due to changing social hierarchies and relationships (Williams et al., 2018). Refugee settings experience increased instances of rape, trafficking, sexual exploitation, child marriage, and maternal death (Endler et al., 2020). Moreover, 50% of refugees worldwide are adolescents, demonstrating the breadth of the need for attention to adolescent SRH issues in refugee settings (Endler et al., 2020). Owing to their gender and age, adolescent females experience distinct marginalization that exacerbates their SRH issues. From an intersectional feminist lens, it becomes clear that social categories, in combination with structures of power, create a unique experience of SRH for adolescents. Even the laws and policies in Rwanda on refugees in Rwanda do not address how age and gender affect the well-being and access to opportunities for adolescents (Isimbi et al., 2021).

Among SRH needs, contraception and STI/ HIV services are vital to ensure the well-being of adolescents in refugee settings. Studies show that contraception prevents maternal mortality by preventing unplanned pregnancies and unsafe abortions (UNFPA, 2012). Furthermore, contraception aids the economic capacity of families and the empowerment of women (UNFPA, 2012). Due to the increased prevalence of GBV and STIs, including HIV, among adolescents in refugee settings, adolescents need access to STI prevention, treatment and counseling services (Ivanova et al., 2018). Despite the salience of contraceptive and STI services, uptake of these services in refugee settings remains sub-optimal due to socio-cultural norms and stigma, distances (Ivanova et al., 2018), and lack of awareness and knowledge of available services (Casey et al., 2015).

SSA has a notably high youth population and percentage of refugees. In 15 SSA countries, half of the population are adolescents (UNFPA, 2014). Specifically, 29% of Rwanda's population are between 16-30 years old (Rwanda Gov.uk, n.d.). Rwanda has also acted as a host for a large population of adolescent refugees. Rwanda has been the home of 127,000 refugees from neighboring countries across six refugee camps since 1997 (UNHCR, 2022). Mugombwa refugee camp, established in 2016, currently hosts approximately 11,304 refugees who are mainly from the Democratic Republic of the Congo and whom 18.4% are between the ages of 12-17 (UNHCR, 2021b). Research conducted in the Mugombwa Refugee camp in 2015 and 2016 showed that overall reproductive health service utilization was low among adolescent females and males and that gender disparities existed (African Humanitarian Action, 2015a). In 2021 alone, there were a total of 47 births from individuals below 20 years of age in Mugombwa Refugee Camp (AHA, 2022). As of June 2022, there have been 25 births from individuals below 20 years of age, six positive cases of HIV between the ages of 6-11, and five positive cases of HIV between the ages of 12-17 (AHA, 2022). Much of the currently available literature has not gone into depth to study the knowledge, perceptions, and utilization of contraceptive and HIV/STI services among adolescents of all genders within Mugombwa.

This research sought to understand the knowledge of SRH, perceptions, and utilization of contraceptive and STI/HIV services among adolescent females and males in the Mugombwa Refugee camp in Rwanda. The information gathered from this study is vital to inform policymakers, governmental institutions, and humanitarian organizations working in the Mugombwa Refugee camp, such as African Humanitarian Action (AHA) and the UN Refugee

Agency (UNHCR), to target and modify their existing SRH programs and create new strategies to tackle barriers, inequity and promote safe, accessible, available for adolescents of all genders. The terms female and male are not inherently inclusive of the diversity of biological sex expression. Therefore, for the purposes of this research, the terms male and female will be used to refer to assigned female at birth (AFAB) and assigned male at birth (AMAB) rather than a reflection of objective truth about an individual's biological makeup.

1.2 Theoretical Frameworks

1.2.1 *Intersectional Feminism*

Intersectionality is a concept that refers to the creation of an individual's reality as a product of the unique intersection of their identities (Bauer et al., 2021). The intersectionality framework, first coined by legal scholar, Kimberly Crenshaw, suggests that to understand health and social experiences, one must consider the intersections of social positions (Bauer et al., 2021). The intersectional approach is different from the traditional "additive" approach in that intersectionality recognizes that social identities are not experienced singularly, rather, intersecting identities co-create unique expressions of experience and, in some cases, oppression (Bauer et al., 2021). Specifically, oppression faced based on gender cannot be complexly understood if it is viewed as solely gendered discrimination. Rather, the experience of oppression an individual of a particular gender faces intersects with race, ethnicity, social class, religion, and sexual orientation to create distinct encounters with oppression and discrimination (Bauer et al., 2021).

In this research study, we used intersectional feminism as a framework to understand how intersectional demographic factors affect the knowledge, perceptions, and utilization of contraception, HIV, and STI services among adolescents in the Mugombwa Refugee camp, Rwanda.

1.2.*2* *The Health Belief Model (HBM)*

The Health Belief Framework also guided this research study in exploring the knowledge and perceptions of adolescents on SRH services that could either facilitate or inhibit adolescents' utilization of SRH services. HBM further guided the identification of key modifying factors in terms of socio-demographic characteristics that could explain potential disparities in the utilization of SRH services. The application of this model also provided guidance in the discussion of the study result.

The HBM is a psychological model that focuses on individuals' attitudes and beliefs in order to explain and predict health behaviors (Glanz & Bishop, 2010). The grounding theory of the HBM is that "people's beliefs about whether or not they are at risk for a disease or health problem, and their perceptions of the benefits of taking action to avoid it influence their readiness to take action" (Glanz & Bishop, 2010). These beliefs and perceptions are captured in the theory's core concepts, namely, perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy (Jones et al., 2015a).

Perceived Susceptibility

Perceived susceptibility is based on the idea that when an individual perceives him or herself at risk of a health problem, the perception influences their action towards preventive health care and other activities to reduce the risk of the health issue (Jones et al., 2015b). Therefore, denying the susceptibility to this health problem could lead to no actions being taken. In the context of utilization of SRH services, when an adolescent does not perceive themselves to be susceptible to SRH-related issues or does not perceive SRH needs, they might not utilize SRH services (DeBeaudrap et al., 2019). Contrarily, if they perceive themselves to be susceptible, they might utilize SRH services (DeBeaudrap et al., 2019).

Perceived Severity

Perceived severity is the individual's subjective assessment of how severe the health problem could be and the potential ramifications should they contract it. The HBM explains that people will most likely adopt a positive health behavior practice if they believe the avoidance of the practice will have serious consequences (Jones et al., 2015). In the context of this study, this concept refers to an adolescent's perceived severity of meeting or not meeting SRH needs. Does the adolescent consider SRH-related issues life-threatening, a financial burden, or an inhibitory of their social functioning? An individual that has these perceptions is more likely to utilize SRH services.

Perceived Benefits

The perceived benefit of taking healthy action also influences people's behavior towards health care (Wayne, 2019). Again, the perceived benefits are the individual's assessments of the worth or efficacy of acting to minimize or prevent disease (Wayne, 2019). An action believed to reduce one's susceptibility to a health problem or reduce the severity is more likely to be taken despite the factual evidence regarding its effectiveness (Wayne, 2019). For example, someone who believes that condoms serve a dual purpose, STIs and pregnancy prevention, is more likely to use them than someone who does not.

Perceived Barriers

Just as perceived benefits influence health-related behaviors, so do perceived barriers. Perceived barriers are an individual's subjective assessment of hindrances to accessing or utilizing health-related services (Orji et al., 2012). Regardless of the perceived benefits, these barriers prevent an individual from engaging in health-promoting behavior. To achieve a positive health outcome, the perceived benefits of action must exceed the perceived barriers (Orji et al., 2012). Feelings of shyness and guilt caused by negative cultural attitudes toward premarital sex, fear of parents discovering visits to public SRH services, and a lack of privacy in the services provided are all commonly perceived barriers to SRH (Thongmixay et al., 2019).

Cues to Action

According to the HBM, cues or triggers are required to encourage health-promoting behaviors (Orji, Vassileva, & Mandryk, 2012). These cues could be internal or external to the person. Internal cues are frequently physiological (e.g., pain and symptoms), whereas external cues include information from friends, family, the media, or health professionals/educators (Orji, Vassileva, &

Mandryk, 2012). External triggers include the illness of an acquaintance, reminders from SRH centers, and information from peers (Orji, Vassileva, & Mandryk, 2012).

Self-Efficacy

Self-efficacy is a person's belief in his or her own ability to engage in health-promoting behavior effectively (Kim & Kim, 2020).

Modifying Factors

These are factors that indirectly affect health behavior by directly influencing the perception of the individual, and they include age, gender, level of education, knowledge level, etc.

1.3 Problem Statement

In the Mugombwa Refugee camp in Rwanda, there is a low level of utilization of sexual and reproductive health (SRH) services among adolescents, which has contributed to the gradual increase of teenage pregnancy and HIV/STIs among this population (African Humanitarian Action, 2015). In 2021, there were 47 adolescent childbirths, and in 2022, five positive cases of HIV between the ages of 12-17 (AHA, 2022). In assessing adolescent SRH, traditional research methodology often neglects to include and account for the complex macro and micro social power relations that shape the knowledge, perceptions, and utilization of health services, especially within the unique context of a refugee camp. Most of the literature on adolescent refugee SRH experiences either focuses on females without being gender-inclusive or does not gender-disaggregate their data in their research approach. Previous research studies in the Mugombwa Refugee camp have analyzed inequities associated with utilizing SRH services based on singular identities such as age or sex (African Humanitarian Action, 2015; UNHCR, 2016). However, this has led to no clear perspective on the unique intersectional factors associated with the knowledge, perceptions, and utilization of SRH services among both female and male adolescents in refugee camps.

Understanding how the intersection of inequities contributes to the knowledge, perceptions, and utilization of SRH services among adolescents has not been studied in previous research and therefore, presents a gap in the research to be studied. This research study applied an intersectional lens to identify the ways power relations and diverse inequalities are structured differently for diverse groups in the way they utilize SRH services, based on their intersecting demographics. Furthermore, this research strived to engage adolescents in a way that enhanced their epistemic authority in voicing their needs, identifying barriers, and forwarding their recommendations to realize improved access to contraceptive, HIV, and STI services.

1.4 Research Questions & Objectives of the Study

1.4.1 ***Research Questions***

1. What is the level of knowledge, perceptions, and utilization of contraceptive, STI, and HIV services among adolescent females and males in the Mugombwa camp?
2. What factors are associated with the knowledge, perceptions, and utilization of contraceptives, STI, and HIV services among adolescent females and males in the Mugombwa camp?

3. What perceived barriers and recommendations do adolescents have to improve contraceptive, STI, and HIV services in the Mugombwa camp?

1.4.2 Objectives

By August 31, 2022, this research study achieved the following objectives:

- To assess the level of adolescent knowledge of SRH, including contraception, STIs, and HIV, in the Mugombwa camp.
- To assess adolescent knowledge of contraceptive, STI, and HIV services available in the Mugombwa camp.
- To assess the perceptions of adolescent refugees concerning contraceptive, STI, and HIV services in the Mugombwa camp.
- To determine the utilization of contraceptive, STI, and HIV services among adolescent refugees in the Mugombwa camp.
- To identify factors associated with knowledge, perceptions, and utilization of SRH services in the Mugombwa camp.
- To understand the barriers and recommendations, adolescents have regarding contraceptive, STI, and HIV services in the Mugombwa camp.

1.5 Organization of the Report

This report was organized into six main chapters:

Chapter One: Introduction

The introduction contains background information on the research study, theoretical frameworks, research questions, objectives, and problem statement.

Chapter Two: Literature Review

The literature review provides an overview of the salience of sexual and reproductive health for adolescents, adolescent sexual and reproductive health (SRH) needs in sub-Saharan Africa (SSA), SRH knowledge, attitude, perception, and practices of adolescents in SSA, sexual and reproductive health in refugee settings, and literature gap and justification.

Chapter Three: Methods

The methodology describes the setting of the Mugombwa Refugee camp, study design, sample size, eligibility criteria, measures, data collection tools and procedures, data management, and data analysis.

Chapter Four: Results

This section describes both quantitative and qualitative findings. The quantitative findings describe the sociodemographic characteristics of participants and bivariate and logistic regression analyses. The qualitative findings describe the sociodemographic characteristics of the focus group discussions in addition to the themes and sub-themes drawn from them.

Chapter Five: Discussion

An integrated discussion of quantitative and qualitative findings as they relate to the knowledge, perceptions, utilization, barriers, and recommendations of adolescents.

Chapter Six: Conclusion and Recommendation

A summary of our main conclusions and recommendations from the research study.

CHAPTER TWO: LITERATURE REVIEW

2.1 The Salience of Sexual and Reproductive Health

Social inequities and special biological needs render women, including adolescent females, particularly susceptible to sexual and reproductive health (SRH) disparities. The well-being of women hinges on their ability to care for their SRH. Without access to basic SRH services, women are predisposed to unwanted pregnancies, unsafe abortion, sexually transmitted diseases, gender-based violence, reproductive diseases, and infertility, all of which jeopardize an individual's right to health and a thriving life (Sully et al., 2020). Among being a threat to survival, poor SRH threatens families and nations' economic and social prosperity (Sully et al., 2020). The health of a community, children, and families depend on the health of women (Sully et al., 2020). Unfortunately, some populations of women, are often left out of SRH activities (The Lancet, 2016).

2.2 Sexual and Reproductive Health Needs of Adolescents in Sub-Saharan Africa

The WHO defines adolescents as individuals between the ages of 10-19 years old (World Health Organization, 2014). In SSA, adolescents make up most of the population. Individuals under the age of 15 make up almost 60% of the entire African population (United Nations, Department of Economic and Social Affairs, Population Division, 2019). While women face health disparities as a gender, adolescent females are particularly vulnerable since the adolescent age period marks when women enter sexual initiation and the linked risk to SRH risks such as unwanted pregnancy and STIs (Melesse et al., 2020). Adolescent pregnancy carries the highest maternal mortality across all age groups due to the increased risk of medical complications with pregnancy (Rodríguez et al., 2014). Adolescents who acquire unwanted pregnancies are often forced to forego education and employment (Rodríguez et al., 2014). Furthermore, economic pressures often force female adolescents to enter prostitution without sexual health education and therefore increase the risk of STD transmission (Cook & World Health Organization, 1994). The compounded risks female adolescents face without adequate SRH support highlights the dire need for adolescent specific SRH programming efforts.

Furthermore, SSA has the highest prevalence of HIV globally, with an estimated 22.5 million people living with infections (Haile et al., 2020). Of the 22.5 million (Haile et al., 2020), a disproportionate 59% were women (African Commission on Human and People's Rights [ACHPR], 2012). Therefore, young adolescents in Africa, particularly females, are at the highest risk of SRH detriments compared to other parts of the world (Haile et al., 2020). A systematic review of ten high HIV prevalence African countries found that adolescent females were at a higher risk compared to males across all settings (Birdthistle et al., 2019). Cultural practices of child marriage further predispose female adolescents to a lack of education and unsafe sexual activity as adolescents often lack decision-making autonomy, or agency over their bodies (Cook & World Health Organization, 1994). Unfortunately, there is a limited database that is sex-disaggregated. Without sex-disaggregated data, it is impossible to design interventions and monitoring instruments specific to adolescents' unique needs (Rodríguez et al., 2014).

2.3 The Need for Sexual and Reproductive Health of Adolescents in Refugee Settings

The UN Refugee Agency (UNHCR) defines a refugee as an individual who has been displaced from their country and is unable or unwilling to return due to fear of mistreatment based on

affiliation with a specific group, religion, opinion, nationality, or race (UNHCR, 2021). As of 2020, 82.4 million people have been forcibly displaced globally due to human rights violations, violence, conflict, or persecution (UNHCR - Figures at a Glance, 2021). Refugee camps have the capacity to dismantle and engender new relational structures and hierarchies or reinforce pre-existing power differences between groups (Williams et al., 2018). Refugees are at a heightened risk of unwanted pregnancies, maternal illnesses, death, STDs/STIs, and gender-based violence (Starrs et al., 2018). Refugees who have been displaced by conflict have been uprooted from their previous health systems and are therefore in great need of SRH services. The Inter-Agency Working Group (IAWG) on Reproductive Health in Crises details a Minimum Initial Service Package (MISP) for SRH services that must be implemented in every humanitarian emergency, including services to address and prevent sexual violence, unwanted pregnancies, HIV, STIs, and maternal and newborn health (Inter-Agency Working Group (IAWG), 2019). The implementation of these services is vital to protect adolescents, women and gender minorities from the effects of gender inequities such as HIV, STIs and unwanted pregnancies.

While refugee settings can seem homogenous, they in fact represent diverse ethnic groups, cultures, ideologies, and age groups (Turner, 2016). More than half of the refugee population worldwide is under the age of 18 (UNHCR, 2021a). Being an adolescent in a refugee setting lends unique barriers and challenges to SRH as their needs are often neglected and risks compounded. Refugee camps can easily turn into a setting of disempowerment for female adolescents, where social relationships and hierarchies can predispose women and girls to an increased risk of sexual violence by other refugees and community partners.

Research has also detailed the importance of providing youth-friendly services given the special needs of adolescents for youth-appropriate resources (Haile et al., 2020). A study conducted by Haile et al., in 2020 found that the areas that implemented youth-friendly services have significantly higher SRH service utilization compared to the areas without youth-friendly services (Haile et al., 2020). Additionally, they found that factors associated with higher service utilization included the mother's educational status, ability to have open discussions with family members, and having good knowledge and a positive attitude toward SRH services (Haile et al., 2020). Similar results were found in refugee settings across many different countries.

In Nigeria, pregnancy complications, early sex experimentation, and unsafe sex were common among the SRH needs of internally displaced adolescents (Odo et al., 2020). Internally displaced adolescents in Nigeria face issues of pregnancy complications, early sex experimentation, and unsafe sex (Odo et al., 2020). The structure of an internally displaced persons' camp additionally increases their vulnerability, exposing them to unhealthy sexual behaviors, which often leads to teenage pregnancy and STIs (Odo et al., 2020). As such, there is a great need for adolescent contraceptive services, increased education, social support, and counseling services. For internally displaced adolescents in particular, research has shown that they specifically require sexuality education, safe motherhood, and family planning services (Odo et al., 2020).

2.4 Knowledge, Perception, and Utilization of SRH Services Among Adolescents in SSA

Understanding the knowledge, perceptions, and utilization of SRH services among adolescents and how each influences the other is crucial to understand the nuanced SRH needs of adolescents and creating targeted interventions that support their SRH. Furthermore, teasing out the factors

that influence knowledge, perceptions, and utilization of SRH services provides a multi-layered analysis of the landscape of an adolescent's SRH.

Several studies have been conducted globally to assess the knowledge, perceptions, and utilization of SRH services among adolescents. In Western Ethiopia, a study on 771 adolescents and youth aged 15-24 revealed that only 28.1% of participants had an awareness of youth reproductive health services, and only 8.6% utilized SRH services (Tilahun et al., 2020). Factors that were significantly associated with the utilization of SRH services were being between the ages of 15-19 years, having a history of sexual intercourse, having ever heard of SRH services, and those who had previously visited a health facility for other health services (T. Tilahun et al., 2020).

Another study in Ethiopia conducted among university students at Ambo University discovered that 94.5% and 98% of the study participants had heard of STIs and HIV/AIDS, respectively (Yared et al., 2017). Eighty-four percent of the study participants also knew of modern contraceptive methods such as pills (64.8%) and condoms (56.8%) (Yared et al., 2017). The major sources of information about STIs and HIV among this population were the public health sector (69.8%) and mass/electronic media (60.9%) (Yared et al., 2017).

A study by Othman et al., 2019 in Malaysia found that SRH service utilization is related to the level of both knowledge of SRH and knowledge of available SRH services. In rural Nigeria, a study on in-school adolescents reported that about 63.2% of the participants were knowledgeable about SRH (Abiodun & Olu Abiodun, 2016). The study assessed knowledge based on sexual maturation, pregnancy, and fertility, avoiding unwanted pregnancy, STIs, HIV/AIDS transmission, HIV/AIDS prevention, and HIV counseling and testing (Abiodun & Olu Abiodun, 2016). More than half (50.4%) of the participants were classified as not knowledgeable (a score <50%) about STIs, 97.5% were not knowledgeable about HIV counseling and testing, 69.0% were not knowledgeable about pregnancy and fertility, and 52.9% of participants were knowledgeable about how to avoid unwanted pregnancy (Abiodun & Olu Abiodun, 2016). Sixty-four percent of participants had heard about SRH services, and the most common source of information on SRH was at school (29.7%) and on the radio (24.5%) (Abiodun & Olu Abiodun, 2016). Knowledge of SRH is also highly implicated in adolescent SRH service utilization and sexual behavior. In a mixed-methods study conducted among 1,057 unmarried adolescents between the ages of 13-18 in six local government areas in Nigeria, adolescents reported that they most preferred their friends as a source of SRH information (Agu et al., 2020). Adolescents reported that this was because they felt more comfortable and at ease expressing their opinions to their friends (Agu et al., 2020).

Some of the barriers to utilizing SRH services among adolescents could be stigma related. In a study conducted in Northwestern Nigeria, adolescents reported that despite their knowledge of the benefit of accessing SRH services, they were not encouraged to utilize the services (Nmadu et al., 2020). They identified stigma-related barriers related to religion, community norms, and the negative attitude of the community and health workers as inhibiting factors, resulting in adolescents feeling shy and ashamed to use SRHS (Nmadu et al., 2020).

In Debre Berhan, Ethiopia, a community-based cross-sectional study was conducted to understand the level and associated factors of adolescent service utilization (Tlaye et al., 2018a). Their findings showed that 33.8% of adolescents utilized at least one of the SRH services (Tlaye et al., 2018). Factors that positively contributed to adolescent service utilization included discussing

SRH issues with peers and partners, not co-residing with parents as well as positively perceiving SRH services (Tlaye et al., 2018). Similarly, Liyeh et al., (2021) found that adolescent reproductive health service utilization was unsatisfactory in their research on female night students in Ethiopia. Out of all 2,050 students, only 54.6% utilized reproductive health services (Liyeh et al., 2021). The study also found that the factors that were most associated with reproductive health service utilization was attending secondary education, having a positive attitude towards youth reproductive health services, communicating with parents or friends about SRH issues, and those with good knowledge of reproductive health services as well as those who had faced reproductive health issues (Liyeh et al., 2021). The study identified that community health promotion and education on SRH were necessary to increase youth SRH service utilization (Liyeh et al., 2021).

A study conducted in Ethiopia compared SRH service utilization in a Youth Friendly Service (YFS) implemented area compared to a non-implemented area (Haile et al., 2020). The adolescent utilization rate was significantly different in these two areas; the utilization of SRH services was 33.8% and 9.9% in the YFS implemented and non-implemented areas, respectively (Haile et al., 2020). Overall, adolescents mostly utilized information, education, and communication materials (80.6%), condoms, and HIV testing and counseling (33.3%) (Haile et al., 2020). Barriers cited to the utilization of SRH services were lack of privacy in health facilities, personal embarrassment, perceived inadequate medical equipment, and unfavorable health professionals' attitudes (Haile et al., 2020).

While SRH is in much need of improvement in SSA overall, Melesse et al., 2020 illuminates the need for country-specific SRH data. They found in their research that there were major differences in adolescent sexual and reproductive health between West, Central, Eastern, and Southern Africa (Melesse et al., 2020).

2.5 Adolescent SRH Knowledge, Perceptions, and Utilization in Refugee Settings

The rate of unplanned pregnancy is exceptionally high in many refugee and crisis settings. A maternal death review report of refugee camps in 10 countries found that unsafe abortion accounts for 78% of all maternal mortality among refugee women (Hynes et al., 2012). Adolescent refugees are also at an increased risk of gender-based and sexual violence and abuse (Ivanova et al., 2018). UNHCR conducted an inter-agency global evaluation of reproductive health services for refugees and internally displaced persons in 2004 and found that most people affected by conflict lack adequate SRH care and adolescents specifically are often underserved (UNHCR, 2004).

Additionally, adolescents living in a refugee setting rely on the services of partners and organizations to acquire knowledge on SRH and SRH services. Therefore, understanding the refugee-specific setting and how that influences adolescent knowledge, perceptions, and utilization of SRH services is important. Many studies have sought to understand the level of utilization of contraceptive services as well as the associated factors. A community-based cross-sectional study in a refugee camp in Northern Ethiopia looked at contraceptive utilization and associated factors among 15-49-year-olds (Seyife et al., 2019). They found that the prevalence of contraceptive utilization was 47.7%. The factors associated with not utilizing contraceptives were being older, single, unemployed, having no partner support, and the inconvenience of the service site. They also found that having counseling on family planning conferred better utilization of contraceptive services. A review of reports from UNHCR in Djibouti, Kenya, and Uganda shows a contraceptive utilization range of 5.1%-14.6% (Seyife et al., 2019).

A study conducted among 260 adolescent refugee females aged 13–19 years old in Uganda assessed their knowledge of HIV transmission, STIs, and family planning (Ivanova et al., 2019). The results showed that 8.8% of participants were unaware of HIV transmission, 15.7% were unable to name any STI, and 13.8% were not aware of any method of contraception (Ivanova et al., 2019). The most common sources of SRH information were at school or by teachers (38.5%), followed by parents or guardians (34%) (Ivanova et al., 2019). Television, the internet, books or magazines, and male relatives were not viewed as important sources of SRH information by participants (Ivanova et al., 2019). Multinomial regression analysis revealed that age, education level, and teachers/school as the main source of SRH information were associated with higher SRH knowledge (Ivanova et al., 2019).

A systematic review of the sexual and reproductive health knowledge, experiences, and access to services among young women and girls in refugee settings in Africa showed that knowledge of contraceptive methods, STIs, and HIV/AIDS is limited, and access to SRH services is limited by cost, distances, and stigma (Ivanova et al., 2018). This study also pointed out the need for data disaggregation by sex and age to parse out the different experiences of female and male adolescents of different age groups.

A systematic review of sexual and reproductive health interventions for young people in humanitarian settings revealed that strategies to increase the utilization of SRH services by young people include adolescent-friendly spaces, peer workers, school-based activities, and involving young people in program designs (Jennings et al., 2019).

Refugees in an urban setting in Lebanon who were displaced by the war in Syria recounted their knowledge and perceptions of SRH services in a study by Korri et al., 2021. The focus group discussions showed that most adolescents reported a lack of knowledge about menstruation and the female reproductive system (Korri et al., 2020). Additionally, all the females had experienced some type of sexual harassment (Korri et al., 2021). Poor knowledge about reproductive health coupled with a demonstrated elevated risk of sexual and gender-based violence, STIs, and unwanted pregnancy illustrates the urgent need for SRH services in refugee settings.

2.6 Adolescent SRH Knowledge, Perceptions, and Utilization in Rwanda

Rwanda is home to almost 170,000 refugees that live in 6 camps scattered across the country, namely Kigeme, Mahama, Mugombwa, Kiziba, Gihembe, and Nyabiheke (UNHCR Rwanda, 2016). The limited research on SRH in Rwanda highlights the important context-specific nature of Rwandan adolescent SRH. In a study conducted among 121 adolescents aged 10-19 residing in six cities in Rwanda, 86.8% of participants were aware of SRH services provided at health facilities in Rwanda (Ndayishimiye et al., 2020). Further analysis in this study revealed that females (59%) were more aware of SRH services than males (41%) (Ndayishimiye et al., 2020). Out of all the SRH services provided in health facilities in Rwanda, adolescents were most aware of HIV testing and circumcision (Ndayishimiye et al., 2020).

A study that took place at Kigeme Refugee Camp in Rwanda on the experiences of adolescent girls found that rape, sexual exploitation, commercial sex, early marriage, and girl trafficking are

the main forms of sexual abuse. They also found that sexual abuse was facilitated by the camp layout, security system, and poor living conditions(Iyakaremye & Mukagatare, 2016). Sexual abuse predisposes adolescents to SRH issues, such as unplanned pregnancies, HIV, and STI. A recent 2022 study conducted in Mahama Refugee Camp in Rwanda found that biases and judgmental attitudes of providers adversely affect access and use of SRH services for young people. Furthermore, adolescents and youth reported coercive, non-consensual, and transactional sexual incidents. Of the studies on the experiences of adolescents in Rwanda, many have not examined adolescents' experiences based on different characteristics, such as age, gender, education level, etc. Of the limited studies in Rwandan refugee settings, only one study adopted an intersectional and socio-ecological approach. A study in Gihembe and Nyabiheke refugee camps that assessed the social and economic vulnerabilities of female adolescents found that lack of economic opportunity, female gender norms, material deprivation, and vulnerability led to transactional sex and exploitation within and around the camps (Williams et al., 2018).

Up until this point, limited published research exists concerning the SRH of adolescent refugees in Mugombwa Refugee Camp. In 2015, African Humanitarian Action in collaboration with UNHCR conducted a study on the knowledge, attitudes, and practices of HIV/ AIDS and SRH among refugee adolescents 10-19 years old living in six refugee camps (including Mugombwa) in Rwanda (African Humanitarian Action, 2015). The study found that between February 2014 to August 2014, eight adolescents in the Mugombwa refugee camp had acquired unwanted pregnancies, of which two had tested positive for HIV (African Humanitarian Action, 2015). Out of all camps, the study found that teenagers had little knowledge of HIV/AIDS and STIs/STDs (African Humanitarian Action, 2015). In the Mugombwa refugee camp, 66.7% of adolescents had a negative attitude toward HIV, and 56% of 15-19-year-olds had negative knowledge of HIV transmission (African Humanitarian Action, 2015). While this information is informative, most of the data is not disaggregated by sex or refugee camp.

In 2016, the Inter-Agency Working Group (IAWG) conducted a study in six refugee camps in Rwanda (UNHCR, 2016). While men have the lowest awareness level of SRH, both males and females had low reproductive health service utilization, with only 26.9% contraceptive use rate (UNHCR, 2016). Across all six refugee camps, the HIV prevalence was higher among women than men, and the overall contraceptive use rate was 26.9% (UNHCR, 2016). However, this data was not sex-disaggregated; therefore, the unique experiences of males and females could not be understood comprehensively.

2.7 Literature Gap and Study Justification

Over the years, research studies aimed at assessing the knowledge, perceptions, and utilization of SRH services have informed interventions, allocation of resources, and policies for adolescents. However, there is limited information available on adolescents in minority settings such as refugee camps. Existing research studies on adolescent refugees did not apply a gender lens in understanding the differences in the factors associated with the knowledge, perceptions, and utilization of these services among adolescents. Most of the literature either focuses on females without being gender-inclusive or does not gender-disaggregate their data in their research approach. This has led to no clear perspective on the unique factors associated with the knowledge, perceptions, and utilization of SRH services among both female and male adolescents in refugee camps. There is a lack of Mugombwa refugee camp-specific data on adolescents from

intersectional identities that could inform SRH intervention planning and improve implementation strategies to promote the sexual and reproductive health of all adolescents, irrespective of gender in the camp. Therefore, this research study aimed to assess the knowledge, perceptions, and utilization of SRH services among female and male adolescents in Mugombwa camp, Rwanda using gender and intersectional lens.

CHAPTER THREE: METHODS

3.1 Setting

This research study took place in the Mugombwa Refugee camp (shown in Figure 1) in Gisagara District, Southern province of Rwanda. Mugombwa was established in 2016 and is the home of 11,304 refugees, the majority of whom are from the Democratic Republic of the Congo (DRC) (UNHCR, 2021b). Congolese refugees fled the DRC in the mid-1990s due to conflict between government forces and armed groups. The instability of state institutions, chronic violence, and remaining conflict over land ownership and citizenship prevent Congolese refugees from returning home (UNHCR, 2015). Refugees in Mugombwa camp, therefore, depend on support for their basic needs. The UN Refugee Agency (UNHCR), in collaboration with African Humanitarian Action (AHA), works to provide refugees with essential services, including but not limited to sexual and reproductive health services (UNHCR, 2021b). AHA currently provides refugees with contraception, antenatal and postnatal care, and access to safe labor at their health center. Additionally, AHA conducts monthly community-based SRH awareness sessions for refugees and health professionals.

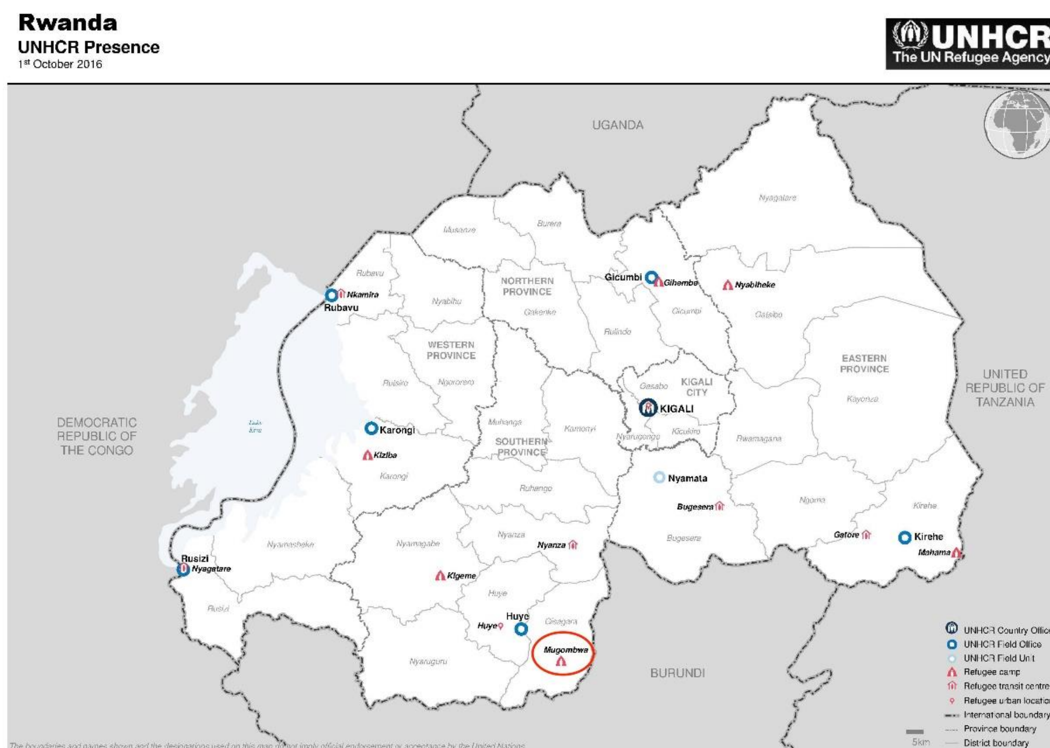

Figure 1: Map demonstrating the location of Mugombwa Refugee camp in Rwanda (UNHCR Rwanda, 2016)

3.2 Design

This study employed a convergent parallel mixed-methods study design, including a quantitative and qualitative study to understand the knowledge, perceptions, and utilization of contraceptive,

HIV, and STI services among adolescents and the barriers, needs, and recommendations of adolescents in the Mugombwa refugee camp.

3.3 Quantitative Study

3.3.1 Sample

The target population group of this study were female and male adolescents between the ages of 10-19 years old in the Mugombwa refugee camp in Rwanda.

Inclusion Criteria

- Female and male adolescents between the ages of 10-19 years
- Living in Mugombwa refugee camp for at least one year

Exclusion Criteria

- Female and male adolescents who could not understand or respond coherently to the questions posed.

3.3.2 Sample Size

To identify the target sample size from unknown population size, we used the formula highlighted below (Smith, 2013)

Sample Size = $[(\text{Z-score})^2 \times P(1-P)] / (\text{margin of error})^2$

Where:

Z-Score = 1.96 at 95% confidence interval

Margin of Error = 5%

P= 50%

Sample Size = $[(1.96)^2 \times 0.5(0.5)] / (0.05)^2$

[(3.8416 x 0.25) / 0.0025]

[0.9604 / 0.0025] = 384.16

Sample Size (n)= **384**

10% of non-response rate was added to the calculated sample size = 38

3.3.3 Sampling Strategy

Participants were selected from two locations where adolescents can be found in the refugee camp. The locations were schools and quarters. Simple random sampling was used to select participants from all eight quarters. The data collectors worked with the Community Health Worker assigned to each quarter to identify households with adolescents aged 10 to 19 years old. Simple random sampling was also used to select participants from the primary and secondary schools using the attendance sheet provided by the school authorities.

3.3.4 Data Collection Procedures

Data collection and entry took place within one month (from 30th May to 15th June 2022). Data was collected from the participants via an interview-based structured questionnaire developed by the principal investigators. The research team worked in collaboration with data collectors recruited by UGHE.

Informed consent was obtained from the parents of participants who were below 18 years old, and assent was obtained from the participants before data was collected from them. Only informed consent was obtained from participants who were 18 years and above. In the event a research participant and or parent was illiterate, the data collector verbally explained the research study and consent form to the participant and acquired signed consent.

Data collectors visited the quarters and administered the questionnaire in Kinyarwanda using an interview style in a private and confidential location. For participants who were interviewed in schools, the school authorities provided a private room to aid the data collection process. Data was collected by using Kobo Collect.

3.3.5 Data Collection Tools

An interview-administered structured 60-question questionnaire with five main sections (refer to Appendix 1) was developed based on available similar literature and used for data collection (Cleland et al., 2001; Guzzo & Hayford, 2018, Tlaye et al., 2018, Zakaria et al., 2020). Section one collected basic demographic information. Section two had 25 closed-ended questions assessing adolescents' knowledge of SRH. Each question had the answer option of "Yes," "No," and "I don't know." Section three had one multiple choice question that assessed participants' knowledge of SRH services available in the camp. Section four had 18 perception statements that participants were assessed based on a 5-point Likert scale, ranging from "strongly agree," "agree," "neither agree nor disagree," "disagree" and "strongly disagree." Section five had 15 closed-ended questions regarding the utilization of contraceptives, STIs, and HIV utilization. Some questions were assessed on a 4-point rating scale, ranging from "Often", "Sometimes", "Rarely," and "Never," and others had the answer option of "Yes" and "No."

The questionnaire was translated into Kinyarwanda, which is the most widely spoken language in the camp, by a native Kinyarwanda speaker from UGHE. The questionnaire was also pretested by having another native Kinyarwanda speaker back-translate the questionnaire for accuracy. Pretesting was conducted among ten adolescents living in the Butaro community.

3.3.6 Measures

The quantitative study had six key measures: knowledge level of sexual and reproductive health, knowledge level of sexual and reproductive health services, perceptions of sexual and reproductive health services, contraceptive utilization, HIV utilization, and STI utilization.

The knowledge level was categorized as “Good Knowledge” if the knowledge score was above the median score and as “Poor Knowledge” if scores were below the median score (Said & Chia, 2017). The median score was used because the knowledge score was not normally distributed.

Perception of SRH services was measured as the percentage of participants choosing “strongly agree/ agree” versus the percentage of respondents choosing “disagree/ strongly disagree” (Decker et al., 2021). The neutral category was omitted from the analysis.

The utilization of contraceptive services was measured as the percentage of participants who have ever had sex that chose “Often/Sometimes” to any of the contraceptive methods and participants who chose “Rarely/Never” to all the contraceptive methods. The utilization of HIV services was measured as the percentage of participants who chose” Yes” or “No” to ever tested for HIV. The utilization of STI services was measured as the percentage of respondents who chose “Yes” or “No” to ever tested for STI.

3.3.7 Data Collectors

Four data collectors (two males and two females) were recruited by UGHE based on their proficiency in English and Kinyarwanda, and experience in data collection among refugees. The data collectors were gender-concordant with the participants in the data collection. The principal investigator trained data collectors for one day on study research objectives, quantitative research methods, use of kobo collect application, psychological first aid, and study instrument.

3.3.9 Data Analysis Procedure

Descriptive statistics (frequency and percentages) were used to summarize all the socio-demographic factors, level of knowledge, perception groups, and utilization of contraceptives, HIV, and STI services. A test of normality was performed for continuous data. The not normally distributed data were expressed using the median and interquartile range.

Chi-square ($\chi 2$) and Fisher exact tests were used to analyze the association between socio-demographic characteristics and key measures.

Logistic regression models were generated to identify the impact of statistically significant demographic factors on the knowledge of SRH, knowledge of SRH services, perception of SRH services, utilization of contraceptive services, utilization of HIV services, and utilization of STI services. This analysis has been used in most of the studies which applied an intersectional lens for quantitative data (Bauer et al., 2021). A backward method of binary logistic regression was used whereby all factors with a P-value less than 0.10 in the Chi-square test for association among the variables were included in the logistic regression. All statistical analyses were conducted using PSPP, with the p-value set at 0.05 and the confidence interval set at 95%.

3.3.10 Data Management

Data was collected using Kobo Collect and then transferred to an Excel document, cleaned, and analyzed using PSPP 1.4.2.0. Data. The data was encrypted and stored in a secure database at UGHE to ensure the protection of the research participants. This data will only be accessed by the research team. Consent and assent forms filled in by research participants and their parents were stored in a safe box at the UGHE administrative office. All data were handled following UGHE IRB regulations, and after ten years, the data will be destroyed in accordance with institutional requirements.

3.4 Qualitative Study

3.4.1 Sample

Inclusion Criteria

- Female and male adolescents between the ages of 10-19 years
- Living in Mugombwa refugee camp for at least one year
- Participated in the quantitative study

Exclusion Criteria

- Female and male adolescents who possess mental health conditions that prevent them from coherently understanding or responding to the questions posed.

3.4.2 Sample Size

Of the participants who answered the questionnaire, 16 female adolescents and 16 male adolescents were purposively selected based on two age groups, 10-14 and 15-19, to participate in one of four focus group discussions.

3.4.3 Sampling Method

Of the participants who answered the questionnaire, 16 female adolescents and 16 male adolescents were purposively selected based on two age groups, 10-14 and 15-19, to participate in one of four focus group discussions. Participants who participated in the FGD were purposively selected by data collectors based on their perceived richness as sources of information regarding adolescent SRH in the refugee camp based on how open they were to respond to the quantitative survey.

3.4.4 Data Collection Procedures

Four FGDs consisting of eight participants each were conducted on the 9th of June 2022. Data collectors acquired informed consent and assent prior to the interviews. In the event a research participant and or parents were illiterate, the data collector verbally explained the research study and consent form to the participant in Kinyarwanda and acquired signed consent. Participants who consented were invited to the location provided by the schools for the focus group discussion. The location was spacious, private, and easily accessible to the participants.

The FGD was conducted using a semi-structured interview guide (refer to Appendix D) with questions on specific themes. Data collectors asked for the permission of the participants to record the discussion, and upon consent, the data was audio recorded.

3.4.5 Data Collection Tool

Data was collected using a semi-structured interview guide that contained ten open-ended questions with probes. The questions were developed from similar studies. The questions were related to the barriers, needs, and improvements of adolescent access to SRH services (refer to Appendix C). The interview guide was developed in English and translated by a native Kinyarwanda speaker from UGHE. The interview guide was also validated by having one native Kinyarwanda speaker back-translate the questionnaire to us for accuracy.

Four data collectors, a mix of men and women concordant with our study population, were trained over a half-day to use the interview guide and conduct the focus group discussions.

The participants were recruited concurrently during quantitative data collection based on having participated in the quantitative survey. Participants were approached in school, and the FGDs were conducted in a private classroom. Consent to conduct the interviews took place during the quantitative survey. Each interview lasted approximately 90 minutes.

3.4.6 Data Collectors

Four data collectors were recruited by UGHE based on their proficiency in English and Kinyarwanda, and experience in data collection among refugees. The data collectors were gender-concordant with the participants in the qualitative portions of data collection. The research team leads trained data collectors on qualitative research methods and data collection procedures, psychological first aid, and study research objectives.

3.4.7 Data Management

The focus group discussions were audio-recorded with permission from participants. Each participant was assigned a participant identification number so that names were not present in the audio recordings or transcripts. The audio files were uploaded to one drive, and only principal investigators teams had access to it. Four data collectors transcribed and translated the audio files from Kinyarwanda into English into a password-protected and encrypted word document. All identifiable data was removed in accordance with the Safe Habor Method (Gupta et al., 2021).

Once the interviews were translated, the protected document was sent to the principal investigators for thematic analysis. All data generated from this study were handled in accordance with the General Data Protection Regulation (GDPR), Rwandan Data Protection Law, and the UNHCR Data Protection policy (Data Guidance, 2021; GDPR.EU, 2018.).

3.4.8 Data Analysis Procedures

The principal investigators reviewed the translated transcripts and created a codebook that guided the creation of themes based on our objectives, quantitative data, and qualitative guide (Ivanova et al., 2018).

The data were coded manually using both inductive and deductive coding. To ensure an intersectionality informed analysis, a two-step hybrid approach developed by Sirma Bilge was used to analyze this data (Hunting, 2014). The first step concentrated on open and axial coding of qualitative data, with the goal of identifying emergent themes, patterns, and connections. The second step deductively reinterpreted the data using an intersectionality-focused analysis (Hunting, 2014).

3.5 Ethical Considerations

This study was approved by the University of Global Health Equity IRB (*UGHE-IRB/2022/013)* and the Rwandan Ministry of Health. Detailed ethical considerations are in Appendix 8.

CHAPTER FOUR: RESULTS

4.1 Quantitative Findings

Face-to-face surveys were conducted with 422 participants to answer the following objectives: 1) adolescents' level of SRH knowledge; 2) adolescents' level of knowledge of services available; 3) perceptions of adolescents towards SRH; and 4) utilization of contraceptives, STI and HIV services.

4.1.1 Socio-Demographic Information

The socio-demographic characteristics of the study participants are presented in Table 1, disaggregated by gender. This study was comprised of a total of 422 respondents, with 224 (53%) females and 198 (47%) males. The mean age of the respondents was 15.7 (±3.1), and 69.2% of the participants were aged between 15-19 years. About 60% of female adolescents were in secondary school, and 66.2% of male adolescents were in secondary school. Majority (84.8%) of females and 89.4% of males were in-school adolescents. In terms of number of children, more (7.1%) females had one child compared to males (2.5%). More (7.1%) males were living with disability compared to females (1.8%).

Table 1: *Socio-Demographic Information*

Variable	Categories	Male 198 (47%)	Female 224 (53%)	Total N=422
Age in years (15.7 ± 3.1)	10-14 years	52 (26.3%)	78 (34.8%)	130 (30.8%)
	15-19 years	146 (73.7%)	146 (65.2%)	292 (69.2%)
Highest level of education	No formal education	1 (0.5%)	1 (0.4%)	2 (0.5%)
	Primary	66 (33.3%)	89 (39.7%)	155 (36.7%)
	Secondary	131 (66.2%)	134 (59.8%)	265 (62.8%)
Marital Status	Single	198 (100%)	224 (100%)	422 (100%)
Number of children	0	193 (97.5%)	208 (92.9%)	401 (95.0%)
	1	5 (2.5%)	16 (7.1%)	21 (5.0%)
Father's Highest level of education	No formal education	58 (29.3%)	69 (30.8%)	127 (30.1%)
	Primary	54 (27.3%)	43 (19.2%)	97 (23.0%)
	Secondary	50 (25.3%)	50 (22.3%)	100 (23.7%)
	Tertiary	1 (0.5%)	5 (2.2%)	6 (1.4%)
	I don't know	35 (17.7%)	57 (25.4%)	92 (21.8%)
Mother's Highest level of education	No formal education	76 (38.4%)	96 (42.9%)	172 (40.8%)
	Primary	67 (33.8%)	69 (30.8%)	136 (32.2%)
	Secondary	35 (17.7%)	32 (14.3%)	67 (15.9%)
	Tertiary	1 (0.5%)	0 (0.0%)	1 (0.2%)
	I don't know	19 (9.6%)	27 (12.1%)	46 (10.9%)
Living with Disability	No disability	184 (92.9%)	220 (98.2%)	404 (95.7%)
	With disability	14 (7.1%)	4 (1.8%)	18 (4.3%)
School status	In-school	177 (89.4%)	190 (84.8%)	367 (87.0%)
	Out-of-school	21 (10.6%)	34 (15.2%)	55 (13.0%)

4.1.2 Knowledge of Sexual and Reproductive Health

The level of knowledge of sexual and reproductive health among male and female participants was assessed. The overall median knowledge score was 64%, with 57.8% of the participants having high sexual reproductive health knowledge levels. There was a significant difference in knowledge level between males and females, with 63.6% of males having high knowledge of sexual reproductive health compared to 52.7% of females (p=0.023) (Table 2 and Fig 2).

The five questions that over 90% of participants correctly answered were "during puberty females start menstruation (95.7%), "during puberty males grow hair under their armpits and genitals" (94.8%), "during puberty females notice the growth of pubic hair" (94.1%), "menstruation is a normal healthy process" (93.4%) and "During puberty males' voices deepen" (91.7%). Three questions that only less than 10% of the participants answered correctly were: "In order for Depo-Provera (injection) to be effective, it should be given every six months" (4.3%), "during puberty, females need to have sexual intercourse" (6.6%), and "female condoms are 20% effective in preventing some STIs and HIV" (8.1%).

Seven questions showed a significant difference in the percentage answered correctly between males and females, they were: "Menstruation is a normal healthy process (p= 0.007), "During puberty, males experience wet dreams" (p=0.008), "female and male condoms can be used more than once" (p= 0.001), "male condoms are 98% effective in preventing some STIs and HIV" (p=0.005), "female condoms are used by inserting a small ring inside the vagina" (p=0.004), "when putting on a male condom it is important to have it fit tightly leaving no space at the tip" (p=0.001), "a female is safe from getting pregnant during her period" (0.009). More (56.1%) males knew that female condoms are used by inserting a small ring inside the vagina compared to females (42.0%). More (96.4%) females knew that menstruation was a normal healthy process compared to males (89.9%).

Table 2: Knowledge of Sexual and Reproductive Health Among Male and Female Adolescents

Knowledge Questions	**Correct Responses**			
	Male (198) n (%)	**Female (224) n (%)**	**Total (422) n (%)**	**p-value**
During puberty, females start menstruation	190 (96.0%)	214 (95.5%)	404 (95.7%)	0.830
During puberty, males grow hair under their armpits and genitals	187 (94.4%)	213 (95.1%)	400 (94.8%)	0.766
During puberty females notice the growth of pubic hair	185 (93.4%)	212 (94.6%)	397 (94.1%)	0.600
Menstruation is a normal healthy process	178 (89.9%)	216 (96.4%)	394 (93.4%)	0.007*
During puberty males' voices deepen	184 (92.9%)	203 (90.6%)	387 (91.7%)	0.392
During puberty males experience wet dreams	186 (93.9%)	193 (86.2%)	379 (89.8%)	0.008*
There is a test that determines whether one has HIV or not	177 (89.4%)	200 (89.3%)	377 (89.3%	0.971
Ulcer/sores in the genital area are a symptom of genital herpes	172 (86.9%)	184 (82.1%)	356 (84.4%)	0.182
HIV virus spreads from an infected person's coughing and sneezing	166 (83.8%)	185 (82.6%)	351(83.2%)	0.732
Female and male condoms can be used more than once	175 (88.4%)	170 (75.9%)	345 (81.8%)	0.001*

It is possible to cure AIDS	159 (80.3%)	181 (80.8%)	340 (80.6%)	0.897
Male condoms are 98% effective in preventing some STIs and HIV	168 (84.8%)	165 (73.7%)	333 (78.9%)	0.005*
Discharge from the penis is a symptom of a sexually transmitted infection in a male	162 (81.8%)	170 (75.9%)	332 (78.7%)	0.138
Contraceptive pills are effective for pregnancy prevention	146 (73.7%)	163 (72.8%)	309 (73.2%)	0.822
IUDs are long-term contraceptives	98 (49.5%)	117 (52.2%)	215 (50.9%)	0.575
A person with HIV always looks lean or unhealthy	94 (47.5%)	117 (52.2%)	211 (50.0%)	0.329
Female condoms are used by inserting a small ring inside the vagina	111 (56.1%)	94 (42.0%)	205 (48.6%)	0.004*
Emergency contraceptive pills are the most effective when taken within 72 hours of intercourse	96 (48.5%)	97 (43.3%)	193 (45.7%)	0.286
Birth control pills are effective even if you miss taking them for 2 or 3 days in a row	89 (44.9%)	84 (37.5%)	173 (41.0%)	0.120
When putting on a male condom, it is important to have it fit tightly, leaving no space at the tip	81 (40.9%)	46 (20.5%)	127 (30.1%)	0.001*
Even if a male pulls out before he ejaculates (even if ejaculation occurs outside of the woman's body), it is still possible for the woman to get pregnant	41 (20.7%)	38 (17.0%)	79 (18.7%)	0.325
A female is safe from getting pregnant during her period	47 (23.7%)	31 (13.8%)	78 (18.5%)	0.009*
Female condoms are 20% effective in preventing some STIs and HIV	17 (8.6%)	17 (7.6%)	34 (8.1%)	0.707
During puberty, females need to have sexual intercourse	12 (6.6%)	15 (6.7%)	28 (6.6%)	0.957
In order for Depo-Provera (injection) to be effective, it should be given every six months	7 (3.5%)	11 (4.9%)	18 (4.3%)	0.485
Overall SRH knowledge				
Median	68%	64%	64%	NA
Low (below median)	36.4%	47.3%	42.2%	0.023
High (above median)	63.6%	52.7%	57.8%	

* Significant at $p<0.05$

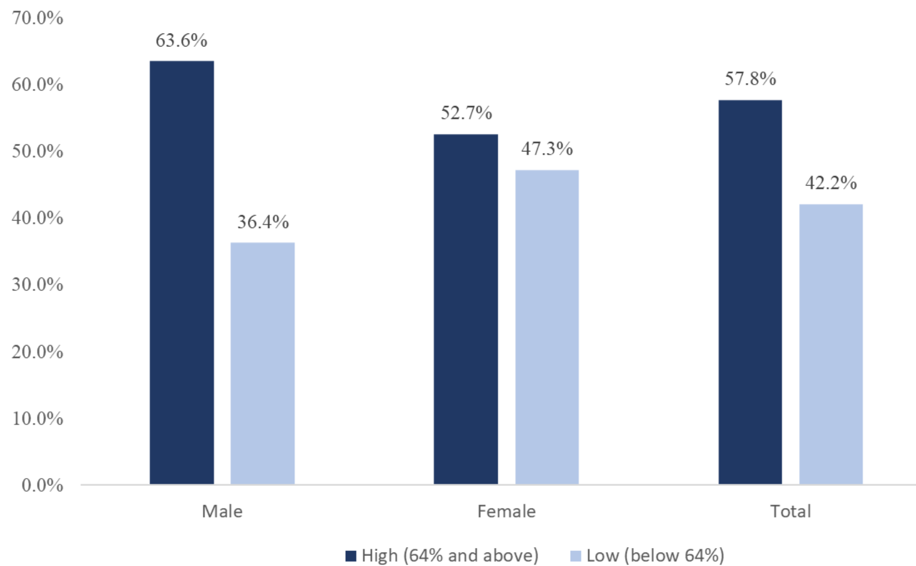

Figure 2: *Low and High Level of Knowledge of Sexual Reproductive Health Among Male and Female Participants*

4.1.3 Knowledge of Available Sexual and Reproductive Health Services in the Mugombwa Refugee Camp

The median knowledge score of available sexual and reproductive health services in the camp was 90.5%. Out of all participants, 47.2% of adolescents had knowledge below the median score (<90.5%), and 52.8% had knowledge levels above the median score (> 90.5%) of service availability (Table 3 and Fig 3). There was no statistically significant difference between male and female adolescent knowledge of SRH services available in the camp (p=0.942). Over 79.8% of the participants knew about information and education related services; Information and education related to sex (87.4%), Information and education related to contraceptive methods available (87.0%), general information about STIs (82.7%), and Information and education related to how to use contraceptive methods (79.9%). In terms of contraceptive methods, adolescents were most aware of male condoms (79.1%) and least aware of IUDs (38.2%). Regarding STI and HIV counseling, testing, and treatment, participants were least aware of HIV treatment (48.3%) and most aware of HIV testing (79.1%). P-values have been presented to demonstrate the lack of a statistically significant difference between males and females knowledge of available SRH services.

Table 3: Knowledge of Available Sexual and Reproductive Health Services in the Mugombwa Refugee Camp

Sexual and Reproductive Health Services in Mugombwa Camp	**Correct Responses**			
	Male (N=198) n (%)	**Female (N=224) n (%)**	**Total(N=422) n (%)**	**P-value**
Information and education related to sex	171 (86.4%)	198 (88.4%)	369 (87.4%)	0.530
Information and education related to contraceptive methods available	172 (86.9%)	195 (87.1%)	367 (87.0%)	0.955

General Information about HIV		159 (80.3%)	195 (87.1%)	354 (83.9%)	0.060
General Information about STIs		165 (83.3%)	184 (82.1%)	349 (82.7%)	0.747
Information on how to prevent HIV		160 (80.8%)	182 (81.3%)	342 (81.0%)	0.908
Information and education related to how to use contraceptive methods		156 (78.8%)	181 (80.8%)	337 (79.9%)	0.606
HIV Testing		163 (82.3%)	171 (76.3%)	334 (79.1%)	0.131
Male Condom		158 (79.8%)	176 (78.6%)	344 (79.1%)	0.757
Information on how to prevent STIs		151 (76.3%)	178 (79.5%)	329 (78.0%)	0.428
Birth Control Pills		153 (77.3%)	170 (75.9%)	323 (76.55%)	0.739
STI Counseling		146 (73.7%)	166 (74.1%)	312 (73.9%)	0.931
Injection		151 (76.3%)	159 (71.0%)	310 (73.5%)	0.220
Emergency pills		141 (71.2%)	162 (72.3%)	303 (71.8%)	0.800
STI Treatment		149 (75.3%)	154 (68.8%)	303 (71.8%)	0.138
STI Testing		145 (73.2%)	157 (70.1%)	302 (71.6%)	0.475
Implant		133 (67.2%)	155 (69.2%)	288 (68.2%)	0.656
HIV Counseling		137 (69.2%)	145 (64.7%)	282 (66.8%)	0.332
Female Condom		129 (65.2%)	144 (64.3%)	273 (64.7%)	0.853
Traditional method		122 (61.6%)	139 (62.1%)	261 (61.8%)	0.926
HIV Treatment		98 (49.5%)	106 (47.3%)	204 (48.3%)	0.656
Intra-Uterine Device (IUD)		77 (38.9%)	84 (37.5%)	161 (38.2%)	0.769
Overall SRH service knowledge	Median	90.5%	90.5%	90.5%	NA
	Below median	47%	47.3%	47.2%	0.942
	Above median	53%	52.7%	52.8%	

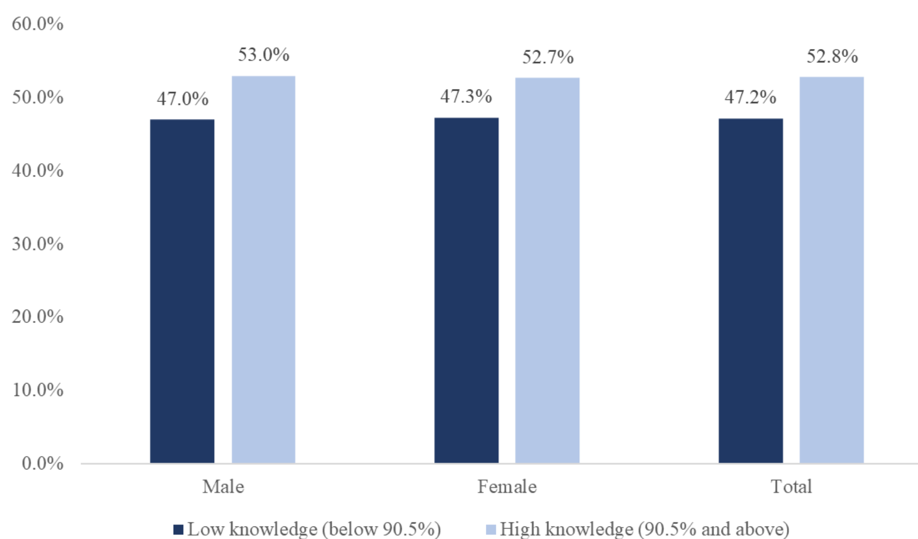

Figure 3: Low and High Level of Knowledge of Available SRH Services in Mugombwa Camp Among Female and Male Adolescents

4.1.4. Perceptions of Sexual and Reproductive Health Services

Participants' perceptions of sexual and reproductive health topics and services were assessed (Table 4). The majority of both male (86.4%) and female (87.5%) adolescents strongly agreed that they were at risk of getting pregnant if they didn't use contraception. However, the remaining 13.6% of male adolescents and 12.5% of female adolescents either didn't have an opinion or disagreed. Similarly, 95.5% of female adolescents and 94.9% of male adolescents agreed that they are at risk of dying from an STI.

The majority of adolescents believe the SRH service centers provide youth-related services (69%), that they are affordable (75.8%), provide enough confidentiality (85.3%), and are clear/ helpful (88.4%). Furthermore, the data reveals that the vast majority of adolescents feel comfortable asking questions about preventing pregnancy, acquiring contraceptives, and seeking care from service providers. However, 41.7% of adolescents felt service providers are judgmental of people their age seeking services. The analysis also revealed that almost all adolescents believe both girls (94.5%) and boys (95.9%) can ask for condom use. However, 23.2% of adolescents felt it wasn't okay for female adolescents to use contraceptives, and 25.6% thought it wasn't okay for male adolescents to use contraceptives. P-values are presented to demonstrate the lack of any statistically significant difference between male and female responses.

Table 4: Perceptions of Sexual and Reproductive Health

PERCEPTIONS OF SRH SERVICES		Male n (%)	Female n (%)	Total n (%)	P- value
I am at risk of getting pregnant if I do not use contraceptive services	(Strongly) Agree	171 (86.4%)	196 (87.5%)	367 (87.0%)	0.575
	(Strongly) disagree	18 (9.1%)	15 (6.7%)	33 (7.8%)	
I am at risk of dying from an STI	(Strongly) Agree	188 (94.9%	214 (95.5%)	402 (95.3%	0.386
	(Strongly) disagree	6 (3.0%)	3 (1.3%)	9 (2.1%)	
It is okay for female adolescents to use contraceptives	(Strongly) Agree	143 (72.2%)	159 (71.0%)	302 (71.6%)	0.960
	(Strongly) disagree	45 (22.7%)	53 (23.7%)	98 (23.2%)	
It is okay for male adolescents to use contraceptives	(Strongly) Agree	140 (70.7%)	155 (69.2%)	295 (69.9%	0.666
	(Strongly) disagree	51 (25.8%)	57 (25.4%)	108 (25.6%)	
The SRH services centers don't include adolescent-related resources	(Strongly) Agree	58 (29.3%)	57 (25.4%)	115 (27.3%)	0.541
	(Strongly) disagree	134 (67.7%)	157 (70.1%)	291 (69.0%)	
SRH services are not affordable for me	(Strongly) Agree	47 (23.7%)	46 (20.5%)	93 (22%)	0.545
	(Strongly) disagree	148 (74.7%)	172 (76.8%)	320 (75.8%)	
The health facility has enough privacy and confidentiality	(Strongly) Agree	165 (83.3%)	195 (87.1%)	360 (85.3%	0.472
	(Strongly) disagree	30 (15.2%)	25 (11.2%)	55 (13%)	
Girls can ask for condom use	(Strongly) Agree	190 (96.0%)	209 (93.3%)	399 (94.5%)	0.385
	(Strongly) disagree	6 (3.0%)	9 (4.0%)	15 (3.6%)	
Boys can ask for condom use	(Strongly) Agree	191 (96.5%)	214 (95.5%)	405 (96%)	0.883
	(Strongly) disagree	4 (2.0%)	6 (2.7%)	10 (2.4%)	
I feel comfortable acquiring contraceptives	(Strongly) Agree	176 (88.9%)	187 (83.5%)	363 (86%)	0.171
	(Strongly) disagree	16 (8.1%)	31 (13.8%)	47 (11.1%)	
I feel comfortable asking questions about preventing pregnancy	(Strongly) Agree	188 (94.9%)	207 (92.4%)	395 (93.6%)	0.466
	(Strongly) disagree	6 (3.0%)	8 (3.6%)	14 (3.3%)	
HIV testing services are only for sexually active individuals	(Strongly) Agree	124 (62.6%)	131 (58.5%)	255 (60.4%	0.421
	(Strongly) disagree	68 (34.3%)	81 (36.2%)	149 (35.4%)	
I feel comfortable seeking care from service providers	(Strongly) Agree	190 (96.0%)	207 (92.4%)	397 (94.1%	0.279
	(Strongly) disagree	3 (1.5%)	8 (3.6%)	11 (2.6%)	
Married people are the only people that need contraceptives	(Strongly) Agree	74 (37.4%)	74 (33.0%)	148 (35.1%	0.495
	(Strongly) disagree	119 (60.1%)	141 (62.9%)	260 (61.6%)	
	(Strongly) Agree	92 (46.5%)	84 (37.5%)	176 (41.7%)	0.174

Service providers are judgmental when they see people of my age	(Strongly) disagree	99 (50.0%)	130 (58.0%)	229 (54.3%)	
The information provided from camp services is not clear/helpful	(Strongly) Agree	20 (10.1%)	23 (10.3%)	43 (10.2%)	0.325
	(Strongly) disagree	177 (89.4%)	196 (87.5%)	373 (88.4%)	
Service providers speak language that I do not understand	(Strongly) Agree	13 (6.6%)	11 (4.9%)	24 (5.7%)	0.526
	(Strongly) disagree	184 (92.9%)	210 (93.8%)	394 (93.4%)	
Accessing SRH services is against my religious belief	(Strongly) Agree	28 (14.1%)	36 (16.1%)	64 (15.2%	0.767
	(Strongly) disagree	164 (82.8%)	183 (81.7%)	347 (82.2%)	

4.1.5 Utilization of Contraceptives by Methods Among Participants Who Have Ever Had Sex

The utilization of contraceptive methods among male and female participants who have ever had sex and who had sex in the last three months was assessed (Table 5). Of the female participants who have ever had sex, the top two most used contraceptive methods were traditional methods (43.6%) and male condoms (21.8%). Overall, the majority of females had never used an intrauterine device (IUD), implant, or injection. The most common contraceptive method used by males was the male condom (55.8%).

Table 5: *Utilization of Contraceptives by Methods Among Participants Who Have Ever Had Sex*

Method (Females)	**Frequency of Use**	***Ever Had Sex (n=55)***
Traditional Method	Often/Sometimes	24 (43.6%)
	Rarely/Never	31 (56.4%)
Male condom	Often/Sometimes	12 (21.8%)
	Rarely/Never	43 (78.2%)
Birth Control Pill	Often/Sometimes	11 (20.0%)
	Rarely/Never	44 (80.0%)
Intrauterine device	Often/Sometimes	3 (5.5%)
	Rarely/Never	52 (94.5%)
Implants	Often/Sometimes	2 (3.6%)
	Rarely/Never	53 (96.4%)
Female condom	Often/Sometimes	1 (1.8%)
	Rarely/Never	54 (98.2%)
Injection	Often/Sometimes	0 (0.0%)
	Rarely/Never	55 (100.0%)
Method (Males)		***Ever Had Sex(n=86)***
Male condom	Often/Sometimes	48 (55.8%)
	Rarely/Never	38 (44.2%)
Traditional Method	Often/Sometimes	16 (18.6%)
	Rarely/Never	70 (81.4%)

4.1.6 Overall Level of Utilization of Contraceptives Methods Among Adolescents Who Have Ever Had Sex

More than one-third (38.3%) of the participants who have ever had sex have ever utilized contraceptive methods. More males (64.0%) compared to females (58.2%) have ever utilized contraceptive methods, and the difference was not statistically significant (p=0.492) (Fig 4).

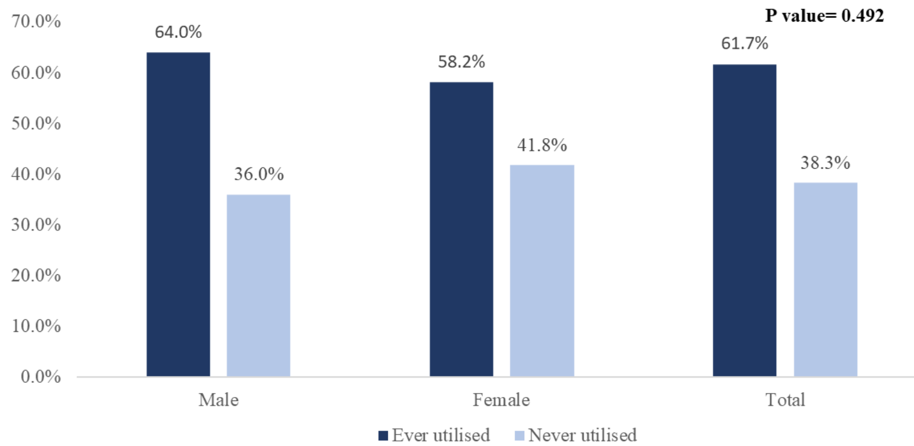

Figure 4: Overall Level of Utilization of Contraceptives Among Adolescents Who Have Ever Had Sex

4.1.7 Reasons for the Utilization of Contraceptive Services

The most cited reason among female participants for using any form of contraceptive was to prevent pregnancy (Table 6). The other most common reasons for females using contraceptives, in descending order, were because they are sexually active and want to enjoy sexual pleasure. The most cited reason for male participants using any form of contraceptive was to also prevent pregnancy, followed by the desire to avoid STDs and because they were sexually active (Table 6).

Of the female participants that have used the birth control pill, 81.8% stated they used it to prevent pregnancy, and 100% cited using female condoms because sometimes a boy can refuse to wear his condom and she prefers to put on hers. More than half (58.3%) of the male participants used a male condom to prevent pregnancy, and 31.3% used it to protect themselves from HIV/STIs (Table 6).

Table 6: Reasons for Utilizing Contraceptive Services

Female	**Overall**	**Pill (11)**	**IUD (3)**	**Implant (2)**	**Female condom (1)**	**Traditional method (24)**	**Male condom (12)**
To prevent pregnancy	44	9 (81.8%)	3 (100 %)	2 (100%)	-	19 (79.2%)	11 (91.7%)
I am sexually active	11	3 (27.3%)	-	-	-	3 (12.5%)	5 (41.7%)
To enjoy sexual pleasure	8	1 (9.1%)	-	-	-	5 (20.8%)	2 (16.7%)
Sometimes a boy can refuse to wear his condom, and I prefer to put on mine	1	-	-	-	1 (100%)	-	-
Other	3	-	-	-	-	3 (12.5%)	-
Male	**Overall**	**Pill**	**IUD**	**Implant**	**Female condom**	**Traditional method (9)**	**Male condom (48)**
To prevent pregnancy	34	-	-	-	-	6 (66.7%)	28 (58.3%)
To protect myself from HIV/STIs	17	-	-	-	-	2 (22.2%)	15 (31.3%)
I am sexually active	11	-	-	-	-	2 (22.2%)	9 (18.8%)
To enjoy sexual pleasure	7	-	-	-	-	3 (33.3%)	4 (8.0%)
Others	5	-	-	-	-	3 (33.3%)	2 (4.0%)

1. *Traditional Method Other Reasons for Females: To treat painful menstruation; Don't like using condoms; Period is irregular*
2. *Traditional Method Other Reasons for Males: Fear harmful consequences of other methods; Don't know how to use a condom; Not aware of other contraceptives*
3. *Male Condom Other Reasons: It is the best option; I use it when my GF is on her period*

4.1.8 Reasons for Not Utilizing Contraceptive Services

Overall, the most frequently cited reason among both female and male adolescents for not utilizing any contraceptive method was because due to fear of side effects (n= 98) (Table 7), followed by stating they were not sexually active (n=23).

Table 7: Reasons for not Utilizing Contraceptive Methods

Female	**Over-all**	**Pill (44)**	**IUD (52)**	**Injection (55)**	**Implant (53)**	**Female Condom (42)**	**Traditional Method (31)**	**Male Condom (43)**
Fear of side effects	98	13 (29.5%)	18 (34.6%)	22 (40%)	23(43.4%)	12 (28.6%)	10 (32.3%)	-
I am not sexually active	23	8 (18.2%)	3 (5.8%)	4 (7.3%)	4 (7.5%)	-	1 (3.2%)	3 (7.0%)
Not willing to use	6	4 (9.1%)	-	2 (3.6%)	-	-	-	-
I use another method	11	4 (9.1%)	-	2 (3.6%)	-	-	5 (16.1%)	-
Unaware of method	20	4 (9.1%)	11 (21.2%)	1 (1.8%)	5 (9.4%)	-	1 (3.2%)	-
Don't know how to use it	10	-	-	-	-	10 (23.8%)		-
Prefer partner using male condom	5	-	-	-	-	5 (11.9%)		-
Not available	2	-	-	-	-	2 (4.8%)		-

Irregular monthly period	9	-	-	-	-	-	9 (29.0%)	-
Method is for single mothers and married	7	3 (6.8%)	2 (3.8%)	1 (1.8%)	1 (1.9%)	-	-	-
Other	19	4 (9.1%)	3 (5.8%)	4 (7.3%)	2 (3.8%)	3 (7.1%)	3 (9.7%)	-
Male	**Over all**	**Pill**	**IUD**		**Implant**	**Female condom**	**Traditional method (70)**	**Male condom (38)**
Fear of side effects	34	-	-	-	-	-	24 (34.3%)	10 (26.3%)
I am not sexually active	20	-	-	-	-	-	8 (11.4%)	12 (31.6%)
Unaware of the method	12	-	-	-	-	-	12 (17.1%)	-
Service is only for female	7	-	-	-	-	-	7 (10.0%)	-
Prefer other methods	6	-	-	-	-		6 (8.6%)	-
Don’t trust it	2	-	-	-	-	-	2 (2.9%)	-
I was too young to remember	2	-	-	-	-	-	2 (2.9%)	-
Others	13	-	-	-	-	-	5 (7.1%)	8 (21.1%)

1. *Birth Control Pill Other Reasons: I had non-consensual sex; it might not be effective; I don’t have a child; I am too young*
2. *IUD Other Reasons: I am too young to use it; Not willing to use it; I don’t need to use it*
3. *Injection Other Reasons: Health workers were not willing to provide service; You can't take it if you haven’t given birth before; I am too young to use it; I was told to come back in my monthly period*
4. *Implant Other Reasons: I don’t often have sex with boys; I wasn’t interested in this method;*
5. *Male Condom Other Reasons: I trust my partner; Male condom doesn’t fit me; I have unprotected sex with my partner; I had non-consensual sex; I was 6, and I didn’t know how to use the condom; I was young and didn’t know how to use it; I am too young to use it; It happened when I was young, and I wasn’t aware of using a condom*
6. *Female Condom Other Reasons: I wasn’t interested in using female condoms; It is not necessary; This service is very new in our community*
7. *Traditional Method Other Reasons for Females: I don’t have a period currently; I Don’t trust it*
8. *Traditional Method Other Reasons for Males: I don’t know how to use it; I don’t like it; I was too young to remember; It’s difficult; I haven’t had sex in the last three months*

4.1.9 Utilization of HIV Services

Table 8 represents the utilization of HIV services, including receiving information and education on HIV and HIV testing. Data was not reported for utilizing HIV treatment since no participants reported seeking treatment for HIV. Almost all adolescents (91.0%) reported being willing to know their HIV status, and 65.4% had received general education on HIV in the last three months. For HIV testing, 48.1% of participants had ever tested for HIV, and 24.2% had tested for HIV in the last three months.

Table 6: *Utilization of HIV Services Among Female and Male Adolescents*

HIV Services		Gender			P-Value
		Male n (%)	Female n (%)	Total n (%)	
Ever received general education and information on HIV in the last three months	Yes	137 (69.2%)	139 (62.1%)	276 (65.4%)	0.124
	No	61 (30.8%)	85 (37.9%)	146 (34.6%)	
Willing to know HIV status	Yes	182 (91.9%)	202 (90.2%)	384 (91.0%)	0.533
	No	16 (8.1%)	22 (9.8%)	38 (9.0%)	
Ever tested for HIV	Yes	100 (50.5%)	103 (46.0%)	203 (48.1%)	0.353
	No	98 (49.5%)	121 (54.0%)	219 (51.9%)	
Tested for HIV in the last three months	Yes	55 (27.8%)	47 (21.0%)	102 (24.2%)	0.104
	No	143 (72.2%)	177 (79.0%)	320 (75.8%)	

4.1.10 Reasons for not utilizing HIV Testing

The most frequently cited reason for not utilizing HIV testing for both females (86.8%) and males (91.8%) was not being at-risk for infection, followed by never having sex before (Table 9).

Table 7: Reasons for Not Utilizing HIV Testing

Reasons	Male (N=98) n (%)	Female (N=121) n (%)
I have never been at risk for infection	90 (91.8%)	105 (86.8%)
Never had sex before	11(11.2%)	27 (22.3%)
I don't know where to get tested	8 (8.2%)	15 (12.4%)
I prefer not to know if I am infected	11 (11.2%)	10 (8.3%)
I am afraid of blood and needles	11 (11.2%)	4 (3.3%)
I trust myself	8 (8.2%)	8 (6.6%)
Timing of HIV testing	5 (5.1%)	4 (3.3%)
I am afraid that others would know my status	6 (6.1%)	2 (1.7%)
Parents won't give permission	4 (4.1%)	5 (4.1%)
Service not available	3 (3.1%)	2 (1.7%)
Lack of confidentiality	0 (0.0%)	3 (3.3%)
I use condom	3 (3.1%)	0 (0.0%)
I am too young	2 (2.0%)	1 (0.8%)

4.1.11 Reasons for Utilizing HIV Testing

The most reported reason for utilizing HIV services by the female (44.7%) and male (53.0%) participants was to know their status (Table 10)

Table 8: Reasons for Utilizing HIV Testing

Reasons	Male (N=100) n (%)	Female (N=103) n (%)
To know my status	53 (53.0%)	46 (44.7%)
Perceived risk of HIV	2 (2.0%)	1 (0.9%)
Asked to be tested because of sickness	-	1 (0.9%)

4.1.12 Utilization of STI Services

The utilization of STI services among female and male adolescents is presented in Table 11. More than half of females (57.6%) and male adolescents (65.7%) had ever received information about STIs in the last three months. In regard to STI testing, more males (27.3%) had ever been tested for STIs as compared to females (19.2%) (p = 0.045). Between male and female adolescents, 12.3% had been tested for STIs in the last three months, of which 8.7% of females were being treated for an STI.

Table 9: Utilization of STI Services Among Female and Male Adolescents

STI Services		Gender		Total	
		Male	Female	N (%)	P-Value
Ever received general education and information on STIs in the last three months	Yes	130 (65.7%)	129 (57.6%)	259 (61.3%)	0.089
	No	68 (34.3%)	95 (42.4%)	163 (38.6%)	
Ever tested for STI	Yes	54 (27.3%)	43 (19.2%)	97 (30.0%)	0.045*
	No	144 (72.7%)	181 (80.8%)	325 (77.0%)	
Tested for STI in the last three months	Yes	29 (14.6%)	23 (10.3%)	52 (12.3%)	0.172
	No	169 (85.4%)	201 (89.7%)	370 (87.7%)	
Being treated for an STI	Yes	0 (0.0%)	2 (8.7%)	2 (3.8%)	0.182
	No	29 (100.0)	21 (91.3%)	50 (96.2%)	

* Significant at $p<0.05$

4.1.13 Reasons for Utilizing STI Testing

The most frequently cited reason for using STI testing for both males (53.7%) and females (53.5%) was that their partner had an STI. The second most cited reason for males (42.6%) and females (27.9%) was to check their health status (Table 12)

Table 10: Reasons for Utilizing STI Testing

Reasons for STI Testing	Male (N=54) n (%)	Female (N=43) n (%)
My partner had an STI	29 (53.7%)	23 (53.5%)
To check their status	23 (42.6%)	12 (27.9%)
I had symptoms of an STI	4 (7.4%)	5 (11.6%)
Because I had sex	0 (0.0%)	1 (2.3%)
Because I have a friend who had an STI	0 (0.0%)	1 (2.3%)
I want to protect my life	0 (0.0%)	2 (4.7%)
Because I had unprotected sex	1 (1.9%)	0 (0.0%)
Community mobilizer encouraged	1 (1.9%)	0 (0.0%)
To check if I'm HIV negative	0 (0.0%)	1 (2.3%)

4.1.14 Reasons for Not Utilizing STI testing

Of the 144 males and 181 females that had never utilized STI testing, the most frequently cited reason for not utilizing STI testing among both male (9.0%) and female (10.5%) adolescents were not having had sex yet (Table 13).

Table 11: Reasons for not Utilizing STI Testing

Reasons for not utilizing STI testing	**Male (N=144) n (%)**	**Female (N=181) n (%)**
I haven't had sex	13 (9.0%)	19 (10.5%)
I already tested for HIV	2 (1.4%)	6 (3.3%)
I don't have time	3 (2.1%)	6 (3.3%)
The medical provider did not suggest it	4 (2.8%)	2 (1.1%)
Fear of being positive	1 (0.7%)	3 (1.7%)
I haven't had unprotected sex	2 (1.4%)	1 (0.6%)
I trust myself	2 (1.4%)	1 (0.6%)
I don't know about it	2 (1.4%)	1 (0.6%)
I haven't had sex in the last three months	1 (0.7%)	2 (1.1%)
Stigma	2 (1.4%)	0 (0.0%)
I am a child, and I can't go to the hospital for HIV testing	1 (0.7%)	1 (0.6%)
I was not around the camp	0 (0.0%)	1 (0.6%)
I am not a sex worker	0 (0.0%)	1 (0.6%)
I don't get tested	1 (0.7%)	0 (0.0%)
There are no signs	1 (0.7%)	0 (0.0%)

4.1.15 Utilization of SRH Services

Utilization of sexual and reproductive health services was determined by participants who have ever utilized at least one of the SRH services, namely contraceptive, STI, and HIV services. More than one-third (43.9%) of males have never utilized SRH services, and half (50.0%) of females have never utilized the services. There was no significant difference in the utilization of SRH services among both genders (p=0.213) (Figure 5).

P value= 0.213

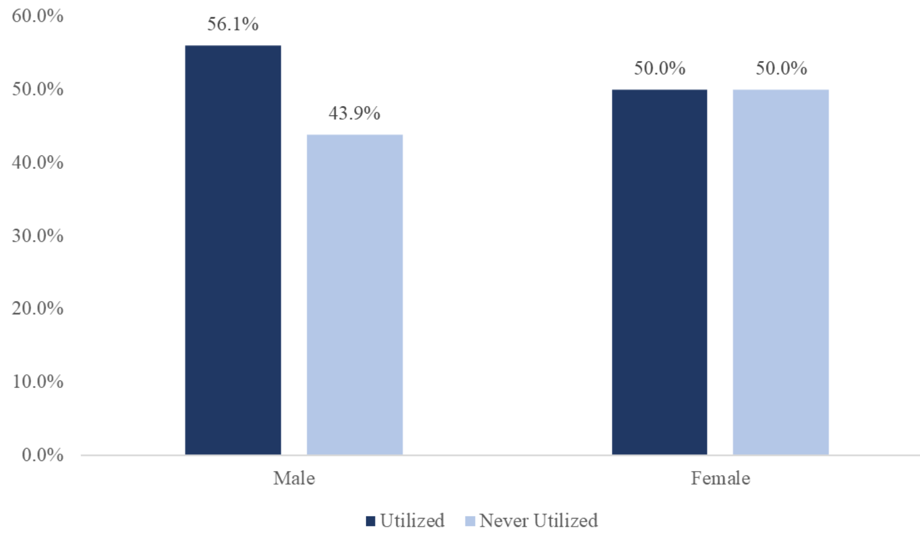

Figure 5: Male and Female Utilization of SRH services

4.1.16 Demographic Factors Associated with Level of SRH Knowledge

Table 14 demonstrates the factors associated with the level of sexual and reproductive health knowledge disaggregated by gender. For males, three factors significantly associated with knowledge level were age (p<0.001), level of education (p <0.001), and whether they had ever had sexual intercourse (p<0.001). For females, six factors were found to be significantly associated with knowledge level: age, level of education, number of children, disability status, school status, and whether they had ever engaged in sexual intercourse, all with p <0.001.

Table 12: Gender Disaggregation of Association of Demographic Factors with Level of SRH Knowledge (χ2 test)

Demographics	Males			Females		
	Low SRH Knowledge	High SRH Knowledge	p-value	Low SRH Knowledge	High SRH Knowledge	p-value
Age (years)			<0.001*			<0.001*
10-14	36 (69.2%)	16 (30.8%)		56 (71.8%	22 (28.2%)	
15-19	36 (24.7%)	110 (75.3%)		50 (34.2%)	96 (65.8%)	
Level of Education			<0.001*			<0.001*
No formal	1 (100%)	0 (0.0%)		1 (100.0%)	0 (0.0%)	
Primary	41 (62.1%)	25 (37.9%)		57 (64.0%)	32 (36.0%)	
Secondary	30 (22.9%)	110 (77.1%)		48 (35.8%)	86 (64.2%)	
Father Level of Education			0.308			0.747
No formal	20 (34.5%)	38 (65.5%)		34 (49.3%)	35 (50.7%)	
Primary	17 (31.5%)	37 (68.5%)		17 (39.5%)	26 (60.5%)	
Secondary	17 (40.0%)	33 (66.0%)		23 (46.0%)	27 (54.0%)	
Tertiary	0 (0.0%)	1 (100.0%)		2 (40.0%)	3 (60.0%)	
I don't know	18 (51.4%)	17 (48.6%)		30 (52.6%)	27 (47.4%)	
Mother Level of Education			0.125			0.200
No formal	29 (38.2%)	47 (61.8%)		41 (42.7%)	55 (57.3%)	
Primary	24 (35.8%)	43 (64.2%)		30 (43.5%)	39 (56.5%)	
Secondary	8 (22.9%)	27 (77.1%)		19(59.4%)	13 (40.6%)	
Tertiary	1 (100.0%)	0 (0.0%)		-	-	
I don't know	10 (52.6%)	9 (47.4%)		16 (59.3%)	11 (40.7%)	
Number of Children			0.655			<0.001*
0	71 (36.8%)	122 (63.2%)		105 (50.5%)	103 (49.5%)	
1	1 (20.0%)	4 (80.0%)		1 (6.3%)	15 (93.8%)	
Disability Status			0.07			<0.001*
No Disability	63 (34.2%)	121 (65.8%)		104 (47.3%)	116 (52.7%)	
With Disability	8 (61.5%)	5 (38.5%)		2 (50.0%)	2 (50.0%)	
School Status			0.206			<0.001*
In-school	67 (37.9%)	110 (62.1%)		100 (52.6%)	90 (47.4%)	
Out-of-school	5 (23.8%)	16 (76.2%)		6 (17.6%)	6 (17.6%)	
Ever had Sex			<0.001*			<0.001*
Yes	15 (17.4%)	71 (82.6%)		13 (23.6%)	42 (76.4%)	
No	57 (50.9%)	55 (49.1%)		93 (55.0%)	93 (55.0%)	

* Significant at p<0.05

4.1.17 Logistic Regression Analysis of Demographic Factors Associated with High Knowledge of Sexual and Reproductive Health

Three factors for high SRH knowledge level among male participants were found in the multivariate analysis (Table 15): age, ever had sex and disability. Male participants who were 10-14 years old were 0.231 times less likely to have high knowledge compared to 15-19 years old male participants (OR=0.231; 95% CI= 0.105-0.507). Male participants who were not disabled were 4.773 times more likely to have high knowledge compared to disabled male participants (OR= 4.773; 95% CI =1.313 -17.349). Lastly, males who had ever had sex were 2.91 times more likely to have high SRH knowledge (OR = 2.910; 95% CI = 1.330-6.365).

For female participants, two factors, age and the number of children, were significantly associated with high level of sexual and reproductive health knowledge. Female participants with no child were 0.11 times less likely to have high knowledge compared to participants with one child (OR= 0.11; 95% CI= 0.014 – 0.860). Females who were 10-14 years old were 0.238 times less likely to have high knowledge compared to participants who were 15-19 years old (OR= 0.238; 95%CI= 0.129 -0.436).

Table 13: *Logistic Regression Analysis for Demographic Factors associated with Knowledge of Sexual and Reproductive Health*

Independent Variable	High Knowledge of SRH			
	Male		Female	
	Odds Ratio (95% CI))	**p-value**	**Odds Ratio (95% CI)**	**p-value**
Age		<0.001*		<0.001*
10-14 years	0.231 (0.105 – 0.507)		0.238 (0.129 -0.436)	
15-19 years	Ref		Ref	
Number of Children	--			0.035*
0			0.11 (0.014 – 0.860)	
1	--		Ref	
Ever Had Sexual Intercourse		0.007*		--
Yes	2.910 (1.330-6.365)			
No	Ref			--
Disability Status		0.018*		--
With Disability	Ref			
No Disability	4.773 (1.313 -17.349)			--

* Significant at p<0.05

Ref = Reference Variable

4.1.18 Demographic Factors Associated with the Knowledge of Sexual and Reproductive Health Services Available in Mugombwa Refugee Camp

The factors associated with knowledge of services available within the Mugombwa Refugee Camp are demonstrated in Table 16. For males, three factors significantly associated with the knowledge level of Sexual and Reproductive Health services were father's level of education (p = 0.044), mother's level of education (p = 0.034), and number of children (p = 0.030). For females, the two

factors significantly associated with knowledge level of SRH services available were general SRH knowledge level ($p < 0.001$) and ever had sex ($p = 0.029$).

Table 14: *Gender Disaggregation of Association of Demographic Factors with Knowledge of SRH Services Available in the Mugombwa Refugee Camp*

Demographics		Males			Females		
		Low Knowledge	High knowledge	P-value	Low knowledge	High knowledge	P-value
Age	10-14 years	21 (40.4%)	31 (59.6%)	0.268	36 (46.2%)	42 (53.8%)	0.798
	15-19 years	72 (49.3%)	74 (50.7%)		70 (47.9%)	76 (52.1%)	
Level of Education	No formal	0 (0%)	1 (100%)	0.190	1 (100%)	0 (0%)	0.417
	Primary	26 (39.4%)	40 (60.6%)		39 (43.8%)	50 (56.2%)	
	Secondary	67 (51.1%)	64 (48.9%)		66 (49.3%)	68 (50.7%)	
Father's Level of Education	No formal	22 (37.9%)	36 (62.1%)	0.044*	30 (43.5%)	39 (56.5%)	0.802
	Primary	23 (42.6%)	31 (57.4%)		22 (51.2%)	21 (48.8%)	
	Secondary	24 (48%)	26 (52%)		22 (44%)	28 (56%)	
	Tertiary	0 (0%)	1 (100%)		2 (40%)	3 (60%)	
	I don't know	24 (68.6%)	11 (31.4%)		30 (52.6%)	27 (47.4%)	
Mother's Level of Education	No formal education	32 (42.1%)	44 (57.9%)	0.034*	44 (45.8%)	52 (54.2%)	0.902
	Primary	28 (41.8%)	39 (58.2%)		34 (49.3%)	35 (50.7%)	
	Secondary	17 (48.6%)	18 (51.4%)		14 (43.8%)	18 (56.3%)	
	Tertiary	1 (100%)	0 (0%)		-	-	
	I don't know	15 (78.9%)	4 (21.1%)		14 (51.9%)	13 (48.1%)	
Number of Children	0	88 (45.6%)	105 (54.4%)	0.030*	101 (48.6%)	107 (51.4%)	0.204
	1	5 (100%)	0 (0%)		5 (31.3%)	11 (68.8%)	
Religion	Muslim	0 (0%)	2 (100%)	0.319	-	-	0.564
	Catholic	2 (33.3%)	4 (66.7%)		4 (50%)	4 (50%)	
	Christian	91 (47.9%)	99 (52.1%)		101 (47%)	114 (53%)	
	Atheist	-	-		1 (100%)	0 (0%)	
Disability Status	No disability	89 (48.4%)	95 (51.6%)	0.175	104 (47.3%)	116 (52.7%)	1.019
	With disability	4 (28.6%)	10 (71.4%)		2 (50%)	2 (50%)	
School Status	In-school	85 (48%)	92 (52%)	0.386	95 (50%)	95 (50%)	0.058
	Out of school	8 (38.1%)	13 (61.9%)		11 (32.4%)	23 (67.6%)	
SRH Knowledge Level	Low	38 (52.8%)	34 (47.2%)	0.216	64 (60.4%)	42 (39.6%)	<0.001*
	High	55 (43.7%)	71 (56.3%)		42 (35.6%)	76 (64.4%)	
Ever Had Sexual Intercourse	Yes	39 (45.3%)	47 (54.7%)	0.689	19 (34.5%)	36 (65.5%)	0.029*
	No	54 (48.2%)	58 (51.8%)		87 (51.5%)	82 (48.5%)	

* Significant at p<0.05

4.1.19 Logistic Regression Analysis for Demographic Factors associated with Knowledge of Sexual and Reproductive Health Services

The logistic regression analysis for the knowledge of available SRH services in the Mugombwa refugee camp (Table 17) demonstrates that only the level of SRH knowledge was significant for female participants while none was significant for males. Female participants with low SRH

knowledge were 0.063 times less likely to have high knowledge of SRH services compared to female participants with high SRH knowledge (OR= 0.063; 95% CI= 0.21- 0.62)

Table 15: *Logistic Regression Analysis of Demographic Knowledge of Available SRH Services in the Muguombwa Refugee Camp*

Independent Variable	**High Knowledge**	
	Female	
	Odds Ratio (95% CI)	**P-Value**
Level of SRH Knowledge		<0.001*
Low	0.063 (0.21-0.62)	
High	Ref	

* Significant at $p<0.05$
Ref = Reference Variable

4.1.20 Factors Associated with Perceptions of SRH Services

The findings reveal that adolescents' perceptions of SRH topics and camp services were significantly associated with SRH knowledge level, the utilization of HIV testing, STI testing, and contraception, as well as having ever received SRH information.

4.1.21 Association of Level of SRH Knowledge and Perceptions of SRH Services

When knowledge levels of SRH were compared to individual perceptions of SRH services, several perception statements were significantly associated with SRH knowledge levels (Table 18). In regard to contraceptive utilization, agreeing with being at risk of getting pregnant if contraception is not used was significantly associated with having higher knowledge ($p = 0.002$). Participants were 3.17 times more likely to agree with the statement if they had higher knowledge. Participants had 45% lower odds of disagreeing with the statement that it's okay for female adolescents to use contraceptives if they had higher knowledge ($p = 0.010$).

Adolescents who agreed that girls could ask for condom use were 9.92 times more likely to have high knowledge ($p < 0.001$). Adolescents had 57% lower odds of agreeing that married people are the only people that need contraceptives ($p < 0.001$). In regards to SRH services, adolescents had 62% lower odds of disagreeing with the statement that SRH services don't include youth-related services if they had high knowledge ($p < 0.001$). Adolescents had 46% lower odds of agreeing with the perception that SRH services are not affordable if they had high knowledge ($p = 0.009$). Similarly, adolescents had 53% lower odds of agreeing that the information provided from the camp was not clear or helpful if they had high knowledge ($p = 0.018$).

Table 16: Association of Level of SRH knowledge and Perceptions of Contraceptive, STI, HIV, and Health Center Services

Perceptions of SRH Services		Low Knowledge n (%)	High Knowledge n (%)	P-Value	Odds Ratio (95% CI)
I am at risk of getting pregnant if	Agree	142 (38.7%)	225 (61.3%)	0.002*	Ref
I do not use contraceptive services	Disagree	22 (66.7%)	11 (33.3%)		3.17 (1.49 – 6.73)
I am at risk of dying from an STI	Agree	162 (40.3%)	240 (59.7%)	0.495	Ref
	Disagree	5 (55.6%)	4 (44.4%)		1.85 (0.49-7.0)
It is okay for female adolescents	Agree	110 (61.8%)	192 (78.7%)	0.010*	Ref
to use contraceptives	Disagree	50 (28.1%)	48 (19.7%)		1.82 (1.15-2.88)
It is okay for male adolescents	Agree	111 (37.6%)	184 (62.4%)	0.159	Ref
to use contraceptives	Disagree	49 (45.4%)	59 (54.6%)		1.38 (0.88-2.15)
The SRH services centers don't	Agree	67 (58.3%)	48 (41.7%)	<0.001*	Ref
include adolescent-related resources	Disagree	100 (34.4%)	191 (65.6%)		0.38 (0.24-0.58)
SRH services are not affordable	Agree	49 (52.7%)	44 (47.3%)	0.009*	Ref
for me	Disagree	120 (37.5%)	200 (62.5%)		0.54 (0.34-0.86)
The health facility has enough	Agree	150 (41.7%)	210 (58.3%)	0.625	Ref
privacy and confidentiality	Disagree	21 (38.2%)	34 (61.8%)		0.87 (0.48-1.55)
Girls can ask for condom use	Agree	158 (39.6%)	241 (60.4%)	<0.001*	Ref
	Disagree	13 (86.7%)	2 (13.3%)		9.92 (2.21-44.53)
Boys can ask for condom use	Agree	166 (41.0%)	239 (59.0%)	0.331	Ref
	Disagree	6 (60.0%)	4 (40.0%)		2.16 (0.60-7.77)
I feel comfortable acquiring	Agree	138 (38.0%)	225 (62.0%)	0.005*	Ref
contraceptives	Disagree	28 (59.6%)	19 (40.4%)		2.40 (1.29-4.47)
I feel comfortable asking questions	Agree	156 (39.5%)	239 (60.5%)	0.094	Ref
about preventing pregnancy	Disagree	9 (64.3%)	5 (35.7%)		2.76 (0.91-8.38)
HIV testing services are only	Agree	115 (45.1%)	140 (54.9%)	0.007	Ref
for sexually active individuals	Disagree	47 (31.5%)	102 (68.5%)		0.56 (0.37-0.86)
I feel comfortable seeking care	Agree	157 (39.5%)	240 (60.5%)	0.009*	Ref
from service providers	Disagree	9 (81.8%)	2 (18.2%)		6.88 (1.47-32.26)
Married people are the only	Agree	80 (54.1%)	68 (45.9%)	<0.001*	Ref
people that need contraceptives	Disagree	86 (33.1%)	174 (66.9%)		0.43 (0.28-0.64)
Service providers are judgmental	Agree	90 (51.1%)	86 (48.9%)	<0.001*	Ref
when they see people of my age	Disagree	73 (31.9%)	156 (68.1%)		0.45 (0.30-0.67)
The information provided from camp	Agree	25 (58.1%)	18 (41.9%)	0.018*	Ref
services is not clear or helpful	Disagree	147 (39.4%)	226 (60.6%)		0.47 (0.25-0.89)
Service providers speak language	Agree	17 (70.8%)	7 (29.2%)	0.005*	Ref
that I do not understand	Disagree	157 (39.8%)	237 (60.2%)		0.27 (0.11-0.67)
Accessing SRH services is	Agree	37 (57.8%)	27 (42.2%)	<0.002*	Ref
against my religious belief	Disagree	130 (37.5%)	217 (62.5%)		0.44 (0.25-0.75)

Agree = Strongly Agree & Agree; Disagree = Strongly Disagree & Disagree

4.1.22 Association of Perceptions of SRH Services and Utilization of HIV Testing

Five SRH perception statements were found to be significantly associated with adolescents who had ever utilized HIV testing (Table 19). Adolescents who disagreed that it is okay for female adolescents to use contraceptives had 37% lower odds of testing for HIV (p = 0.048). Adolescents had 93% lower odds of disagreeing with the perception that girls can ask for condom use if they'd ever been tested for HIV (p < 0.001).

Adolescents had 73% lower odds of disagreeing that they feel comfortable asking questions about preventing pregnancies if they had ever been tested for HIV (p = 0.053). Adolescents were 2.13 times more likely to disagree that married people are the only people that need contraceptives if they had ever been tested for HIV (p < 0.001). Lastly, adolescents who disagreed that service providers are judgmental towards adolescents were 1.73 times more likely to have been tested for HIV (p = 0.007).

Table 17: Association of Perceptions of SRH services with the Utilization of HIV Testing

Perceptions of SRH Services		**Utilization of HIV Testing**		**p-Value**	**Odds Ratio (95% CI)**
		Ever Utilized	**Never Utilized**		
I am at risk of getting pregnant if I do not use contraceptive services	Agree	187 (51.0%)	180 (49.0%)	0.348	0.71 (0.35-1.46)
	Disagree	14 (42.4%)	19 (57.6%)		Ref
I am at risk of dying from an STI	Agree	200 (49.8%)	202 (50.2%)	0.503	0.51 (0.13-2.05)
	Disagree	3 (33.3%)	6 (66.7%)		Ref
It is okay for female adolescents to use contraceptives	Agree	158 (52.3%)	144 (47.7%)	0.048*	0.63 (0.40-1.0)
	Disagree	40 (40.8%)	58 (59.2%)		Ref
It is okay for male adolescents to use contraceptives	Agree	152 (51.5%)	143 (48.5%)	0.208	0.75 (0.48-1.17)
	Disagree	48 (44.4%)	60 (55.6%)		Ref
The SRH services centers don't include youth-related resources	Agree	51 (44.3%)	64 (55.7%)	0.213	1.32 (0.85-2.03)
	Disagree	149 (51.2%)	142 (48.8%)		Ref
SRH services are not affordable for me	Agree	44 (47.3%)	49 (52.7%)	0.687	1.10 (0.69-1.75)
	Disagree	159 (49.7%)	161 (50.3%)		Ref
The health facility has enough privacy and confidentiality	Agree	178 (49.4%)	182 (50.6%)	0.581	0.85 (0.48-1.51)
	Disagree	25 (45.5%)	30 (54.5%)		Ref
Girls can ask for condom use	Agree	200 (50.1%)	199 (49.9%)	0.001*	0.071 (0.10-0.55)
	Disagree	1 (6.7%)	14 (93.3%)		Ref
Boys can ask for condom use	Agree	201 (49.6%)	204 (50.4%)	0.106	0.25 (0.05-1.21)
	Disagree	2 (20.0%)	8 (80.0%)		Ref
I feel comfortable acquiring contraceptives	Agree	182 (50.1%)	181 (49.9%)	0.210	0.68 (0.36-1.25)
	Disagree	19 (40.4%)	28 (59.6%)		Ref
I feel comfortable asking questions about preventing pregnancy	Agree	200 (50.6%)	195 (49.4%)	0.053*	0.27 (0.07-0.97)
	Disagree	3 (21.4%)	11 (78.6%)		Ref
HIV testing services are only for sexually active individuals	Agree	121 (47.5%)	134 (52.5%)	0.280	1.25 (0.83-1.87)
	Disagree	79 (53.0%)	70 (47.0%)		Ref
I feel comfortable seeking care from service providers	Agree	198 (49.9%)	199 (50.1%)	0.221	0.38 (0.10-1.44)
	Disagree	3 (27.3%)	8 (72.7%)		Ref
Married people are the only people that need contraceptives	Agree	55 (37.2%)	93 (62.8%)	<0.001*	2.13 (1.41-3.22)
	Disagree	145 (55.8%)	115 (44.2%)		Ref

Service providers are judgmental when they see people of my age	Agree	73 (41.5%)	103 (58.5%)	0.007*	1.73 (1.16-2.57)
	Disagree	126 (55.0%)	103 (45.0%)		Ref
The information provided from camp services is not clear or helpful	Agree	19 (44.2%)	24 (55.8%)	0.523	1.23 (0.65-2.32)
	Disagree	184 (49.3%)	189 (50.7%)		Ref
Service providers speak language that I do not understand	Agree	12 (50.0%)	12 (50.0%)	0.885	0.94 (0.41-2.15)
	Disagree	191 (48.5%)	203 (51.5%)		Ref
Accessing SRH services is against my religious belief	Agree	32 (50.0%)	32 (50.0%%)	0.882	0.96 (0.56-1.64)
	Disagree	170 (49.0%)	177 (51.0%)		Ref

Agree = Strongly Agree & Agree; Disagree = Strongly Disagree & Disagree

* Significant at p<0.05

4.1.23 Association of Perceptions with Utilization of STI Testing

The association of the perception statements with utilizing STI testing was assessed (Table 20). Adolescents who disagreed with the statement that it’s okay for male adolescents to use contraceptives had 52% lower odds of testing for STIs (p = 0.012). Adolescents who agreed with the statement that SRH service centers don’t include youth-related services were 1.79 times more likely to use STI testing services. Adolescents who disagreed that they felt comfortable acquiring contraceptives had 80% lower odds of having ever tested for STIs (p = 0.003). Participants who disagreed with the perception that HIV testing services are only for sexually active individuals were 1.88 times more likely to have ever been tested for STIs. Adolescents who agreed that married people are the only people that need contraceptives are 1.81 times more likely to have ever been tested for STIs (p = 0.021). Finally, adolescents who felt service providers were judgmental towards adolescents were 1.67 times more likely to have tested for STIs (p = 0.036).

Table 18: *Association of Perceptions of Contraceptive, STI, and HIV Services with Ever Utilizing STI Testing*

Perceptions of SRH Services		**Utilization of STI Testing**		**P-Value**	**Odds Ratio (95% CI)**
		Ever Utilized	**Never Utilized**		
I am at risk of dying from an STI	Agree Disagree	96 (23.9%) 1 (11.1%)	306 (76.1%) 8 (88.9%)	0.692	0.40 (0.49-3.23) Ref
It is okay for female adolescents to use contraceptives	Agree Disagree	78 (25.8%) 17 (17.3%)	224 (74.2%) 81 (82.7%)	0.086	0.60 (0.34-1.08) Ref
It is okay for male adolescents to use contraceptives	Agree Disagree	79 (26.8%) 16 (14.8%)	216 (73.2%) 92 (85.2%)	0.012*	0.48 (0.26-0.86) Ref
The SRH services centers don't include adolescent-related resources	Agree Disagree	19 (16.5%) 76 (26.1%)	96 (83.5%) 215 (73.9%)	0.040*	1.79 (1.02-3.12) Ref
SRH services are not affordable for me	Agree Disagree	23 (24.7%) 74 (23.1%)	70 (75.3%) 246 (76.9%)	0.748	0.92 (0.54-1.57) Ref
The health facility has enough privacy and confidentiality	Agree Disagree	81 (22.5%) 16 (29.1%)	279 (77.5%) 39 (70.9%)	0.282	1.41 (0.75-2.66) Ref
Girls can ask for condom use	Agree Disagree	95 (23.8%) 1 (6.7%)	304 (76.2%) 14 (93.3%)	0.209	0.23 (0.03-1.76) Ref
Boys can ask for condom use	Agree Disagree	96 (23.7%) 1 (10.0%)	309 (76.3%) 9 (90.0%)	0.464	0.36 (0.05-2.86) Ref
I feel comfortable acquiring contraceptives	Agree Disagree	93 (25.6%) 3 (6.4%)	270 (74.4%) 44 (93.6%)	0.003*	0.20 (0.06-0.65) Ref
I feel comfortable asking questions about preventing pregnancy	Agree Disagree	95 (24.1%) 2 (14.3%)	300 (75.9%) 12 (85.7%)	0.534	0.53 (0.12-2.39) Ref
HIV testing services are only for sexually active individuals	Agree Disagree	49 (19.2%) 46 (30.9%)	206 (80.8%) 103 (69.1%)	0.008*	1.88 (1.18-2.99) Ref
I feel comfortable seeking care from service providers	Agree Disagree	95 (23.9%) 0 (0%)	302 (76.1%) 11 (100%)	0.075	NA
Married people are the only people that need contraceptives	Agree Disagree	25 (16.9%) 70 (26.9%)	123 (83.1%) 190 (73.1%)	0.021*	1.81 (1.09-3.02) Ref
Service providers are judgmental when they see people of my age	Agree Disagree	32 (18.2%) 62 (27.1%)	144 (81.8%) 167 (72.9%)	0.036*	1.67 (1.03-2.70) Ref
The information provided by camp services is not clear or helpful	Agree Disagree	13 (30.2%) 84 (22.5%)	30 (69.8%) 289 (77.5%)	0.257	0.67 (0.34-1.34) Ref
Service providers speak language that I do not understand	Agree Disagree	5 (20.8%) 92 (23.4%)	19 (79.2%) 302 (76.6%)	>0.999	1.16 (0.42-3.19) Ref
Accessing SRH services is against my religious belief	Agree Disagree	12 (18.8%) 84 (24.2%)	52 (81.3%) 263 (75.8%)	0.343	1.38 (0.71-2.72) Ref

Agree = Strongly Agree & Agree; Disagree = Strongly Disagree & Disagree

* Significant at $p<0.05$

4.1.24 Association of Perceptions with Contraceptive Utilization

Three perceptions were found to be significantly associated with the utilization of contraception (Table 21). All participants who disagreed with the statement that girls can ask for condom use had never utilized contraceptives (p = 0.048). Similarly, all participants who disagreed that they were at risk of getting pregnant if they didn't use contraceptives had never utilized contraceptives (p < 0.001). Adolescents that perceived that contraceptives were only for married people had 62% lower odds of using contraceptives (p = 0.001).

Table 19: Association of Perceptions of Contraceptive, STI, and HIV Services with Ever Utilizing Contraceptive Services

Perceptions of SRH Services		Utilization of Contraceptives		P-Value	Odds Ratio (95% CI)
		Ever Utilized	Not Utilized		
I am at risk of getting pregnant if I do not use contraceptive services	Agree	87 (23.7%)	280 (76.3%)	<0.001*	NA
	Disagree	0 (%)	33 (100%)		
I am at risk of dying from an STI	Agree	86 (21.4%)	316 (78.6%)	0.691	Ref
	Disagree	1 (11.1%)	8 (88.9%)		2.18 (0.27-17.65)
It is okay for female adolescents to use contraceptives	Agree	66 (21.9%)	236 (78.1%)	0.929	Ref
	Disagree	21 (21.4%)	77 (78.6%)		1.03 (0.59-1.79)
It is okay for male adolescents to use contraceptives	Agree	67 (22.70%)	228 (77.3%)	0.118	Ref
	Disagree	18 (16.7%)	90 (83.3%)		1.47 (0.83-2.61)
The SRH services centers don't include adolescent-related resources	Agree	21 (18.3%)	94 (81.7%)	0.365	Ref
	Disagree	65 (22.3%)	226 (77.7%)		0.78 (0.45-1.34)
SRH services are not affordable for me	Agree	25 (26.9%)	68 (73.1%)	0.118	Ref
	Disagree	62 (19.4%)	258 (80.6%)		1.53 (0.90-2.61)
The health facility has enough privacy and confidentiality	Agree	78 (21.77%)	282 (78.3%)	0.477	Ref
	Disagree	9 (16.4%)	46 (83.6%)		1.41 (0.66-3.01)
Girls can ask for condom use	Agree	87 (21.8%)	312 (78.2%)	0.048*	NA
	Disagree	0 (0%)	15 (100%)		
Boys can ask for condom use	Agree	85 (21.0%)	320 (79.0%)	0.695	Ref
	Disagree	1 (10.0%)	9 (90.0%)		2.39 (0.30-19.13)
I feel comfortable acquiring contraceptives	Agree	79 (21.8%)	284 (78.2%)	0.571	Ref
	Disagree	8 (17.0%)	39 (83.0%)		1.36 (0.61-3.02)
I feel comfortable asking questions about preventing pregnancy	Agree	85 (21.5%)	310 (78.5%)	0.743	Ref
	Disagree	2 (14.3%)	12 (85.7%)		1.65 (0.36-7.49)
I feel comfortable seeking care from service providers	Agree	86 (21.7%)	311 (78.3%)	0.470	Ref
	Disagree	1 (9.1%)	10 (90.9%)		2.77 (0.35-21.90)
Married people are the only people that need contraceptives	Agree	18 (12.2%)	130 (87.8%)	0.001*	Ref
	Disagree	69 (26.5%)	191 (73.5%)		0.38 (0.22-0.67)

Service providers are judgmental when they see people of my age	Agree	38 (21.6%)	138 (78.4%)	0.963	Ref
	Disagree	49 (21.4%)	180 (78.6%)		1.01 (0.63-1.63)
The information provided from camp services is not clear or helpful	Agree	12 (27.9%)	31 (72.1%)	0.234	Ref
	Disagree	75 (20.1%)	298 (79.9%)		1.54 (0.75-3.14)
Service providers speak language that I do not understand	Agree	5 (20.8%)	19 (79.2%)	>0.999	Ref
	Disagree	82 (20.8%)	312 (79.2%)		1.00 (0.36-2.76)
Accessing SRH services is against my religious belief	Agree	12 (18.8%)	52 (181.3)	0.642	Ref
	Disagree	74 (21.3%)	273 (78.7%)		0.85 (0.43-1.68)

Agree = Strongly Agree & Agree; Disagree = Strongly Disagree & Disagree

* Significant at $p<0.05$

4.1.25 Factors Associated with Utilization of HIV Testing Services

Table 22 demonstrates the factors associated with the utilization of HIV testing services among male and female participants. Six factors that were significantly associated with utilization of HIV testing services among males were; age (p = 0.001), level of education (p = 0.001), school status (p =0.001), level of SRH knowledge (p = 0.001), having sex in the last 3 months (p = 0.001) and having ever had sex (p <0.001).

For females, nine factors were significantly associated with the utilization of HIV testing services; age (p = 0.001), level of education (p <0.018), mother's level of education (p= 0.003), number of children (p = 0.029), school status (p = 0.001), level of SRH knowledge (p = 0.001), level of SRH services knowledge (p=0.038), having had sex in the last 3 months (p =0.013) and having ever had sex (p <0.001) .

Table 20: *Gender Disaggregation of Factors associated with HIV Testing Services Tested (Fisher Exact Test)*

Demographics	Males			Females		
	Tested n (%)	Not Tested n (%)	P-value	Tested n (%)	Not Tested n (%)	P-value
Age			0.001*			0.001*
10-14 years	5 (9.6%)	47 (90.4%)		4 (5.1%)	74 (94.9%)	
15-19 years	50 (34.2%)	96 (65.8%)		43 (29.5%)	103 (70.5%)	
Level of Education			0.001*			0.018*
No formal	1 (100.0%)	0 (0.0%)		0 (0.0%)	1 (100.0%)	
Primary	7 (10.6%)	59 (89.4%)		11 (12.4%)	78 (87.6%)	
Secondary	47 (35.9%)	84 (64.1%)		36 (26.9%)	98 (73.1%)	
Father's level of Education			0.352			0.263
No formal	20 (34.5%)	38 (65.5%)		18 (26.1%)	51 (73.9%)	
Primary	13 (24.1%)	41 (75.9%)		10 (23.3%)	33 (76.7%)	
Secondary	13 (26.0%)	37 (74.0%)		12 (24.0%)	38 (76.0%)	
Tertiary	1 (100.0%)	0 (0.0%)		0 (0.0%)	5 (100.0%)	
I don't know	8 (22.9%)	27 (77.1%)		7 (12.3%)	50 (87.7%)	

Mother's level of Education			0.349			0.003*
No formal	27 (35.5%)	49 (64.5%)		28 (29.2%)	68 (70.8%)	
Primary	16 (23.9%)	51 (76.1%)		12 (17.4%)	57 (82.6%)	
Secondary	9 (25.7%)	26 (74.3%)		7 (21.9%)	25 (78.1%)	
Tertiary	0 (0.0%)	1 (100.0%)		-	-	
I don't know	3 (15.8%)	16 (84.2%)		0 (0.0%)	27 (100.0%)	
Number of Children			0.619			0.049*
0	53 (27.5%)	140 (72.5%)		40 (19.2%)	168 (80.8%)	
1	2 (40.0%)	3 (60.0%)		7 (43.8%)	9 (56.3%)	
Disability Status			0.196			0.195
No disability	49 (26.6%)	135 (73.4%)		45 (20.5%)	175 (79.5%)	
With disability	6 (46.2%)	7 (53.8%)		2 (50.0%)	2 (50.0%)	
School Status			0.001*			0.001*
In-school	40 (22.6%)	137 (77.4%)		27 (14.2%)	163 (85.8%)	
Out of school	15 (71.4%)	6 (28.6%)		20 (58.8%)	14 (41.2%)	
SRH Knowledge			0.001*			0.001*
Low	10 (13.9%)	62 (86.1%)		11 (10.4%)	95 (89.6%)	
High	45 (35.7%)	81 (64.3%)		36 (30.5%)	82 (69.5%)	
Knowledge of SRH Services			0.398			0.038*
Below Median	44 (47.3%)	49 (52.7%)		41 (38.7%)	65 (61.3%)	
Above Median	56 (53.3%)	49 (46.7%)		62 (52.5%)	56 (47.5%)	
Had sex in the last 3 months			0.001*			0.013*
Yes	26 (76.5%)	8 (23.5%)		6 (54.5%)	5 (45.5%)	
No	29 (17.7%)	135 (82.3%)		41 (19.2%)	172 (80.8%)	
Has ever had sex			<0.001*			<0.001*
Yes	66 (76.7%)	20 (23.3%)		47 (85.5%)	8 (14.5%)	
No	34 (30.4%)	78 (69.6%)		56 (33.1%)	113 (66.9%)	

* Significant at p<0.05

4.1.26 Logistic Regression Analysis for Factors Associated with Utilization of HIV testing services

Table 23 presents factors associated with utilizing HIV testing services among both male and female participants. Level of SRH knowledge, ever had sex, school status, and level of education were significantly associated with not utilizing HIV testing services among male participants. Male participants who hadn't had sexual intercourse had 68% lower odds of testing for HIV compared to male participants who had sex (OR=0.32; 95% CI= 0.15 - 0.67). In school, male participants were 5.72 times more likely to not utilize HIV testing services compared to out-of-school male participants (OR=5.72; 95% CI=1.21 - 27.09). Male participants with low SRH knowledge were 3.29 more likely not to utilize HIV testing services compared to male participants with high SRH knowledge (OR=3.29; 95% CI= 1.54 - 7.0).

For female participants, age and having ever had sexual intercourse were significantly associated with not utilizing HIV testing. Female participants who were 10-14 years old were 15.08 times more likely to not utilize HIV testing services compared to 15-19 years old female participants. Female participants who had never had sex had 81% lower odds of utilizing HIV testing services compared to female participants who had sex (OR= 0.19; 95% CI=0.08-0.45) (Table 4.23).

Table 21: *Logistic Regression Analysis for Utilization of HIV Testing*

Independent Variable	Male		Female	
	Odds Ratio (95% CI)	P-Value	Odds Ratio (95% CI)	P-Value
Age				<0.001*
10-14 years	--	--	15.08 (5.98-38.03)	
15-19 years	--	--	Ref	
Level of SRH Knowledge		0.002*		
Low	3.29 (1.54 - 7.0)		NA	NA
High	Ref			
Ever Had Sexual Intercourse		0.003*		<0.001*
Yes				
No	0.32 (0.15 - 0.67)		0.19 (0.08-0.45)	
	Ref		Ref	
School Status		0.028*		
In-School	5.72 (1.21 - 27.09)		NA	NA
Out of school	Ref			
Highest Level of Education				
No formal education	0.00 (0.00-Infinite)	0.999	NA	NA
Primary	2.84 (1.24-6.50)	0.014*	2.84 (1.24-6.50)	
Secondary	Ref	Ref	Ref	

* Significant at p<0.05
Ref = Reference Variable
NA= Not Applicable

4.1.27 Factors Associated with Utilization of STI Testing services

There were associations between several factors and utilization of STI testing services (Table 24). For males, six factors significantly associated with the utilization of STI testing were age (p <0.001), highest level of education attained (p<0.001), father's level of education (p = 0.041), school status (p = 0.029) and have ever had sex (p <0.001). For females, eight factors significantly associated with utilization of STI testing were; age, (p <0.001) highest level of education attained (p = 0.015), father's level of education (p = 0.049), number of children (p <0.001), school status (p <0.001), knowledge of SRH (p<0.001), knowledge of available SRH services (p=0.031) and having ever had sex (p <0.001).

Table 22: Gender Disaggregation of Factors Associated with Ever Being Tested for STIs (Fischer's Exact test)

Factors	Males			Females		
	Tested n (%)	Never Tested n (%)	P-value	Tested n (%)	Never Tested n (%)	P-value
Age			<0.001*			<0.001*
10-14 years	3 (5.8%)	49 (94.2%)		4 (5.1%)	74 (94.9%)	
15-19 years	51 (34.9%)	95 (65.1%)		39 (26.7%)	107 (73.3%)	
Highest Level of Education			<0.001*			0.016*
No formal education	0 (0%)	1 (100%)		0 (0%)	1 (100%)	
Primary	6 (9.1%)	60 (90.9%)		9 (10.1%)	80 (89.9%)	
Secondary	48 (36.6%)	83 (63.4%)		34 (25.4%)	100 (74.6%)	

Father's Level of Education			0.033*			0.049*
No formal education	20 (34.5%)	38 (65.5%)		14 (20.3%)	55 (79.7%)	
Primary	12 (22.2%)	42 (77.8%)		7 (16.3%)	36 (83.7%)	
Secondary	17 (34.0%)	33 (66%)		16 (32%)	34 (68%)	
Tertiary	1 (100%)	0 (0%)		0 (0%)	5 (100%)	
I don't know	4 (11.4%)	31 (88.6%)		6 (10.5%)	51 (89.5%)	
Mother's Level of Education			0.881			0.080
No formal education	22 (28.9%)	54 (71.1%)		23 (24.0%)	73 (76.0%)	
Primary	16 (23.9%)	51 (76.1%)		11 (15.9%)	58 (84.1%)	
Secondary	11 (31.4%)	24 (68.6%)		8 (25%)	24 (75%)	
Tertiary	0 (0%)	1 (100%)		-	-	
I don't know	5 (26.3%)	14 (73.7%)		1 (3.7%)	26 (96.3%)	
Number of Children			0.126			<0.001*
0	51 (26.4%)	142 (73.6%)		33 (15.9%)	175 (84.1%)	
1	3 (60.0%	2 (40%)		10 (62.5%)	6 (37.5%)	
Disability Status			1.000			1.000
No disability	50 (27.2%)	134 (72.8%)		43 (19.5%)	177 (80.5%)	
With disability	4 (28.6%)	10 (71.4%)		0 (0%)	4 (100%)	
School Status			0.027*			<0.001*
In-school	44 (24.9%)	133 (75.1%)		25 (13.2%)	165 (86.8%)	
Out of school	10 (47.6%)	11 (52.4%)		18 (52.9%)	16 (47.1%)	
Ever Had Sexual Intercourse			<0.001*			<0.001*
Yes	38 (44.2%)	48 (55.8%)		24 (43.6%)	31 (56.4%)	
No	16 (14.3%)	96 (85.7%)		19 (11.2%)	150 (88.8%)	
Knowledge of SRH			<0.001*			<0.001*
Low	9 (12.5%)	63 (87.5%)		9 (8.5%)	97 (91.5%)	
High	45 (27.3%)	81 (64.3%)		34 (28.8%)	84 (71.2%)	
Knowledge of SRH services			0.086			0.031*
Low	20 (21.5%)	73 (78.5%)		14 (13.2%)	92 (86.8%)	
High	34 (32.4%)	71 (67.6%)		29 (24.6%)	89 (75.4%)	

* Significant at $p<0.05$

4.1.28 Logistic Regression Analysis for Factors associated with Utilization of STI testing services

Table 25 presents factors associated with not utilizing STI testing services among male and female participants. Factors associated with not utilizing STI testing services among male participants were age, ever had sex, and father level of education. Male participants 10-14 years old were 4.537 times more likely not to utilize STI testing services compared to 15-19 years old male participants (OR= 4.537 95% CI= 1.209- 17.023).

Factors associated with not utilizing STI testing services among female participants were level of SRH knowledge, ever had sex, school status, and father level of education (Table 25). Female participants who had never had sex had 69% lower odds of utilizing STI testing services than participants who had sex (OR= 0.31; 95% CI= 0.13 - 0.72). In-school female participants were 4.10 more likely to not utilize STI testing services than out-of-school female participants (OR= 4.10; 95% CI=1.59-10.56).

Table 23: Logistic Regression Analysis for Factors associated with Utilization of STI testing services

	Male		Female	
Independent Variable	**Odds Ratio (95% CI)**	**P-Value**	**Odds Ratio (95% CI))**	**P-Value**
Age		0.025*		
10-14 years	4.537 (1.209- 17.023)		NA	NA
15-19 years	Ref			
Level of SRH Knowledge				0.043*
Low	NA	NA	2.498 (1.03-6.06)	
High			Ref	
Ever Had Sexual Intercourse		0.004*		0.007*
Yes	0.392 (0.154-0.703)		0.31 (0.13 - 0.72)	
No	Ref		Ref	
School Status				0.004*
In school	NA	NA	4.10 (1.59-10.56)	
Out of school			Ref	
Father's Level of Education				
No formal education	0.262 (0.076 – 0.907)	0.035*	0.38 (0.12 - 1.22)	0.104
Primary	0.546 (0.151 -1.968)	0.355	0.52 (0.13- 1.99)	0.339
Secondary	0.240 (0.067-0.855)	0.028*	0.17 (0.05-0.55)	0.004*
Tertiary	NA	>9.99	NA	0.999
I don't know	Ref	Ref	Ref	Ref

Ref = Reference Variable
NA= Not Applicable
* Significant at p<0.05

4.1.29 Factors Associated with Utilization of Contraceptive Service

Factors associated with contraceptive utilization are demonstrated in Table 26. The only demographic factor significantly associated with males' ever-use of contraceptives was the level of SRH knowledge (p = 0.033). For females, knowledge of SRH services was the only factor associated with contraceptive utilization (p=0.007) (Table 26).

Table 24: Gender Disaggregation of Factors associated with Contraceptive Utilization (Fisher exact test)

Demographics	Males			Females		
	Ever Used n (%)	Never Used n (%)	P-value	Ever Used n(%)	Never Used n (%)	P-value
Age			0.360			0.418
10-14 years	0 (0.0%)	1 (100.0%)		0 (0.0%)	1 (100.0%)	
15-19 years	55 (64.7%)	30 (35.3%)		32 (59.3%)	22 (40.7%)	
Highest Level of Education			0.622			1.000
No formal education	1 (100.0%)	0 (0.0%)		-	-	
Primary	5 (83.3%)	1 (16.7%)		4 (66.7%)	2 (33.3%)	
Secondary	49 (62.0%)	30 (38.0%)		28 (57.1%)	21 (42.9%)	
Father's Level of Education			0.402			0.925
No formal education	19 (76.0%)	6 (24.0%)		11 (55.0%)	9 (45.0%)	
Primary	15 (60.0%)	10 (40.0%)		5 (62.5%)	3 (37.5%)	
Secondary	14 (63.6%)	8 (36.4%)		8 (66.7%)	4 (33.3%	
Tertiary	1 (100.0%)	0 (0.0%)		-	-	
I don't know	6 (46.2%)	7 (53.8%)		8 (53.3%)	7 (46.7%)	
Mother's Level of Education			0.241			0.355
No formal education	21 (58.3%)	15 (41.7%)		16 (53.3%)	14 (46.7%)	
Primary	17 (60.7%)	11 (39.3%)		11 (57.9%)	8 (42.1%)	
Secondary	13 (86.7%)	2 (13.3%)		4 (100.0%)	0 (0.0%)	
Tertiary	-	-		-	-	
I don't know	4 (57.1%)	3 (42.9%)		1 (50.0%)	1 (50.0%)	
Number of Children			0.650			0.309
0	51 (63.0%)	30 (37.0%)		21 (53.8%)	18 (46.2%)	
1	4 (80.0%)	1 (20.0%)		11 (68.8%)	5 (31.3%)	
Disability Status			1.000	-	-	-
No disability	50 (64.1%)	28 (35.9%)				
With disability	5 (62.5%)	3 (37.5%)		-	-	
School Status			0.078		13 (41.9%)	0.984
In-school	41 (59.4%)	28 (40.6%)		18 (58.1%)		
Out of school	14 (82.4%)	3 (17.6%)		14 (58.3%)	10 (41.7%)	
Level of SRH Knowledge			0.033*			0.717
Low	6 (40.0%)	9 (60.0%)		7 (53.8%)	6 (46.2%)	
High	49 (69.0%)	22 (31.0%)		25 (59.5%)	17 (40.5%)	
Level of SRH services knowledge			0.223			0.007*
Low	22 (23.7%)	71 (76.3%)		8 (7.5%)	98 (92.5%)	
High	33 (31.4%)	72 (68.6%)		24 (20.3%	94 (79.7%)	

* Significant at p<0.05

Ref = Reference Variable

4.1.30 Demographic Factors Associated with Utilization of Contraceptive Service

In the logistic regression analysis for the utilization of contraceptive services among those who have ever had sex, only level of SRH knowledge and school status was significant for male participants, while none was significant for females. Male participants with low knowledge were 0.14 less likely to utilize contraceptive methods compared to participants with high knowledge (OR= 0.14; 95% CI= 0.05- 0.36). Male participants in school had 85% lower odds of using contraceptive methods as compared to male participants out of school (OR= 0.146; 95% CI= 0.05 - 0.42) (Table 27).

Table 25: Logistic Regression Analysis for the Utilization of Contraceptives

Independent Variable	Male	
	Odds Ratio (95% CI))	**p-value**
Level of SRH Knowledge		<0.001*
Low	0.14 (0.05 - 0.36)	
High	Ref	
School Status		<0.001*
In-School	0.146 (0.05 - 0.42)	
Out-of-school	Ref	

Ref = Reference Variable

* Significant at p<0.05

4.2 Qualitative Findings

4.2.1 Introduction

This chapter presents the voices of adolescent girls and boys regarding their lived experiences with barriers to accessing SRH services and their recommendations for improving SRH services for adolescents. The primary intent of the discussions was to give adolescents epistemic authority to hear how they navigate SRH services, what prevents their utilization of contraceptives, STI, and HIV services, and specific strategies to ameliorate these barriers.

4.2.2 Characteristics of Participants

A total of 16 girls and 16 boys from the age groups of 10-14 and 15-19 participated in four separate FGDs. We had four separate focus group discussions with eight girls between the ages of 10-14, eight girls between the ages of 15-19, eight boys between the ages of 10-14, and eight boys between the ages of 15-19.

4.2.3 Themes

Five major themes emerged from the FGDs: 1) the influence of socio-cultural factors on teenage pregnancy, STIs, and HIV; 2) the need for improved SRH service delivery; 3) perceiving parents as stakeholders of SRH wellness; 4) lack of knowledge and commonly-held beliefs prevent contraceptive utilization; and 5) negative perceptions prevent STI and HIV utilization (Figure 6).

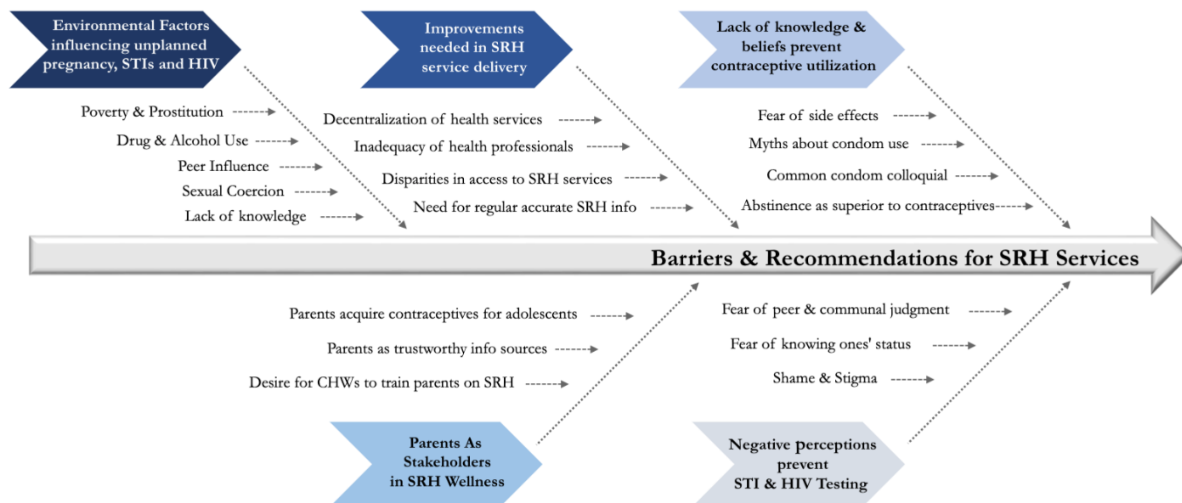

Figure 6: Barriers and Recommendations of Qualitative Analysis

THEME 1: Adolescents perceive several socio-cultural factors to influence the issue of teenage pregnancy, STIs, and HIV in the camp

Nearly all participants very succinctly described the pervasive issue of teenage pregnancy, STIs, and HIV among adolescents in the Mugombwa Refugee camp. Most interestingly, they described

adolescent SRH issues in the context of the factors causing them. Six sub-themes arose: 1) poverty leading adolescents into prostitution; 2) peer pressure and negative peer influence; 3) drug and alcohol; 4) sexual coercion from boys, and 5) a general lack of knowledge of sexual and reproductive health. Each of these factors intersects to co-create adolescent sexual behavior and risk factors for teenage pregnancy, STIs, and HIV.

Sub-Theme 1.1: Poverty leading adolescents into prostitution

Adolescents described a causal model of how poverty contributes to the high prevalence of prostitution. Prostitution was spoken to as a necessity to both meet basic needs and meet the demand of adolescents' desires. Adolescents described how prostitution directly negatively impacts one's SRH outcomes, including unplanned pregnancies, STIs and HIV. A male adolescent said;

> *"The first challenge that I have seen is poverty, and it is the root cause of those challenges including prostitution which may cause Sexual Transmitted Infections & HIV." (15-19 y.o boy)*
>
> A female participant also said;
>
> *"You may be at home with a problem of poverty that you feel will be solved if you go into prostitution. You feel like that bad idea will help you to have a better tomorrow." (15-19 y.o girl)*

Participants described two distinct types of unmet needs that drive adolescents to engage in prostitution, namely unmet desires and unmet basic needs. They describe prostitution as the causal factor for unplanned pregnancy and contracting STDs:

> *"In my opinion, young people are looking for something very modern. You could see your partner wearing something nice, and you want to see it, and you have no ability to buy at home. Those people feel to go in prostitution so that they can get what others have." (15-19 y.o girl)*
>
> *"Challenges that many of girl adolescents face in our community is poverty. Because, sometimes based on how they are born a girl can enter in her monthly period, and she may have a problem of money to afford pads and other necessities, and this may encourage her towards prostitution." (15-19 y.o boy)*

These findings demonstrate how socio-economic status can influence sexual behavior negatively. Most of the narratives appeared to indicate that prostitution was a means of filling a lack of access to basic needs. Participants also spoke about the issue of "sugar daddies" and how this can lure adolescent girls into risky sexual behavior. The next section focuses on interpersonal issues among adolescents.

Sub-Theme 1.2: Peer pressure and negative peer influence

Adolescents' peer groups and spheres of social influence frequently appeared throughout the discussions. Adolescents described their peers as either major enablers or disablers of their sexual and reproductive health. While many adolescents reported their peers to be useful sources of their conversations about SRH, the majority of adolescents also stated that it was important for them to

avoid negative peer influence to reach their dreams and avoid unplanned pregnancy, STIs, and HIV. One of the participants said;

> *"Challenges people of my age or adolescents that we commonly face in our community is peer pressure. When those adolescents have bad friends, they sometimes engage in sexual relations. This contributes to the increase in the number of pregnancies in our community." (15-19 y.o girl)*

While both female and male adolescents are affected by peer pressure, it was clear that boys and girls experience peer pressure uniquely. One female participant described how peer pressure could influence boys to sexually coerce or rape girls:

> *"Based on what I see in our community, boys of our age are affected by peer pressure groups. In that group, some of them have girlfriends, and others don't. Those who have girlfriends teach their colleagues some methods/techniques that they can use in order to be accepted. Some of them use alcoholic drinks as the best option of not being feared. Others advise them that if she refuses, take her by force. This will lead to impregnating that girl or getting HIV/AIDS. So boys have the problem of peer pressure." (15-19 y.o girl)*

Most narratives under this subtheme revealed insights into the importance of peers in adolescents' SRH wellness. While some adolescents cited their colleagues and friends as their major source of information, others spoke about the risks of their peer groups.

Sub-Theme 1.3: Drug and alcohol abuse

Participants shared how drug and alcohol use among adolescents influences risky sexual behavior. One of the male participants said:

> *"From my own opinion, there are some people who use a condom, and there are other who don't. To make my point clear, there are girls from our community who use alcohols and drugs, and this may increase risks of unintended pregnancies for those girls because they may not remember to use a condom while they are drunk." (10-14 y.o boy).*
>
> A female participant said;
>
> *"My point of view is that there are some girls from our age who get pregnant and be affected by the HIV/AIDS due to using alcohols and drugs." (10-14 y.o girl).*

The discussions revealed that adolescents perceive alcohol and drug use to be a gateway to unplanned pregnancies, STIs and HIV as a result of an impaired judgment to protect oneself during intercourse. The incidence of sexual assault is also known to increase under the consumption of drugs and alcohol. The next sub-theme explores the connections participants drew between sexual coercion and poor SRH outcomes.

Sub-Theme 1.4: Sexual coercion from boys

Adolescent girls and boys explained the issue of sexual coercion and its negative consequences on the SRH of adolescent girls. Sexual coercion also seemed to connect with adolescents' discussion of prostitution. One participant said:

"My point of advice to my colleagues of our age group is to be careful of those who mislead them with tricks to seduce them like giving them money, gifts, etc." (10-14 y.o boy)

Participants' narratives spoke to the natural naivety of adolescents as a result of their limited knowledge and exposure to sex. As one of the participants mentioned:

"Right there, they will go cheating on the little ones. This is the reason why boys do not date girls who are the same age. They go to date the little tired ones who do not have more information. Boys will approach those ones so that they can lie to them because they don't have more information." (15-19 y.o girl)

Another emerging narrative under sexual coercion was the issue of condom misuse. Participants explained that boys coerce girls into having sex without a condom and purposefully damage or manipulate condoms during sexual intercourse, which predisposes girls to unplanned pregnancies and STDs. One of the female participants explained:

"In my own understanding, when you are a girl having ambitions, and the desire of achieving something in your future, all what people say you in your back is nothing. There is a time when you can have sex with a boy thinking that you are using condom while a boy has already made a hole at the head of condom, aiming to impregnate that girl. So as girls we have to take decisions for ourselves. About having sex, I am still having enough time. It is better to do that with my own husband. About using condom properly, it is better that a girl can be aware of checking if the condom is safe." (15-19 y.o girl)

Although a few participants attributed sexual coercion as the fault of the female, most participants described sexual coercion as an issue that girls need to be protected against. Irrespective, participants described different types of sexual coercion that predispose girls specifically to unplanned pregnancies, STIs and HIV. As some participants shared, a protective factor against sexual coercion is educating girls on sexual and reproductive health.

Sub-Theme 1.5: A general lack of knowledge of sexual and reproductive health

A common theme among participants was the issue of lack of knowledge on SRH. Adolescents described a lack of knowledge and awareness of contraception and STIs to be the reason behind the prevalence of unplanned pregnancies, STIs, and HIV:

"Many adolescents don't have knowledge on sexual and reproductive health. They are sometimes ashamed of asking information about that, thinking that people will laugh at them which lead them to do what they don't know." (15-19 y.o girl)

"Sometimes adolescents don't have enough knowledge on contraception and STIs. When they have bad habit of having sex, they may have early pregnancy or be STI positive." (15-19 y.o girl)

Participants described how if adolescents had more knowledge about contraceptive use, for example, they would be able to prevent pregnancy better. It's clear that equipping adolescents with knowledge on SRH topics would benefit their SRH. The presentation of findings now proceeds to narratives surrounding the second theme, which explores the improvements needed in SRH service delivery.

THEME 2: Adolescents were generally satisfied with the SRH services received in the health center; however, they reported the need for improvements in SRH service delivery

When participants were asked whether they were satisfied or not with the health center's contraceptive, STI, and HIV services, the majority responded that they were satisfied with services most commonly as a result of the information that is provided:

> *"The same to me, people of our age are satisfied with services offered by the well-trained health workers from our community. This is because they train us with knowledge which can help us prevent the sexual transmitted diseases as well as unintended pregnancies." (10-14 y.o boy)*

However, when participants were asked what could be improved about the SRH services in the camp, this sentiment was contradicted by adolescents' lengthy narratives surrounding the barriers and recommendations for the accessibility, appropriateness, and adequacy of SRH services. Four sub-themes were discussed by adolescents: 1) the decentralization of SRH services from the health center; 2) the inadequacy of health professionals to provide comprehensive SRH care; 3) the need for more regular, accurate sources of SRH information; and 4) disparities in access to SRH services.

Sub-Theme 2.1: Need for more youth-accessible SRH service locations

A common concern among adolescents was the location of SRH services. Adolescents explained that SRH services are largely centralized in the hospital, which prevents many adolescents from seeking services due to fear of communal judgment. A couple of participants explained:

> *"According to me, there are some people who are ashamed of seeking condom services at the hospital." (10-14 y.o boy)*
>
> *"I really feel like we must find people here in the camp who will go and talk to the youth every week. Because young people are afraid to go to the hospital. And questioning is important to us, and it makes them less likely to engage in sexual activity." (15-19 y.o girl)*

Fear of going to the camp hospital influences adolescent's utilization behavior. Participants shared that the most widely used contraceptive method among adolescents is condoms because it can be accessed privately:

> *"Here in Mugombwa refugee camp, the most commonly used contraceptive method is condoms. This is because the community health workers distribute condoms in all quarters, and before they distributed [condoms] in every toilet in the camp. Sometimes refugees are ashamed of taking other contraceptive methods like pills and IUD, but they prefer using condoms as it is done in secret." (15-19 girl)*

Privacy was a major need that adolescents shared. Similarly, several female adolescents described the use of cycle tracking as a method of pregnancy avoidance as a helpful alternative to seeking out services from the health center. One participant explained:

"I understand other methods that they use which you do not mention here. When you are a girl and using the method of counting your days will also help you. This can help you without asking for those services. You can do it for yourself."(15-19 y.o girl)

A common solution participants offered to address the barrier of accessing contraceptives in the health center was the creation of a private youth-specific space to access contraceptive, HIV and STI services privately without the fear of judgement from other community members:

"If I get that chance, the place I think that can be better for adolescents is that finding contraceptive services at hospital can be shifted to another place different from the hospital. I can move those services where many of youth meet always. For example, near the playing grounds, schools etc. This is because sometimes adolescents fail in searching those services because when they go to the hospital, people think that they are HIV positive. So I can create that place different from hospital in order to let adolescents feel free to search all those services they want." (15-19 boy)

One of the location-specific service barriers described was access to resources and spaces for menstrual hygiene care. The lack of a youth-specific space poses an issue to the menstrual hygiene of women and girls. Adolescents explained the importance of having a private space for girls and women to access menstrual products and change them safely:

"I feel like there are times when you find a girl who doesn't have Cotex [Menstrual pad]. There are times when a girl at home has a Cotex, and no one is free to go and ask her out. And you cannot go to the health center to ask for it. I feel that they have to set up a youth room with Cotex. Because there are companies that own them and now they have them in the camp. If you haven't you can find it in the youth room easily." (15-19 y.o girl)

"For me, if I am given an opportunity to design the perfect place for boys and girls to receive contraceptive, HIV and STI services, I would construct a private room for girls. The reason behind that private room is whenever they get in their monthly period, the room will help them change their pads." (10-14 year old boy)

Being able to safely and privately access services was a clear requirement for adolescents in these discussions for all SRH services, including menstrual health. Another aspect of SRH service delivery that came up was the need for health professionals that afford adolescents' safety, privacy, and positive regard. The next sub-theme explores the capacity of health professionals.

Sub-Theme 2.2: Inadequacy of health professional capacity to provide accessible and judgement-free SRH service

When adolescents spoke about their access to SRH services, they spoke about the large role that health professionals play in the dissemination of information and services. However, adolescents expressed that they have experienced judgement and unwelcoming responses from health professionals in response to their use of services which prevent hinder their access to SRH services. Adolescents explained their need for receptive health professionals who are comfortable speaking about SRH topics to adolescents:

"There are some service providers whom you tell your problem to, and they laugh at you. After that, you decide to never tell all your problems to them." (15-19 girl)

"There is a time when you ask someone a question, and they reply 'why are you asking that question'? When you ask someone, and they tell you that, you immediately feel like you will never go back." (15-19 y.o girl)

In addition to a lack of positive regard, participants explained that health professionals are often not present or available in the health center. They explained how even singular negative experiences with this act as a barrier for them to utilize the services in the future. One participant explained:

"I feel maybe you are going to ask someone a question. You find that he/she has a lot of things, yet you want a quick answer. When you go and ask him, there are times when he is talking to many people." (15-19 girl)

A solution many adolescents provided to address the issues they've experienced with health professionals was to expand the team of community health workers capable of responding to the needs of adolescents:

"For me, I think the number of community health workers is not enough because there is one community health worker in one quarter. Based on the important role they are playing in our community; I think one quarter needs at least five community health workers." (15-19 boy)

The participants felt that increasing the number of community health workers that could cater to the large population in each quarter would provide adolescents with the opportunity to connect with a community health worker whom they felt personally comfortable with:

"Because there are times when a person likes to talk to someone and that is when he or she relaxes. You cannot be able to approach a community mobilizer yet you don't talk to him/her even one day. I feel like they can hire many people. If you are not connected with one, you can be connected with another and you ask your questions." (15-19 y.o girl)

Participants expressed that not only is an increase in the number of community health workers needed, but a cohort of health professionals with adequate gender representation is necessary to allow both males and females to seek care from the individuals they're most comfortable to ask sensitive questions and seek services from:

"I feel that they can bring mothers and girls who will be teaching. If they are boys both mother and girls have a shame. It can be better if they meet the ones who have the same sex." (15-19 y.o girl)

Positive regard, presence, availability, and adequate human resource capacity were characteristics of the health service delivery system that adolescents cited as barriers for adolescents to accessing SRH services. For each of these barriers, participants gave inverse recommendations, including the need for more regular and accurate sources of SRH information.

Sub-Theme 2.3: Need for more regular and accurate sources of SRH information

Participants shared that while they largely speak to their friends, colleagues, and parents about SRH topics and the health center is available for counseling, there is a need for more SRH outreach that is consistent, reliable, and accurate sources of SRH information:

> *"I have so many friends whom we discuss those topics. Sometimes I have many friends that can lead me in the wrong ways. The more you discuss with many people, the more they give you different ideas." (15-19 girl)*
>
> *"In Mugombwa refugee camp we need more training, where many of refugee's youth can be trained about sexual and reproductive health knowledge." (15-19 boy)*

The need for more SRH information stems from the limited human resource capacity adolescents previously cited. Most participants explained how regular SRH knowledge would enable them to better navigate their own SRH. Among the topics that were important to adolescents to receive more information about were the symptoms of STDs and the use of contraceptives:

> *"In my own view, adolescents, mainly girls, they meet with the problem of lack of knowledge, where some girls in our community don't know how to count their monthly period. And she may be pregnant due to lack of that knowledge." (15-19 y.o boy)*
>
> *"Many problems that adolescents are facing in our refugee community as the rest of my colleague said is the lack of knowledge on contraceptive and sexual reproductive health services among adolescents because perceptions and myths of parents who refuse to teach their children about the said above [SRH] services.." (15-19 y.o boy)*

Many participants explained how there's a lack of regular SRH outreach and information to help them navigate sexual scenarios that involve the need to know how to properly use contraceptives and prevent STIs/HIV. Specifically, participants highlighted a significant disparity in the groups of adolescents that receive SRH information and outreach.

Sub-Theme 2.4: Disparities in access to SRH services

Participants shared that while community health workers do some community SRH outreach, community health workers cater to pockets of the population and lack comprehensive coverage of the adolescent population. Adolescents explained that this leads to large pockets of the population without SRH knowledge:

> *"Sometimes the community health workers make injustice while choosing girls in our quarters. They are used to choosing the same girls while we have so many girls in our quarter. The rest of the other girls will never have that knowledge because they train the same ones. (15-19 y.o girl)*
>
> *"No [I am not satisfied]. Community health workers have injustice in their job, this where they don't select me while they have their neighbors. For me community health workers need more training." (15-19 y.o girl)*

Participants made it clear that adolescents are not a homogenous age group with the same barriers to SRH care. Participants expressed that younger adolescents are often left out of SRH outreach

activities, which predispose them to unplanned pregnancy, STIs, and HIV since they are sometimes also sexually active.

> *"My opinion is that people under fourteen years old are neglected, and based on my experience, a large number of adolescents in Mugombwa refugee camp that are impregnated are those of fourteen. This should be changed, and take from ten years then above, because there are some girls who start their monthly period at twelve." (15-19 y.o girl)*
>
> *"Things that can be changed here is that sometimes health workers come and select people from fourteen to nineteen only, while people from thirteen also need those services. I think that can be changed." (15-19 y.o girl)*

Participants explained that SRH outreach can be incredibly selective and infrequent, which means many adolescents who want the information don't receive it. From this barrier, adolescents highlighted the need to create safe spaces for younger adolescents specifically to be able to access SRH information and services:

> *"I feel like they would take fourteen-year-olds and talk to them separately, and those with fifteen to twenty would talk to them separately. Since you can't talk to young children and adults, you can't say what you want." (15-19 y.o girl)*

The discussions highlight the different needs 10-14 years old may have as compared to 15-19 years old's. Participants narrated how it's important that SRH outreach caters to all adolescents, not just older adolescents, since younger adolescents also experience unplanned pregnancy, STIs, and HIV. A recommendation adolescents had to improve their SRH education was to enable their parents as SRH champions.

THEME 3: Adolescents perceive their parents as important stakeholders in their SRH wellness

Across all discussions, the role of parents in the SRH of adolescents was an emerging theme. Many adolescents narrated that their parents are important sources of SRH advice and information but that they need more education to help adolescents navigate their own SRH. Three key sub-themes were present, including: 1) parents acquiring contraceptives for their daughters; 2) parents as a safe, trustworthy source of SRH information; and 3) the desire for CHWs to train parents on SRH.

Sub-Theme 3.1: Parents acquire contraceptives for their at-risk daughters

Participants highlighted the pervasiveness of financial limitations and the influence it has on parents' role in adolescents' sexual and reproductive health. Specifically, three adolescents highlighted that poverty had influenced some parents to play an active role in preventing their adolescents from experiencing unplanned pregnancy:

> *"Sometimes a parent/ mother decides to take her daughter to hospital to get injectable services due to her behaviors. This is preferred due to a parent sees that it would be difficult to raise her grandkid because of financial means." (10-14 y.o girl)*
>
> *"It happens that some parents from our community seek contraceptive services for their daughters. This mostly occurs when a mother sees bad behaviors to her daughter, and*

instead of having her pregnant at early age, a parent/ mother decides to take her daughter to get some contraceptive services." (10-14 y.o girl)

Participants explained that parents could have a significant role in the SRH of adolescents' lives to prevent financial burdens and early pregnancy. The narratives emerging from this theme appeared to indicate that parents are important stakeholders. As is discussed in the next subtheme, participants explained how parents are a safe source of SRH information.

Sub-Theme 3.2: Parents as a safe and trust-worthy source of SRH information

When discussing who adolescents feel most comfortable speaking to about SRH topics, they primarily cited their friends, colleagues, and mothers. A major theme among adolescents was their distrust in their peer's advice about SRH, whether because they witnessed their risky sexual behavior or because they perceived they were being misled:

> *"Sometimes they are lying to you because there are children who give unreliable information. Because they mostly give false information. Instead of your mother, because she has seen so much she is going to sit down and talk to you and stop hearing about it elsewhere. I feel that is even better." (15-19 y.o girl)*

Participants referred to their parents as more trustworthy sources of information since parents often wish the best for their children. Several adolescents expressed their confidence in receiving advice and information about SRH from siblings and primarily their parents:

> *"The trustworthy person whom I like discussing sexual reproductive health with is my mother. She likes giving me constructive ideas related to sexual reproductive health. Another person is a friend of mine whom we like discussing negative effects of doing sex at early age." (10-14 y.o girl)*

> *"My idea is to encourage parents to talk to their sons or daughters about reproductive health and family planning." (10-14 y.o boy)*

The narratives emerging from this theme appear to indicate that there is trust in parents concerning SRH topics. Aside from parents, adolescents shared that they have conversations with their siblings and friends. It is worth noting that adolescents never cited community health workers or other health professionals as a significant source of their conversations about sexual and reproductive health. An issue participants highlighted was that while parents are trusted stakeholders, they need to be further educated on SRH issues so that they can empower their children.

Sub-Theme 3.3: Desire for community health workers to train parents as SRH stakeholders

Since adolescents reported feeling most confident in their parents giving them accurate and trustworthy information, a prominent desire among adolescents was to have community health workers train their parents so that they can be stakeholders in their own SRH care. One adolescent explained:

> *"My point of view, it could be better if the well-trained health workers from our community approach our parents and teach them how useful to talk to their kids about sexual reproductive health. This is because many adolescents at our age get pregnant, and I think this is because many parents in our community don't spare time with their kids in teaching them about sexual reproductive health." (10-14 y.o girl)*

This narrative reveals the all-too-common trend that parents are uncomfortable speaking to their children about SRH topics due to stigma and taboos. Participants felt if their parents were trained on SRH,_then adolescents would feel more comfortable asking their parents questions they are very curious about in hopes that the training would make parents more comfortable sharing information on SRH without judgement:

> *"I feel like when you were a kid at school, they taught you something about life. You feel like you want to ask a parent, but you feel uncomfortable asking. If you ask, he/ she says 'you kid what do you want?' You want to hear something you don't know is wrong. So, I feel like they can find people who will teach our parents, and parents talk to their children." (15-19 y.o girl)*

It's clear from these narratives that adolescents have an interest in having conversations about SRH topics with their parents but often feel discouraged based on their parents' capacities to have these conversations. Building on this theme, the next theme explores how communal beliefs and a general lack of general perpetuate poor contraceptive utilization among adolescents.

THEME 4: Lack of knowledge and commonly held beliefs prevent contraceptive utilization

Participants described a lack of knowledge and several commonly held beliefs among adolescents that discourage contraceptive utilization. Exploring the barriers to contraceptive utilization revealed five sub-themes: 1) fear of side effects from long-term contraceptive methods; 2) myths about using condoms; 3) a common condom colloquial; 4) lack of knowledge about proper condom use, and 5) abstinence as the superior contraceptive method.

Sub-Theme 4.1: Fear of side effects from long-term contraceptive methods

Fear of side effects was the most common reason adolescents shared for not using contraceptives, especially so for hormonal contraceptives. This fear appears to drive adolescents to choose less invasive methods of pregnancy avoidance such as condoms or traditional methods:

> *"I think that using contraceptive methods for girls there is no problem. But when adolescents use the methods of IUD later bring for them some consequences including involuntary abortion. The best option I can advise them to use is to use condom, I think it can't bring for them any consequences. Apart from that there is no problem for girls using the highlighted contraceptive methods. The problem is that some of them can bring some consequences."(15-19 y.o boy)*

> *"We have been told that using IUD can bring negative effect to females. In addition to this, when a young girl engaging in using contraceptive methods, this will cause ruin her life, and you may end up losing fertility. That is how I understand about that topic." (15-19 y.o girl)*

From these narratives, it appears that fear of side effects is a common colloquial that adolescents learn from others in the community. Participants also shared how these negative perceptions of long-term contraceptive methods has resulted in unprotected sex and unplanned pregnancy:

"Sometimes you feel like you want to have sex, but you immediately hear bad things about those contraceptive methods. You feel like you cannot use them. You choose to do unprotected sex and get pregnant. So, we need many people who come to us for advice." (15-19 y.o girl)

Adolescents who are afraid of the potential side effects of hormonal contraceptives explained that they feel limited to condoms, traditional methods or unprotected sex. However, participants highlighted to the deeper issue of not knowing how to use condoms properly.

Sub-Theme 4.2: Lack of knowledge about proper condom use
In the discussions about condom use, a common challenge that was shared was that many adolescents don't know how to use condoms properly. It was clear that this lack of knowledge also permeated into adolescents' fear of negative consequences in using condoms:

"Some people our age fear to use condoms on account of not having adequate knowledge about the use of them. They fear negative effects that may result from using a condom improperly." (10-14 y.o girl)

"My idea is to approach the well-trained heath workers from our community to teach us the best use of a condom" (10-14 y.o boy)

These narratives highlight the misconceptions about condoms that arise from a lack of knowledge. These misconceptions deter adolescents from utilizing condoms. Participants described their need for more information and training on how to use condoms effectively and safely. When asked what improvements were needed for adolescents to access contraceptives, one adolescent boy said:

"Mobilization and more teaching on how adolescents may use condom properly. This is because in mugombwa refugee camp there is a gap among adolescents on how to use condoms properly". (15-19 y.o boy)

Broader and more consistent education about contraceptives is seen by many as a way to encourage contraceptive utilization and ensure adolescents are practicing safe sex. The next sub-theme explores other myths about condoms that prevent their use.

Sub-Theme 4.3: Myths about using condoms
Condoms were the most widely discussed and used contraceptive method among adolescents. However, myths about proper condom use all prevent adolescents from utilizing contraceptives in a safe effective manner. Several adolescents explained that there is a common belief among adolescents that if a condom is used, it will get lost inside the vagina. This myth influences adolescents to engage in unprotected sex and avoid the utilization of condoms:

"For me, the only thing I can share is that we need a lot of information about reproductive health so that you don't get sick or get pregnant. Because sometimes we hear false information. For example, when a virgin uses a condom, that can get inside the sex. The injection also causes disease. In general, we need enough information on these things to teach our peers." (15-19 y.o girl)

While some adolescents discussed the myth in terms of a need for more information about how to use condoms, others discussed the myth as negative motivation for using condoms during sex:

> *"Some parents counsel their daughters to do not have sex with boys. However, they are some girls or boys who decide to do not to use condoms during sex due to some speculations in our camp say that once a condom is misused, it may stay in a girl's private part." (10-14 y.o girl)*

It was clear from the participants that the fear of the consequences of misusing a condom renders unprotected sex more appealing that using a condom. This common myth further emphasizes sub-theme 4.2, where participants shared the gap in adolescents' knowledge on the use of condoms.

Sub-Theme 4.4: A common condom colloquial

Adolescents also shared a common analogy among adolescents about the pleasure of sex using condoms being analogous to eating candy with its wrapper on. This shared colloquial encourages unprotected sex and predisposes adolescents to unplanned pregnancy, STIs, and HIV:

> *Some adolescents refuse to use condoms, having negative thinking that they cannot eat candy in its wrapper. And this results in many problems, as we have seen, where they can be impregnated or be STI or HIV-positive. (15-19 y.o boy)*

These common colloquial reveals that lack of knowledge is not the only factor that perpetuates unprotected sex. Rather, common perceptions about sexual satisfaction using contraceptives against adolescents' risk analysis of not using contraceptives influence contraceptive utilization.

Sub-Theme 4.5: Abstinence as the superior method of contraception

Adolescents shared that they believe abstinence is the superior method of contraception as compared to other hormonal contraceptives. Participants shared that abstinence is the surest way to avoid unintended pregnancies, HIV, and STIs. A participant explained:

> *"I agree with those who said that we are not allowed to use contraceptive methods. Because we are still too young to use those methods. The best option for our generation as my colleagues said is "abstinence" because when you avoid doing having sex, this means that you are away from those problems including STI and HIV." (15-19 y.o boy)*

> *"Abstinence as most of my colleague said, should be our priority that everyone should adopt. Yes, it is better for those also who use contraceptive methods, but as my advice those who are able to not having sex before their marriage they cannot use contraceptive methods. But those who fail in restraining oneself from indulging in sex they can use those contraceptive methods." (15-19 y.o boy)*

The primary belief in abstinence reveals itself as a deterrent to utilizing other contraceptive methods. Many adolescents only endorsed the use of contraceptives once abstinence failed. The use of contraception among adolescents was viewed as a result of failing to abstain. One participant narrated:

"The reasons why people with our age but different sex apply birth control it's because they fail with abstinence." (10-14 y.o girl)

Failing to abstain came up in a negative light as the result of not being able to control oneself. It was clear through the discussions that engaging in sexual intercourse as an adolescent is stigmatized. This stigma poses a contradiction for adolescents who believe it is morally superior to abstain but may be sexually active and require contraceptives. The belief in abstinence, therefore, influences adolescents' contraceptive utilization behavior. The final theme explores barriers that limit STI and HIV service utilization.

THEME 5: Negative perceptions prevent adolescents from utilizing STI and HIV services

The fear of judgement and negative perceptions from friends, family, and community members was pervasive in the discussions across all FGDs but was particularly concentrated in the discussion around utilizing STI and HIV services. Three sub-themes were identified: 1) fear of peer and community judgment, 2) fear of knowing one's status, 3) shame and stigma of utilizing STI and HIV services.

Sub-Theme 5.1: Fear of peer and community judgement

One of the effects of having shame and stigma surrounding being STI or HIV-positive is the resulting peer and communal judgement towards those that are positive. Participants described how the fear of peer and communal judgement prevents adolescents from accessing HIV or STI testing or treatment:

"Some adolescents refuse to get tested because having the fear that our community will take him or her as someone who always used to have sex. This is the common problem to many of our colleague faces, because when you enter in the room where HIV is tested, the rest of our community know that you have been tested for HIV. That is the culture that we have in our community." (15-19 y.o boy)

"There is a time a person can have sex, and with bad luck, that person found himself/herself contaminated. In that case, the person may decide not to go for treatment fearing that he/she will be laughed at by colleagues and the entire community as well." (10-14 y.o girl)

The fear of social rejection as a result of the stigma that still surrounds sex, HIV, and STIs was a common narrative.

Sub-Theme 5.2: Fear of knowing one's status

When asked about utilizing STI and HIV services, participants also commonly reported that adolescents might not use STI or HIV testing for fear of knowing their status even if they suspect that they are at risk. The fear of knowing one's HIV or STI status was described in the context of the fear of social exclusion:

"It comes to my attention that a person may suspect him/her as an HIV positive, but he/she fears to confirm it through a blood test." (10-14 y.o girl).

The fear of knowing one's status is connected to the anticipation of a lack of social support if the result is positive. Living in the unknown appears to feel safer for many than experiencing shame

and stigma. This leads us into our final sub-theme exploring the barrier of shame and stigma to utilization.

Sub-Theme 5.3: Shame and stigma utilizing STI and HIV services

Similarly, adolescents shared that stigma and shame surrounding STI and HIV prevent adolescents from seeking out those services. Participants highlighted the stigma surrounding being HIV positive, which makes utilizing STI and HIV services challenging:

> *"I find that most people are ashamed. They think that if a community mobilizer comes to visit me at home maybe doctors will keep it as a secret. But if they see doctors coming to visit you on a regular basis or a health worker they may suspect you. So that make them uncomfortable." (15-19 y.o girl).*
>
> *"It happens that you may have personal conflicts with someone, and that person spreads rumors saying that you're contaminated with HIV/AIDS. Because of that rumors that circulate among people, a person may feel ashamed of going for a test." (10-14 y.o girl)*

These narratives highlight that some adolescents would rather avoid the feeling of shame and stigma than access HIV and STI services. Building strategies to increase adolescent utilization of STI and HIV services will require destigmatizing these conditions and raising awareness of the importance of prevention.

4.2.4 **Enriching the Quantitative Study**

In summary, our qualitative findings offer an enriched perspective of the quantitative findings concerning adolescents' lived experiences navigating SRH services within Mugombwa Refugee Camp. The data offers an emic perspective of adolescents' participation in their own SRH, the barriers they face, and the recommendations they have to improve access to SRH services. Based on these findings, a larger narrative can be drawn from the quantitative results regarding the factors that influence SRH knowledge, perceptions, and service utilization. These findings demonstrate that adolescents face several individual, interpersonal, communal, and macro-social barriers to accessing SRH services and preventing unplanned pregnancies, STIs, and HIV. As highlighted in these narratives, adolescents suggest that to improve SRH services, there needs to be a strategic effort to mitigate socio-cultural factors influencing poor SRH outcomes, bolster the capacity of SRH stakeholders to be champions for adolescents, and increase the regularity of accurate sources of SRH information to prevent myths and misconceptions and enable SRH service utilization.

CHAPTER FIVE: DISCUSSION

In Mugombwa Refugee Camp, Rwanda, adolescents are predisposed to numerous sexual and reproductive health risks, including unplanned pregnancies, STIs and HIV. This mixed-methods study investigated the knowledge, perceptions, and utilization of contraceptives, STI, and HIV services among adolescents in Mugombwa Refugee Camp, Rwanda. Using insights from the health belief model and intersectional feminism approach, the results were discussed to understand the link between modifying factors, perception, and utilization of SRH services as well as how multiple identities intersect to inform adolescents lived SRH experiences and needs. The study also used a gender lens to answer this study research question. Context from African Humanitarian Action's (AHA) delivery of SRH programs in refugee camps provided an additional perspective that contributed to the discussion of this study's findings. While some of this study's objectives are answered primarily by our quantitative component, our discussion weaved in qualitative results that deepen the perspective. The strength of this feminist mixed methods approach is that it provides the advantages of both methods in understanding the complex nature of adolescent SRH experiences and needs. This discussion examined the study findings regarding each of the six objectives.

Level of adolescent knowledge of Sexual and Reproductive Health

This study revealed that almost half (42.2%) of the participants had low knowledge of Sexual and Reproductive Health. This study's finding was lower than other studies conducted in Ghana, Malaysia, Nigeria, and Ethiopia, where most of the participants had a high level of knowledge (Abajobir & Seme, 2014; Abiodun & Olu Abiodun, 2016; Lee & Yeo, 2022; Yendaw et al., 2015). The identified gap in knowledge might be because of gaps in the delivery of SRH information to adolescents in the camp. Adolescent Sexual and Reproductive Health (ASRH) education in Mugbombwa refugee camp is delivered by health staff through quarterly visits to the school and monthly sensitizatiofn to only selected adolescents in the camp. This strategy is supplemented by information provided by trained female mentors, school health clubs, and peer educators at the camp. Given the frequency with which adolescents receive comprehensive sexuality education in school and the fact that not all adolescents participate in the monthly sensitization within the camp, there may be inconsistency in the SRH information received by adolescents in the camp under this strategy. Training by health professionals once a quarter is insufficient to ensure that these adolescents receive comprehensive sexual education in school. Even though schools have health clubs tasked with providing adolescents with SRH information, there is a need to monitor the delivery and acceptability of information by the health club without depending only on the monthly report submitted by the club. Also, the inability to sensitize all the adolescents at once might present a gap in the health workforce that can cover the whole camp. One of the adolescents in the FGD also pointed out that the health workforce isn't sufficient to meet the needs of adolescents.

> *"For me, I think the number of community health workers is not enough because there is one community health worker in one quarter.*

Information received by adolescents in the refugee camp depends on the information given by UNHCR in conjunction with other partners on SRH. If the adolescents were not living in the refugee camp, they might have a diverse source of SRH information, such as social media, and digital platforms providing SRH services. Hence, partners in the camp should strengthen and improve their ASRH workforce to ensure that adolescents have unlimited access to SRH information.

The adolescents knew the least about when Depo-Provera (injection) should be taken to be effective. This explains why none of the adolescents use the injection method. Due to provider bias, adolescents in refugee camps might not be given in-depth information on all the available contraceptive methods. Provider bias has been linked with delivering contraceptive method information and services among adolescents (Corley et al., 2022). Future studies should explore provider bias in delivering SRH information to adolescents in refugee camps and its impact on their knowledge and utilization of services. SRH providers in the refugee camp should also be made aware of the adolescent's reproductive health rights, including access to SRH information, and this right should not be denied due to personal bias or refugee status.

There were significantly more female adolescents with low SRH knowledge levels than males in this study. This finding is similar to other studies conducted in Cameroun, Nigeria, and Zambia (Abiodun et al., 2016; Fubam et al., 2022; Namukonda et al., 2021). Males having more knowledge than females might be because males attend more ASRH programs organized in the camp. Girls in the camp are restricted by gender norms that expect them to handle household chores and errands hence, limiting their availability to attend ASRH education programs in the camp. This shows that the existence of gender norms in the camp limits the effectiveness of programs implemented in the camps and further contributes to low utilization of SRH services, teenage pregnancy, HIV, and STI. It is not enough to have innovative activities to improve the SRH knowledge of adolescents in the camp; with gender inequity in the picture, there will always be a gender gap in their level of knowledge. Policies and programs should be targeted toward breaking gender norms and promoting gender equality in the camp. That way, equal access to SRH information for all genders will be improved. Future studies should shed more light on gender norms that limit adolescent females in refugee camps' access to SRH information.

Even though the female condom has been cited as a form of female empowerment, very few female adolescents know to use this contraceptive method effectively (Moore et al., 2015). This could be because only female sex workers in the Mugombwa refugee camp are trained on the use of a female condom. This shows that the camp authorities recognize that FSWs might lack the power to negotiate male condom use by their partner and the female condom gives them an alternative strategy. However, this is not only an issue of just female sex workers but of females generally. Lack of power to negotiate condom use with a partner was reported as a barrier to consistent condom use among female adolescents in Southern Africa (Aventin et al., 2021). With gender norms that foster male dominance in sexual issues, it is expected that adolescent's female should also be knowledgeable on the use of female condoms (Obembe et al., 2017). This study finding points to the gap between the use of a female condom for female agency, autonomy, and empowerment concerning sexual intimacy. Female condom information should be provided to refugee camp female adolescents as it is their sexual and reproductive health right and should not be denied by authorities on whom they rely.

More females knew that menstruation is a normal healthy process compared to males. This difference is likely because females are the ones experiencing the menstrual cycle; however, it also reveals a gap in menstrual education among adolescent male refugees. The reason why the gap in male knowledge about menstruation is an issue is because of how a lack of male knowledge on menstruation drives societal stigma. For example, the gap in knowledge about menstruation might further contribute to period teasing among males. In Tanzania, it was reported that 18% of males

had teased a girl about her period, and 29% had observed their close friends teasing a girl about her period (Benshaul-Tolonen et al., 2020). Self-reports from female adolescents in Kenya and Ethiopia also revealed that period teasing during menstruation contributes to anxiety (Girod et al., 2017; Tegegne & Sisay, 2014). Because of the role boys play in period tease, refugee camp SRH programs targeting menstruation should include both males and females to ensure positive social support during menstruation.

More males than females knew that when putting on a male condom, it is important to leave space at the tip. This difference shows a gap in practical education given to females on male condom use, which limits adolescents' female exposure to condom use demonstration. Narratives from the FGDs revealed that SRH education is often only conducted for select groups of adolescents, leaving other adolescents in the camp left out of programming. This strategy may be adversely affecting the delivery of practical education to females on the proper use of a male condom. When female adolescents in the refugee camp are provided with in-depth information on the correct way of wearing male condoms, there will be increased involvement in ensuring appropriate male condom use to prevent condom tear or breakage during sex.

Age was significantly associated with the level of knowledge of both genders. Adolescents who were 10-14 years were less likely to have high knowledge of SRH compared to 15-19 years old adolescents. This study reveals a gap in the information received by adolescents between the ages of 10-14. This gap may be due to the limited SRH information received by younger adolescents as compared to older adolescents. In Mugombwa Refugee Camp, the information, education, and communication (IEC) material used to sensitize younger adolescents on SRH only contains information on puberty, menstruation, and available SRH services, excluding information on contraceptive use, HIV and STI transmission, which the older adolescents IEC materials contain. These IEC materials produced by the Rwanda Ministry of Health (MOH) needs to be revised to ensure detailed information on SRH for age 10-14 years.

It is important to note that the situation analysis in Rwanda's FP & ASRH policy strategic plan, which was led by MOH, did not include gaps faced by adolescents living in refugee camps, and only 16–19-year-old adolescents were involved in the FGD conducted (Ministry of Health, 2018). The poor inclusion of adolescent refugees and younger adolescents in this policy creation might limit evidence informing the development of IEC materials used to sensitize adolescents in the Mugombwa refugee camp. Furthermore, this age gap in knowledge could contribute to the increase in teenage pregnancy, HIV, and STI transmission among young adolescents in the camp. Woog et al., (2017) reported that an estimated 777,000 births in 2016 among young female adolescent females, out of which 58% of the births took place in Africa, and more than one-third of births to mothers younger than 15 in developing countries were unplanned. It is important that all stakeholders involved in ASRH in the refugee camp ensure the full involvement of younger adolescents in the planning and implementation of SRH programs.

There were differences in the factors that predicted a high level of knowledge among male and female adolescents. The number of children was significantly associated with a high level of knowledge in female adolescents but not in male adolescents. Female adolescents with no child were less likely to have high knowledge compared to participants with one child. This might be because antenatal and postnatal care services provided in Mugombwa camp are inclusive of SRH

education, and women with children would have accessed these services, hence the higher likelihood of having high knowledge of SRH. This also explains the gender difference in this factor because men rarely visit health facilities for antenatal and postnatal care. Adolescent sexual and reproductive health education should not be limited to the health facility alone, innovative approaches, such as the creation of adolescent SRH in-school clubs, dramas, comic books, and SMS services, should be employed to increase the knowledge of adolescents on SRH.

Being disabled was significantly associated with a low level of knowledge in male adolescents but not in female adolescents. People with disabilities (PwDs) experience significant challenges across the life cycle, including poor education, poverty, sexual violence, and exclusion from employment and social activities (Kuumuori et al., 2020). As a result, PwDs are vulnerable to adverse SRH outcomes and increased barriers to accessing SRH information and services. The literature shows that women and girls with disabilities (WwDs) most notably experience higher rates of gender-based violence, exploitation, maltreatment, and neglect (UN Women, n.d.). The gender disparity identified in our findings might be because there were more male adolescents than female adolescents in this study that were disabled, and the sampling method utilized did not select study participants based on disability strata to ensure full representation of female disabled adolescents in this study. In order to get a full representation of diverse identities, future studies should consider using stratified sampling method, especially in a setting where there is an existing sampling frame.

Overall, this study found a gender and age gap in SRH knowledge among adolescents in refugee camps. This will inform the development of gender and age-sensitive SRH education in the refugee camp, as well as the implementation of activities that challenge gender norms that limit females' access to SRH information in the camp. It will also add to the body of knowledge by filling a gap in gender-disaggregated data on SRH knowledge among refugee camp adolescents.

Level of adolescent knowledge of SRH services available in the Mugombwa camp.

Most of the adolescents were aware of the availability of information-related services provided in the camp, such as sex-related information and education, contraceptive use, STIs, and HIV. This could be because the adolescents can easily see health workers, peer educators, and female mentors providing SRH information to adolescents in the camp; however, the content delivered in information-related services will influence the knowledge of other available services. It is not enough to have a system for providing SRH information; there should also be consistent review and monitoring of the information delivered to adolescents, as well as retraining those tasked with providing SRH information. Also, peer educators in the camp are only expected to inform their fellow adolescents of available SRH services. The presence of these individuals around the community strengthens the reason why adolescents are aware of information-related services.

One of the least well-known services for adolescents was HIV treatment services. The study finding is similar to a study conducted among young people from Nomadic and Agricultural communities in Tanzania, where awareness of HIV treatment was also low (Ngadaya et al., 2021). The low awareness of HIV treatment services might be because the workforce trained to provide information on SRH services only focus on preventive care and not curative. They are not expected to provide information on HIV treatment, only the availability of HIV testing and counseling services. Also, the refugee provides HIV treatment referral services which the adolescents are not aware of. This gap could contribute to the stigmatization of adolescents living with HIV when it

is not known that treatment services are available for them in the refugee camp. Since awareness creation is one of the first steps to prevention, the workforce should be allowed to inform adolescents about the availability of HIV treatment services. This may also encourage adolescents to seek HIV testing without fear of being positive if they are aware of treatment options.

Despite the American Academy of Pediatrics' endorsement of IUD use among adolescents (Klein et al., 2007), few female adolescents were aware of its availability in refugee camps. This also explains why the use of IUDs was low. IUD is one of the contraceptives that has only recently become available in the Mugombwa refugee camp, which explains why the majority of the adolescent population is unaware of it. Therefore, there should be a review of information provided to adolescents to be inclusive of the availability of IUDs. When contraceptive methods do not require daily adherence or decision-making at the time of sexual intercourse, adolescents are more likely to use them, resulting in fewer unplanned pregnancies (Fleming et al., 2010). Because IUDs fall into this category, adolescents should be more informed of their availability in the camp.

The awareness level of most of the SRH services was between 60-78%; this shows a need to improve adolescents' awareness of SRH services in the camp. Female participants with low SRH knowledge were 0.063 times less likely to have high knowledge of SRH services compared to female participants with high SRH knowledge. Information on available SRH services and where they can be accessed is an important component of SRH education. Low knowledge of SRH translates to low knowledge of SRH services, indicating the need to reevaluate the sources of female SRH knowledge, which resulted in both low knowledge of SRH and SRH services.

The perceptions of adolescent refugees on SRH Services in the Mugombwa camp.

Almost a quarter of adolescents perceived that SRH services were not affordable for them. This perception points to the perceived barrier construct in the health belief model, which has the potential to impede SRH service utilization among adolescents in refugee camps. Drawing on this framework, knowledge is a modifiable factor that can aid in changing adolescents' perceptions. Since SRH services are provided free of charge within the camp, it is important to increase the knowledge of adolescents about the nature of the services available in the camp (affordable, youth-friendly).

Our results demonstrate the reinforcing influence of knowledge, perceptions, and utilization on one another. High SRH knowledge was significantly associated with having a perceived risk of pregnancy without contraception and a positive perception of females using contraceptives and asking for condom use. Adolescents with higher SRH knowledge were more likely to feel comfortable acquiring contraceptives, seeking care from service providers, and feeling satisfied with service provider interactions. A similar result was found in a study conducted in Beijing that SRH knowledge influenced sexual attitudes (Guan, 2021). This finding reinforces the need for SRH education to confer SRH-promoting perceptions. It also strengthens the health belief model assumptions that knowledge as a modifying factor can affect the perceived susceptibility to SRH issues, perceived benefit, and self-efficacy of SRH services.

Furthermore, our results demonstrate that SRH perception influences contraceptive utilization. Adolescents who agreed that girls and boys can ask for condom use and that there is a risk of pregnancy without the use of contraceptives were more likely to have used contraceptive services.

Having positive perceptions toward contraceptive use has been previously implicated in the utilization of contraception (Kapito et al., 2012; Tlaye et al., 2018b).

Contrastingly, negative perceptions of SRH services have equally important impacts on SRH service use (Birhanu et al., 2018; Kapito et al., 2012). The majority of female and male adolescents perceived that HIV services are only for sexually active individuals, and a third of adolescents believed contraceptives were only for married people. This finding is in alignment with the common perception among adolescents in our FGDs that abstinence is superior to using other contraceptive methods. The belief among adolescents that contraceptives are for married people may also be influencing the practice of unprotected sex, leading to teenage pregnancies, STIs, and HIV in the Mugombwa refugee camp. A qualitative study conducted in Nigeria on factors associated with contraceptive utilization among adolescents found that sexual intercourse and contraceptive use pre-maritally is considered taboo and prevents contraceptive utilization (Ezenwaka et al., 2020). The combination of socio-cultural beliefs, myths, and poor SRH knowledge all reinforce poor contraceptive utilization. Therefore, it's clear that increased knowledge and awareness of contraceptives would confer positive consequences for SRH service utilization.

Furthermore, having positive perceptions about contraceptives was strongly associated with utilizing HIV testing. Specifically, perceiving that it's okay for females to use contraceptives, that girls can ask for condom use and that contraceptives are not only for married people. Adolescents who had been tested for HIV also had more positive perceptions of asking questions about pregnancy prevention and service providers' response to adolescents compared to those that hadn't. Similarly, positive perceptions about accessing and utilizing contraceptives were strongly associated with STI testing. Specifically, positively perceiving male utilization of contraceptives and feeling comfortable acquiring contraceptives. In Mugombwa Refugee camp, SRH awareness campaigns often couple the use of condoms with STI and HIV prevention education. It's therefore possible that this combined education on contraceptives and STI/HIV prevention is conferring positive perceptions for both services. These results further demonstrate that comprehensive education on contraceptive use may have a ripple effect on other SRH services. While overall, there is a plethora of research that shows that positive perceptions toward SRH services are implicated in increased SRH utilization (Liyeh et al., 2021b; Tlaye et al., 2018b), no literature is currently available on the direct connection between contraceptive perspectives and STI/ HIV utilization; therefore, this is a novel finding.

Our quantitative results revealed that the majority of adolescents are satisfied with the privacy and confidentiality of the health center. Our FGDs corroborated this finding, further highlighting that satisfaction with health center services was primarily due to the information and advice that is available. However, 41.7% of adolescents feel service providers are judgmental when they see adolescents, and 27.3% felt SRH service centers don't include youth-related resources. Negative perceptions about service providers and the perception that youth-related services are not included in SRH service centers were strongly associated with not utilizing STI testing. Other research has also shown that perceptions of service delivery serve as either a barrier or enabler of SRH service utilization (Birhanu et al., 2018). Our qualitative analysis corroborates the importance of minimizing health professional judgment. Adolescents reported that a major barrier to STI and HIV testing use is the fear of stigma and communal judgment:

"There is a time a person can have sex, and with bad luck that person found himself/herself contaminated. In that case, the person may decide not to go for treatment fearing that he/she will be laughed at by colleagues and the entire community as well." (10-14 girl)

The importance of health professional behavior towards adolescents and the presence of a youth-friendly environment cannot, therefore, be understated.

As a whole, with the aid of the health belief model, these findings demonstrate the relationship between perceptions and SRH service utilization and contribute to the body of literature that demonstrates the effect of knowledge (modifying factor) on individual SRH perceptions and its combined effect on SRH service utilization Other research has demonstrated the legitimate relationship between knowledge influencing sexual attitudes, sexual attitudes influencing perceptions and perceptions influencing sexual behavior (Guan, 2021). Similarly, this research corroborates other findings that health worker attitudes towards adolescents is an extremely important factor in adolescents' access to SRH services. The novel findings of this study that will add to the literature on SRH utilization is the cross-over effect of positively perceiving contraceptive use and utilizing STI and HIV testing services. This may help inform the strategy of other adolescent SRH programs in and outside of refugee settings.

The utilization of contraceptive, STI, and HIV services among adolescent refugees in the Mugombwa camp

Overall, almost half of all adolescents, both sexually and not sexually active, had never used contraceptives, STI, or HIV services. It is clear from our findings that unprotected sex is very prevalent in Mugombwa Refugee Camp, where just under half of all sexually active female adolescents and one-third of all male adolescents had never utilized contraceptives. This implies that both male and female adolescents are practicing unsafe sex, which could contribute to teenage pregnancy and unsafe abortion in refugee camp. In Gihembe refugee camp, Rwanda, unsafe sex was one of the predicting factors for the prevalence of teenage pregnancy (Rosine, 2019). This reveals that it is important to pay attention to the SRH needs of adolescents in the camp to prevent a long chain of problems associated with teenage pregnancy.

The most widely used contraceptive method among females was traditional methods. Traditional methods include tracking the days of the menstrual cycle to establish phases of fertility and infertility and the withdrawal method. A systematic review that reviewed the limits of modern contraceptive use in developing countries found that women often relied on traditional methods of contraception due to poor perceptions of modern contraceptives (Williamson et al., 2009). This differs from other studies which have reported that adolescents will continue the use of modern contraceptives as compared to traditional methods (Dioubaté et al., 2021). The primary use of traditional methods among female adolescents was due to a combination of enabling factors: fear of side effects of modern contraceptives, the stigma of accessing contraceptives from the health center, and the privacy and autonomy of its use. A participant in an FGD discussion said,

"When you are a girl and using the method of counting your days will also help you. This can help you without asking for those services. You can do it for yourself."(15-19 y.o girl)

These findings demonstrate 1) that there is scope to implement effective fertility awareness method-based education in Mugombwa Refugee camp to increase the effectiveness of traditional

methods used amongst females; and 2) that in order to promote contraceptive utilization amongst adolescents, explicit education on contraceptive methods is required.

Of the male adolescents who had ever had sex, over half of them reported utilizing contraceptives. The most utilized contraceptive was the male condom. This finding is very similar to a plethora of previous studies conducted among males (Klinger & Asgary, 2017). The common utilization of male condoms was because it is the most common modern contraceptive readily available to use by males. The commonality of condom use was also highlighted in our FGDs:

> *"Here in Mugombwa refugee camp, the most and commonly used contraceptive method is the using of condoms. This is because the community health workers distribute condoms in every quarters, and before they distributed in every toilet in the camp. Sometimes refugees were ashamed of taking other contraceptive methods like pills and IUD, but they prefer using condom as it is done in secret." (15-19 girl)*

Condom use is highly recommended because of its dual protective mechanisms in preventing unwanted pregnancy and STDs. The findings of this study further revealed that the two major reasons why male adolescents use condoms is for pregnancy prevention and to prevent HIV. It is therefore important that education on condom use among adolescents in the camp emphasizes the dual protection of the condom (Brady, 2003). Including dual protection, education may also increase the use of condoms even when females are using other contraceptive methods.

Both our quantitative and qualitative results revealed several barriers to contraceptive utilization that provides insight as to why contraceptive utilization is low. The most common reason cited for not using any contraceptive methods across both quantitative and qualitative results was the fear of side effects. This finding is similar to a large body of research in several regions that have also shown that fear of side effects is one of the leading barriers to using long-term contraceptive methods (Mbadu Muanda et al., 2018; Okanlawon et al., 2011; Schrumpf et al., 2020). However, much of the current literature analyzes fear of side effects from the lens of misinformation (Diamond-Smith et al., 2012; Okanlawon et al., 2011) narratives are well documented and have been scientifically proven (Diamond-Smith et al., 2012; Okanlawon et al., 2011; Schrumpf et al., 2020). The story our qualitative results reveal is that the fear of side effects is a communal colloquial rather than SRH information that has been provided by community health workers. It is possible that there is a greater need for information on the method of action of long-term contraceptives to provide accurate information on both possible side effects and benefits. This finding further demonstrates the power of peers and peer influence. Therefore, future SRH outreach in Mugombwa Camp may consider tapping into this powerful communication channel to target contraceptive awareness raising. Research has shown that SRH utilization is greatly influenced by the behavior of peers (Dingeta et al., 2021; Morris & Rushwan, 2015). Peers can therefore serve as promising champions of SRH change.

Similar to contraceptive utilization, the utilization of HIV testing among adolescents remains at about 50%. In HIV testing, there is a clear gap between a desire to test for HIV and the actual prevalence of HIV testing. Less than half of all adolescents had ever tested for HIV, while almost all adolescents reported a desire to know their HIV status. This finding points to an unmet need for HIV testing among adolescents. While more than half of adolescents had received education on STIs in the last three months, STI testing among adolescents also remains low. Our results demonstrated a significant gender disparity in STI testing utilization; more males had ever tested

for STIs as compared to females. While research in other refugee settings shows similar issues of low HIV and STI testing due to stigma, misinformation, and healthcare mistreatment, there is no literature with sex-disaggregated data on STI testing utilization (Logie et al., 2021; Newton-Levinson et al., 2016). The most common reason for utilizing HIV services was to know one's status, and the most common reason for not utilizing HIV services was not perceiving a risk of infection. The reasons for testing or not testing for STIs were similar to HIV. The top cited reason for testing for an STI was because one's partner had an STI and the top reason for not testing for STIs was because they hadn't had sex yet. Research on factors associated with HIV testing has demonstrated similar findings that having a perception of no or low risk of HIV is a common reason for not testing for HIV (Musumari et al., 2020; Mkandiwire, 2017). Our qualitative results further corroborate this finding through an emerging theme of trusting oneself as a reason for not acquiring HIV testing:

> *"Based on my own understanding, a person doesn't go for HIV testing because he or she trusts him/herself." (10-14 boy)*

These findings provide insight into a clear gap present in SRH outreach in Mugombwa Refugee camp concerning raising awareness on the risk factors for HIV infection for both sexually active and non-sexually active individuals. Research has even shown that risk personalization significantly improves knowledge, attitudes, and behaviors related to HIV and STIs (Musumari et al., 2020).

Our results also demonstrate various factors associated with utilizing contraceptives, HIV and STI testing. Firstly, adolescents with higher SRH knowledge levels were significantly associated with having ever tested for HIV among females, having ever tested for STIs among males, and utilizing contraceptives among males. Similarly, having at least a primary education was associated with HIV testing among males and STI testing among females. Similar research has shown that higher SRH knowledge is associated with an increase in SRH service utilization (Violita & Hadi, 2019).

A large body of research specifically demonstrates the association of higher levels of education with HIV testing (Mafigiri et al., 2017; Ssebunya et al., 2018) and other reproductive health services (Liyeh et al., 2021b). This research demonstrates the importance of ensuring that adolescents remain in school. For females and males, STI testing was also associated with their father's level of education but not their mother's education level. This finding points to the role that parents, and more specifically fathers, have in adolescents' SRH behavior. A study in Ethiopia on adolescent-parent communication on SRH topics showed that mothers who could read and write and had a diploma certificate were more likely to discuss SRH issues with their children (Mekonen et al., 2018). The literature demonstrates that parental education is a key factor in the sexual behavior of adolescents. A systematic review of the prevalence and determinants of adolescent pregnancy found that adolescent pregnancy was associated with a lack of parent-adolescent communication on SRH and no maternal or paternal education (Kassa et al., 2018). Furthermore, communicating with parents on SRH issues has been shown to be associated with SRH service utilization (Liyeh et al., 2021b). Our qualitative results corroborate this by showing that adolescents have a desire for higher quality conversations about SRH topics with their parents to improve their SRH:

> "*So, I feel like they can find people who will teach our parents, and parents talk to their children." (15-19 y.o girl)*

Our finding that the father's level of education was significant but not the mother's, points to a potential disparity in decision-making power in households in Mugombwa Camp. A study in Gihembe Refugee Camp in Rwanda showed that husbands or fathers take the majority of the household decisions (Zamda, 2015). Overall, these unique findings demonstrate the potential to engage fathers more as stakeholders in adolescent SRH wellness.

Amongst both females and males, being sexually experienced was positively associated with ever testing for HIV or STIs. Research on factors associated with HIV testing in Thailand showed similar findings that being sexually active is associated with HIV testing (Musumari et al., 2020). Consistent with previous studies in Uganda (Benyumiza et al., 2021; Ssebunya et al., 2018), age was another factor that was significant across HIV, STI, and contraceptive utilization. Being 15-19 was significantly associated with HIV testing among females and STI testing among males. Our qualitative analysis found a similar theme:

> *"Things that can be changed here is that sometimes health workers come and select people from fourteen to nineteen only, while people from thirteen also need those services. I think that can be changed." (15-19 girl)*

With approximately 1.7 million adolescents between 10-19 living with HIV, there is a dire need to ensure that adolescents from the ages of 10-14 are not neglected in contraceptive, HIV, and STI outreach.

Another major factor in SRH service utilization was school status. Out-of-school status conferred positive associations for both STI and HIV testing among female and male adolescents. Female adolescents out of school were more likely to use STI testing, and male adolescents out of school were more likely to use HIV testing and contraceptives as compared to adolescents in school. This is a similar finding to our discovery that females out of school had higher SRH knowledge as compared to females in school. These findings are contrary to other literature on in-school and out-of-school adolescents in refugee settings, which have shown that being in school largely confers a protective effect on adolescent sexual behavior (Bukuluki et al., 2021). The contrast in these findings alludes to the highly context-dependent nature of adolescent sexual and reproductive health behavior. In Mugombwa Refugee Camp, outside of the counseling services available in the health centers, SRH outreach largely happens during the daytime when adolescents are in school. A plausible explanation for this result is the issue of HIV and STI testing hours in the health center. Several adolescents in our quantitative results stated that they don't utilize HIV/ STI testing because either they don't have the time or due to issues with the timing of HIV/ STI testing. Adolescents that are in school all day, therefore, may not have the time to access the health center as would adolescents who are in the community throughout the day. HIV/ STI testing clinic normally operates from 8 am - 5 pm except in emergency cases such as for maternal health during the night. Furthermore, a mobile voluntary counseling and testing (VCT) program circulate throughout the camp once per quarter, that largely caters to the populations available during the day in the community. Since the mobile VCT does not target schools, it's likely this lack of outreach is resulting in the disparity in HIV and STI testing for adolescents in school and out of school. A qualitative study conducted in Kenya on the barriers and facilitators of adolescent SRH service utilization found that adolescents who were in school faced unique problems accessing SRH services, such as unaccommodating timing of health services and needing to acquire permission from teachers to go for care (Mutea et al., 2020). Our findings contribute to the

literature that shows it would be ineffective to assume that adolescents in school are always more protected from adverse SRH outcomes. More inquiry needs to be done to support the SRH needs of adolescents in school in the Mugombwa Camp.

In summary, our findings add to the body of literature that shows that fear of side effects is a pervasive inhibitor of contraceptive utilization and an enabler of unprotected sex. Further adding to the body literature are our findings of the positive impact of both individual and parent's education levels on SRH utilization. The strength of this study's findings is the illumination of the significant gap in contraceptive, HIV, and STI testing utilization for adolescents out of school. Our study also contributes previously non-existing sex-disaggregated data on contraceptives, STI, and HIV utilization. Our results show the significance of sex-disaggregating to understand the unique behaviors and needs of females and males.

Barriers and recommendations adolescents have regarding contraceptive, STI, and HIV services in the Mugombwa Refugee camp

The four FGDs with male and female adolescents spanning 10-19 years of age ensured the epistemic authority of adolescents by capturing their barriers and recommendations for contraceptive, STI, and HIV services in the Mugombwa Refugee camp. Participants highlighted the pervasive issues of unplanned pregnancies, STIs, and HIV among adolescents. These findings are consistent with literature that shows that adolescents are at an increased risk for unplanned pregnancies, STIs, and HIV (Råssjö et al., 2006; Rondini & Krugu, 2009).

The majority of participants made it clear that they are largely satisfied with the services, mainly the information and counseling provided at the health center. Similar research has demonstrated that adolescents largely seek information and counseling from health centers as compared to other services (Birhanu et al., 2018). And while the majority of adolescents were aware of the availability of SRH services in the camp, our qualitative analysis shows that adolescents face clear barriers related to the acceptability of utilizing SRH services that contribute to their under-utilization. The majority of participants described the challenge of accessing available services as a result of fear and stigma, rendering the location of SRH inaccessible. Consistent with other studies (Sam-Agudu et al., 2016; Thatte et al., 2016), fear and stigma were particularly strong surrounding accessing HIV and STI services.

While our quantitative surveys revealed that the majority of adolescents feel comfortable acquiring contraceptives and seeking care from service providers, our FGDs revealed that some adolescents experience discomfort acquiring contraceptives for fear of judgment. This finding is corroborated by our quantitative results that showed almost half of adolescents perceive service providers to be judgmental of adolescents seeking services. Additional qualitative studies conducted on adolescent attitudes towards SRH in the DRC and other low-middle income countries showed that shame and stigma as well as judgmental attitudes of health providers, were key barriers to accessing contraceptives (Mbadu Muanda et al., 2018; Newton-Levinson et al., 2016). Creating a safe and welcoming environment for adolescents significantly contributes to their acceptability and accessibility to SRH services.

While the majority of adolescents from our quantitative findings reported that the SRH service centers provide youth-related resources, almost one-third of adolescents felt that they didn't.

Adolescents expressed the need for more youth-accessible SRH service locations since some adolescents are ashamed to seek services from the health center for fear of judgment.

> *"I really feel like we must find people here in the camp who will go and talk to the youth every week. Because young people are afraid to go to the hospital. And questioning is important to us, and it makes them less likely to engage in sexual activity." (15-19 y.o girl)*

Similar studies have shown that adolescents desire SRH services to be offered out of facilities through various approaches in-school or via outreach (Denno et al., 2015) A common recommendation among adolescents was to increase the regularity of SRH training outreach. While adolescents are aware that counseling and services exist in the health center, the reluctance to seek out that information left many participants describing the need for more information. Adolescents also recommended the creation of a private-youth space to improve the accessibility of SRH services for adolescents. Similar studies have demonstrated the barrier of not having adolescent-friendly SRH services whereby all services are in a centralized location for all age groups (Atuyambe et al., 2015; Regmi et al., 2010). A study conducted in Ethiopia that compared the impact of a youth-friendly service area found that the utilization of SRH services among adolescents was significantly greater in the youth-friendly service implemented area (Mulugeta et al., 2019). These findings demonstrate the need for the ideation and creation of strategies that improve adolescents' access to SRH services in private without the fear of judgement and the impactful potential of implementing a similar youth-friendly model in Mugombwa Refugee Camp.

Another major finding in the FGDs was the barrier of human resource staff shortages and the poor demeanor of some health professionals towards adolescents. It is well understood in the literature that poor health workers' attitudes towards adolescents influence low SRH service utilization (M. Tilahun et al., 2012). Adolescents recommended that the health workforce should be increased so that adolescents have a variety of individuals they can approach whom they're comfortable with. In Mugombwa Refugee Camp, there are approximately 23 community health workers for the entire camp, and each focus on a specific issue within the camp, whether that be sanitation and hygiene, maternal health, HIV etc. The absence of specific adolescent SRH outreach by CHWs could explain the gap adolescents have expressed. There is a need to assess the human health resource capacity within the camp to ensure that there are adequate numbers of health professionals available to conduct outreach comprehensively on SRH topics.

Myths and misconceptions about contraceptives proved to be a large barrier to contraceptive utilization. A qualitative study in Kenya on adolescents highlights a similar finding that low knowledge of contraceptive use influences myths and misconceptions about contraceptives and unprotected sex (J. W. Kinaro et al., 2019). Furthermore, research has shown that knowledge of contraceptive use greatly influences its utilization (J. Kinaro et al., 2015). A systematic review of qualitative research in developing countries found that hormonal contraceptive use was limited by lack of knowledge, obstacles to access, and concern of side effects and infertility (Williamson et al., 2009). Similarly, a study in Ethiopia found that the higher the score of belief in contraceptive myths, the lower likelihood of contraceptive utilization, and the higher contraceptive knowledge, the greater odds of contraceptive utilization (Dingeta et al., 2021) A parallel emerging theme in our FGDs was the necessity of regular trainings specifically on how to use contraceptives:

> *"According to me, I do support that condoms should be distributed, but people should also be taught how to use them correctly." (10-14 boy)*

Another significant barrier and facilitator of access to SRH services highlighted among participants was the role of parents as stakeholders in adolescent SRH wellness. Adolescents reported that one of their most trusted sources of SRH information and advice was their parents. They described the issue of negative peer influence and a wealth of unreliable information among peer groups. Similar studies in other humanitarian settings have shown similar findings that mothers and fathers are a significant source of SRH information (Ivanova et al., 2019; Kågesten et al., 2017). Furthermore, other research points to poor parent-child communication regarding SRH matters as an interpersonal barrier to accessing contraceptives (Ezenwaka et al., 2020). A major recommendation among adolescents was to have community health workers train their parents so that parents are equipped with more information on SRH to educate their adolescents. The literature supports this recommendation, showing that open discussion about SRH topics between parents and adolescents positively influences adolescents' perceptions and sexual behavior (Ezenwaka et al., 2020). Additionally, a study in Ghana showed that perceived parental support was a significant determinant of SRH decision-making behavior (Challa et al., 2017).

Beyond the connection between accessing SRH services and mitigating unplanned pregnancies, STIs and HIV, the FGD participants revealed a very important component: that mitigating unplanned pregnancies, STIs, and HIV will require approaches that consider the socio-ecological model of the individual. Adolescents revealed that the socio-cultural factors of poverty, drug and alcohol use, peer influence, sexual coercion, and a lack of knowledge on SRH all propagate the issue of unplanned pregnancies, STIs, and HIV. Unique to females was the highlighted issue of how poverty influences adolescent girls' decision to enter prostitution. A study on adolescent SRH in Zambia also found that poverty influences the acquisition of unplanned pregnancies, STIs, and HIV through prostitution (UNICEF Zambia, 2021). Several other studies, including in Rwanda, have highlighted the presence of transactional sex in refugee settings in exchange for food, menstrual hygiene products, money, and other goods (Iyakaremye & Mukagatare, 2016; Okanlawon et al., 2011; Patel et al., 2012). Poverty itself is therefore linked to poor SRH outcomes. A study on psychosocial indicators of adolescent risk behaviors showed that adolescents with higher perceived social mobility were less likely to report alcohol consumption and engage in compensated sex and were more likely to use a condom during sexual intercourse (Ritterman Weintraub et al., 2015). This demonstrates that a sense of hopefulness about life's trajectories significantly impacts sexual behavior. Some of our FGD participants highlighted the issue of hopelessness among some adolescents living in the refugee setting. It's therefore crucial to take into account the intersectionality of an adolescent who is a refugee since adolescent refugees may be more predisposed to riskier sexual behavior as a result of their transient social status in the refugee camp setting.

Consistent with our findings, several studies have also shown how an adolescent's social environment and specifically peers, greatly influence contraceptive utilization (Calhoun et al., 2022; Dingeta et al., 2021). Other research on the factors associated with risky sexual behaviors demonstrated a similar relationship between sexual behavior and factors at multiple socio-ecological layers (Challa et al., 2017; Khuzwayo & Taylor, 2018). What our socio-ecological findings reveal is that no amount of SRH services or education will be sufficient to solve the issue of unplanned pregnancy, STIs, and HIV prevalence among adolescents without addressing the socio-cultural factors that underpin poor SRH outcomes. On a macro-level, even the Rwandan laws and policies on refugees do not address how age and gender impact access to opportunities

and the well-being of adolescents. Policies without an intersectional lens contribute to the creation of gaps in addressing the diverse needs of adolescents in the Mugombwa camp itself (Isimbi et al., 2021).

In summary, adolescents experience context-specific barriers to accessing SRH services on the individual level, interpersonal level, community level, and macro-social level (Figure 6). Adolescents' main recommendations were to have a private youth-friendly space, bolster human resources in the camp, train adolescents frequently on SRH topics, and train parents as stakeholders. These recommendations align with other literature on adolescent service utilization. A systematic review of sexual and reproductive health interventions for young people in humanitarian settings found that strategies to increase intervention utilization by adolescents included adolescent-friendly spaces, peer workers, school-based activities, and involving young people (Jennings et al., 2019). Each of these recommendations aligns with the barriers adolescents reported facing and, therefore would help improve the accessibility, acceptability, adequacy, and appropriateness of SRH services for adolescents in Mugombwa Camp.

Lastly, it's clear that an adolescent's knowledge and perceptions influence both their SRH service utilization and sexual behavior, and each layer of socio-cultural factors influence an adolescent's knowledge, perceptions, and utilization (Figure 7). Other research has demonstrated the relationship between knowledge influencing sexual attitudes and sexual attitudes influencing sexual behavior and the reverse (Guan, 2021).

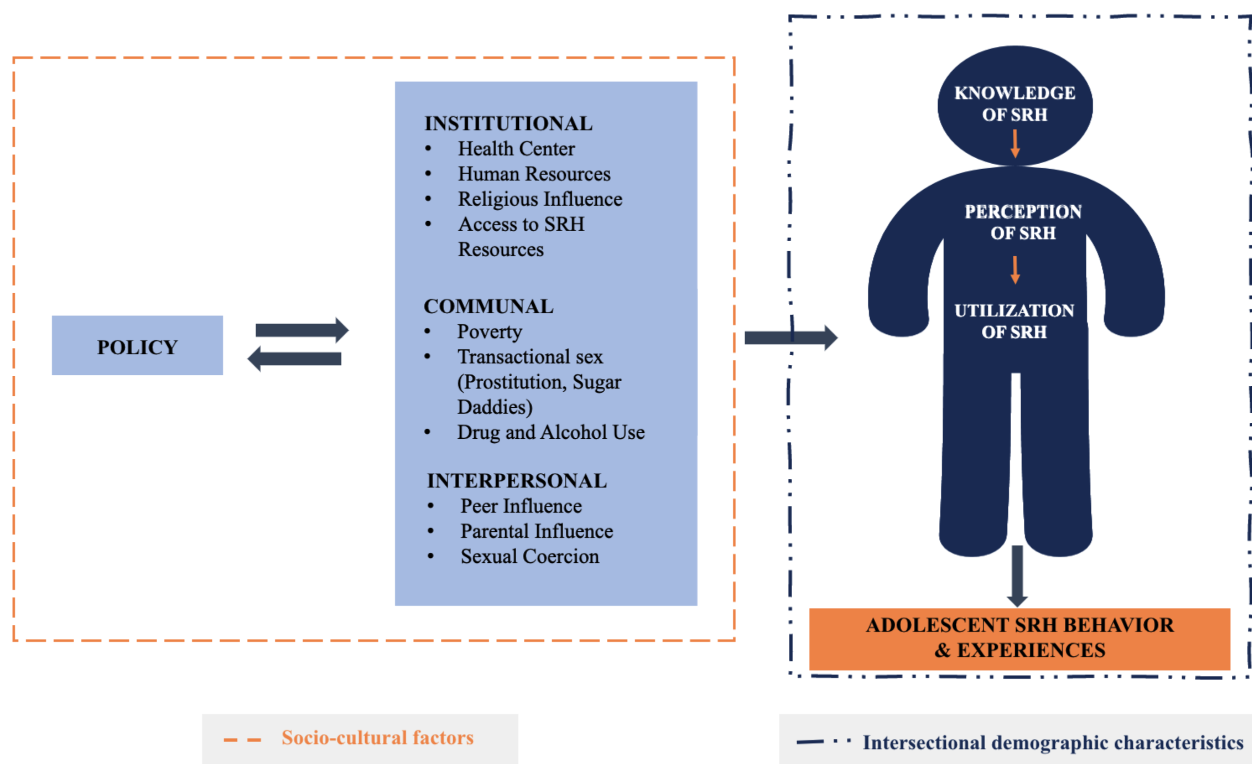

Figure 7: Pictorial Representation of the influence of intersecting individual demographic factors with socio-cultural factors on adolescent SRH behavior and experiences

Study Limitations

We recognize that our study had limitation which needs to be taken into consideration. Our study only showed factors associated with our outcome variables, not causation factors. We could not establish a causal relationship between our independent and dependent variables because of the study design employed.

Social desirability bias due to the face-to-face interview might also have affected the adolescents' responses. Some of the questionnaire contents were sensitive in nature, and participants might not have been candid with their responses.

Language differences between the principal investigators and study participants limited data quality checks performed during and after data collection.

This study's findings cannot be generalized to adolescents in other refugee camps in and out of Rwanda; they are only representative of Mugombwa refugee camp, Rwanda.

There are other factors not limited to demographic factors that could be associated with the knowledge, perception, and utilization of SRH services that weren't explored in this study, future studies should consider them. And specifically, with the inclusion of the factors and demographics that affect males and females differently.

Challenges & Mitigation Efforts

When we arrived at the data collection site, UNHCR was unwilling to share their sampling frame with us so we were unfortunately unable to use a stratified sampling method. To overcome this, we decided to randomly select participants from each of the eight quarters in the refugee camp. Each data collector was assigned to two quarters and was led around the quarter by an assigned community health worker. Data collectors selected participants at random without regard for demographic characteristics in order to get a representative sample.

It also became apparent that most of the adolescents in the camp were not present in the camp itself but were in school. Refugees in Mugombwa refugee camp attend school located roughly 1km outside of the camp in the host community setting. The schools are a mix of students from the host community and the refugee camp. Therefore, we began seeking permissions from World Vision to access the primary and secondary schools. World Vision initially supplied us with a roster of all the students in both the primary and secondary schools, but it soon became apparent that the roster did not reflect which school the students were studying in. We solved this by individually meeting with each of the two schools' headmasters to acquire updated student rosters. We then randomly selected students from each class with an equal number of both girls and boys.

Another challenge we faced was the language barrier between the data collectors and principal investigators during pre-data collection training and during data collection. It was particularly difficult to assess whether they understood the specific methods and administration of the questionnaire in the way that we wanted. To mitigate any miscommunication, we held daily check-in meetings with the data collectors to hear how data collection was proceeding, to clarify

confusions and clean the data. Through regular check-ins we were able to ascertain when there was a misunderstanding and correct that accordingly.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This study aimed to understand the knowledge, perceptions, and utilization of SRH services among female and male adolescents in accordance with the health belief model through an intersectional approach. Additionally, this study lent adolescents epistemic authority to explore their barriers and recommendations to accessing SRH.

Our study found that half of the adolescents had low knowledge, and males had a higher level of knowledge compared to females. The vast majority of adolescents had a high level of knowledge of SRH services available in the camp; however, the least known services were IUD, HIV treatment, and traditional methods. Having higher SRH knowledge was significantly associated with positively perceiving SRH services. The majority of participants had positive perceptions of contraceptive services, which were associated with contraceptive, HIV, and STI utilization. However, many adolescents perceived providers as judgmental in both our quantitative and qualitative findings.

Our study further found that predictive factors of male utilization of contraceptives were being out of school and having high knowledge, and for females, there were none. Predictive factors for the utilization of STI testing among males was being 15-19, having high SRH knowledge, being out of school, ever having sex, and father's level of education. Predictive factors among females were high knowledge, being out of school, ever having sex, and father's level of education. Predictive factors for the utilization of HIV testing among males were high SRH knowledge, ever having sex, being out of school, and having a primary level of education. For females, being 15-19 and ever having sex were predictive.

Adolescents cited barriers to accessing SRH services at each socio-ecological level. Adolescents faced barriers that included socio-cultural factors such as poverty, prostitution, sexual coercion, drug and alcohol abuse, poor SRH delivery systems such as low human resource capacity, individual shame and stigma, lack of knowledge on how to use contraceptive methods, and fear of side effects. Adolescents' main recommendations for improving SRH services for adolescents were to offer youth-specific services outside of the health center, increase the regularity of SRH training, increase health worker capacities, and train parents and youth as SRH stakeholders.

Limited data exists for the intersectional SRH experiences of both females and adolescents in refugee camps in Rwanda. This study adds to the evidence and concludes that the convergence of intersectional identities and socio-cultural factors associated with being a refugee influence the knowledge, perceptions, and utilization of contraceptive, STI, and HIV services and must be further prioritized to curb teenage pregnancy, STIs and HIV among adolescent refugees.

6.2 Recommendations

Intersectional feminism's approach to health moves beyond individual-level responsibility and instead focuses on restructuring power relationships that perpetuate gender inequalities. As such, our recommendations below seek to transform power relations and systemic facilitators of gender inequalities and offer strategies that will improve access to SRH services to both males and females of intersecting identities.

Improve the capacity of health professionals delivering SRH services to Adolescents

In anticipation that a youth-friendly center will be operational in Mugombwa Camp in the coming year, we recommend intentionally working to restructure the power relation between health providers, CHWs, and male and female adolescents. This can be done by providing sensitization training and tools for health professionals on adolescent agency, autonomy, and SRH needs to create a friendly and welcoming environment for adolescents to access SRH services. Health professionals in the youth-friendly centre should be recruited with a gender lens in mind.

To strengthen contraceptive service utilization, health professionals need to be trained to give comprehensive informed consent to adolescents that includes all of the possible negative side effects and possible benefits of using modern hormonal contraceptive methods.

Implement SRH Programs that tackle socio-cultural factors contributing to Adolescent SRH issues

We recommend that future SRH programs and interventions address the social determinants and socio-cultural factors that influence risky sexual and reproductive health behaviors contributing to unplanned pregnancies and HIV and STI transmission among adolescents in the camp. These determinants include poverty and prostitution, drug and alcohol use, peer pressure, sexual coercion, and lack of SRH knowledge.

In order to holistically support adolescent's SRH needs, we recommend involving parents as stakeholders in adolescent SRH issues. Specifically, we recommend bolstering avenues of communication between parents and adolescents on SRH issues and educating mothers and fathers in the camp on adolescent SRH needs and issues. Fostering open parent-adolescent communication will deconstruct hierarchies between parents and adolescents that constrain adolescents' access to SRH services and offer a consistent and reliable source of SRH information to adolescents.

Furthermore, we recommend addressing socio-ecological barriers through fostering multi-sectoral collaboration between partner organizations in the planning and implementation of SRH programs to tackle the intersecting identities that contribute to the gap in adolescent SRH.

The disparities present in our findings between male and female access to knowledge on SRH, coupled with the unequal power structures present between males and females in the camp in the form of sexual coercion, demonstrate the need for strategies that tackle the hierarchies present between males and females. We recommend that training is developed for male adolescents and adult men on healthy masculinity, relations, and sexuality so that males can be equipped with the information and tools to support female SRH and prevent unplanned pregnancies, STIs and HIV.

Increase Adolescent involvement in the Planning and Implementation of SRH programs

Given the demonstrated power of peer education and the need for trusted information sources, we recommend meaningfully engaging adolescents from various social categories and identities in the facilitation of SRH information delivery, such as through peer-led education. More specifically, we recommend that AHA expands the role of peer educators in the camp beyond the scope of educating about the availability of SRH services to involving them as SRH advocates and educators for their peers. This will enable adolescents to be stakeholders in their SRH and transform mainstream roles of the adolescents as passive inferior beneficiaries to the role of participatory and influential beneficiaries.

Younger adolescents (10-14 years) should be purposefully involved in the planning, implementing, and evaluation of SRH programs in the refugee camps to ensure they adequately meet their needs. This will further reduce the age difference in the knowledge and utilization of SRH services. More research studies should also focus on the SRH needs of the younger adolescents and how to involve them in programs effectively.

Improve content and delivery of existing SRH Information, Education, and Communication

We recommend consistent monitoring and reviewal of SRH education delivered by community health workers, peer-educators, and female mentors. This will help ensure the accuracy and appropriateness of SRH messaging received by the adolescents.

The Ministry of Health should review 10-14 years old SRH IEC materials to include detailed information on contraceptive methods, STIs, and HIV prevention. Younger adolescents will then have improved access to comprehensive SRH information, reducing the age difference in the SRH knowledge level among refugee camp adolescents.

Partners implementing ASRH should also ensure IEC materials on ASRH are placed in strategic locations in the camp, like the primary and secondary schools, playgrounds, quarters meeting points, and adolescent-friendly centers. This will support the SRH training conducted in the camp and also strengthen the retention of information among the adolescents.

Gender-inclusive edutainment comic books, short stories, and games on ASRH should be developed and distributed among adolescents in refugee camp. These are creative ways to improve adolescents' access to information on SRH.

Furthermore, the goal of contraceptive education should not be centered on an agenda to persuade adolescents to use modern contraceptive methods. Rather, the goal needs to be to equip adolescents with all the information on contraceptives so that they can exercise their SRH right to make informed decisions about their own SRH. To that end, IEC materials need to include accurate sensitization on the possible beneficial and negative side effects as well as the mechanism of action of contraceptives to reduce the ambiguity and uncertainty that creates fear of side effects within communal conversations. Additionally, since many female adolescents already rely heavily on traditional methods, we recommend that partner organizations offer more structured education and support to adolescents on how to effectively track the menstrual cycle for natural contraception. The fertility awareness method is a 99.6% effective method of contraception that relies on tracking biomarkers such as cervical mucus, vaginal sensation, and basal body temperature (Frank-

Herrmann et al, 2007). Principal investigators are happy to provide more scientifically-evidence backed information and guidance on the above.

6.3 Future Directions

A theme that was revealed in the FGDs but was not explored in our quantitative surveys or the focus of our research was the issue of period poverty, including a private space to change menstrual products. Therefore, more inquiry is needed on the issue of period poverty in the Mugombwa refugee camp since menstrual health is another significant component of sexual and reproductive health. It's important that there are further explorations of the psycho-social and socio-cultural factors specific to Mugombwa refugee camp that contribute to SRH outcomes since it is clear from our limited qualitative findings that SRH wellness is affected by more than access to SRH services.

There is also the need to explore the needs of people with disabilities, both males and females, within the camp setting. Our research was not able to reach a sizable enough population to ascertain enough information on this, however, it's very likely that disparities exist.

Additionally, further exploration is needed on the efficacy of SRH sensitization and information delivery mechanisms within the camp in order to improve the channels of communication about SRH topics to adolescents who are both in school and out of school.

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APPENDIX 1: Quantitative Research Questionnaire

SEXUAL AND REPRODUCTIVE HEALTH KNOWLEDGE, PERCEPTION AND SERVICE UTILIZATION QUESTIONNAIRE

Interview Date: _ _ /_ _ / _ _ _ _ (DD/MM/YYYY) Interviewer:
Camp: ________________________________ Quarter: __________________________
Village: _________________

DEMOGRAPHIC INFORMATION	
Participant ID:	
Age in years:	Number of children:
Gender: Male Female Other: _______	Ethnicity: Mongo Luba Kongo Mangbetu-Azande Other: _____________
Highest level of education level: No formal education Primary Secondary Tertiary	
Marital Status: Single Divorced Married Widowed	
Religion: Muslim Catholic Christian Atheist Other: ________________	
Who do you live with (check all that apply): Alone Father Mother Both Parents Husband Wife Siblings Alone Friends	
Father's Highest level of education: No formal education Primary Secondary Tertiary	
Mother's Highest level of education: No formal education Primary Secondary Tertiary	
Disability Status: None Visual Physical Mental Speech Other: __________________	
Current Activity: Working-only Working and attending school Attending school only Neither	
School status: In-school Out-of-school	

KNOWLEDGE OF SEXUAL AND REPRODUCTIVE HEALTH	**Yes**	**No**	**I Don't Know**
1. During puberty females notice the growth of pubic hair			

2. During puberty females need to have sexual intercourse			
3. During puberty females start menstruation			
4. Menstruation is a normal healthy process			
5. During puberty males experience wet dreams			
6. During puberty males grow hair under their armpits and genitals			
7. During puberty males voices deepen			
8. Female condoms are used by inserting a small ring inside the vagina			
9. Contraceptive pills are effective for pregnancy prevention			
10. In order for Depo-Provera (injection) to be effective it should be given every 6 months			
11. Emergency contraceptive pills are the most effective when taken within 72 hours of intercourse			
12. IUD and implants are long term contraceptives			
13. A female is safe from getting pregnant during her period			
14. Birth control pills are effective even if you miss taking them for 2 or 3 days in a row			
15. Even if a male pulls out before he ejaculates (even if ejaculation occurs outside of the woman's body), it is still possible for the woman to get pregnant			
16. When putting on a male condom it is important to have it fit tightly leaving no space at the tip			
17. Female and male condoms can be used more than once			
18. Female condoms are 20% effective in preventing some STIs and HIV			
19. Male condoms are 98% effective in preventing some STIs and HIV			
20. HIV virus spreads from an infected person's coughing and sneezing			
21. Discharge from the penis is a symptom of a sexually transmitted infection in a male			
22. It is possible to cure AIDS			
23. A person with HIV always looks lean or unhealthy			
24. There is a test that determines whether one has HIV or not			
25. Ulcer/sores in the genital area are a symptom of genital herpes			

KNOWLEDGE OF SRH SERVICES AVAILABLE
26. Which of the following information or sexual and reproductive health services are you able to acquire in the camp? • Information and education related to sex • Information and education related to contraceptive methods available • Information and education related to how to use contraceptive methods • General Information about STIs • General Information about HIV • Information on how to prevent HIV

- Information on how to prevent STIs
- Birth Control Pills
- Emergency pills
- Intra-Uterine Device (IUD)
- Injection
- Implant
- Male Condom
- Female Condom
- Traditional method
- STI Testing
- STI Treatment
- STI Counseling
- HIV Testing
- HIV Treatment
- HIV Counseling

PERCEPTIONS OF SRH SERVICES	**Strongly Agree**	**Agree**	**Neither Agree nor Disagree**	**Disagree**	**Strongly Disagree**
27. I am at risk of getting pregnant if I do not use contraceptive services					
28. I am at risk of dying from an STI if I don't go for treatment					
29. It is okay for female adolescents to use contraceptives					
30. It is okay for male adolescents to use contraceptives					
31. The SRH services centers don't include youth related resources					
32. SRH services are not affordable for me					
33. The health facility has enough privacy and confidentiality					
34. Girls can ask for condom use					
35. Boys can ask for condom use					
36. I feel comfortable acquiring contraceptives					
37. I feel comfortable asking questions about preventing pregnancy					
38. HIV testing services are only for sexually active individuals					
39. I feel comfortable seeking care from service providers					

40. Married people are the only people that need contraceptives					
41. Service providers are judgmental when they see people of my age					
42. The information provided from camp services is not clear or helpful					
43. Service providers speak language that I do not understand					
44. Accessing SRH services is against my religious belief					

UTILIZATION OF SRH SERVICES	**Yes**	**No**
45. Have you ever had sexual intercourse?		
46. In the last 3 months, have you had sexual intercourse?		

	Often	**Sometimes**	**Rarely**	**Never**	**Reason**
47. How often have you utilized any of the following contraceptive services from the camp in the last 3 months?					**If "Not Often or Never", why not?** ❑ I am not sexually active ❑ My family/husband didn't allow me ❑ My religion doesn't allow it ❑ My culture doesn't allow ❑ Fear of side effects ❑ My husband is not often in the camp ❑ Desire to have many children ❑ Service is not available in the camp ❑ I don't feel comfortable using the service ❑ Health workers were not willing to serve ❑ There is a lack of contraceptives available ❑ Adolescent-friendly resources are not available ❑ Lack of privacy
Birth Control Pill					
IUD					
Injection					
Implant					
Male Condom					
Female Condom					

General Information & Education on Contraception					❑ Other, specify____________ **If "Sometimes or Often", for what reasons?** • I am sexually active • To prevent pregnancy • To enjoy sexual pleasure • To treat painful menstruation • To treat acne • To treat heavy bleeding during menstruation • To understand my body • Other, specify____________
Traditional Methods					
Other: ____________________					

HIV Services	**Yes**	**No**	**Reasons**
48. In the last 3 months, have you received general education and information on HIV?			
49. Do you want to know your HIV status?			
50. Have you ever tested for HIV?			
51. In the last 3 months, have you tested for HIV?			If No, why? ❑ My parents wont give me the permission ❑ I prefer not to know if I am infected ❑ I have never been at risk for infection ❑ I am afraid that others would know that I am V positive ❑ I can't pay for the HIV test ❑ I don't know where I can get tested ❑ I am afraid of blood and needles ❑ Lack of confidentiality of the health care personnel ❑ Others, specify

			If Yes, why? ❑ To know my status ❑ Perceived risk of HIV ❑ For premarital requirement ❑ Tested prior to blood donation. ❑ Others, specify____
52. Have you ever gone through HIV counseling?			If yes, why? • It was done before HIV testing • It was done after HIV testing • I tested positive for HIV • My partner tested positive for HIV
53. Are you being treated for HIV?			If yes, why? • I had symptoms of HIV • My partner has HIV • I tested positive for HIV • Others; specify___________
STI Services			
54. In the last 3 months, have you received general information or education on STIs?			
55. Have you ever tested for STI?			
56. In the last 3months, have you tested for STI?			If yes, why? ❑ I had symptoms of STI ❑ My partner had STI ❑ Others; specify___________ If No, why? ❑ I can't have STI ❑ I already tested for HIV ❑ I didn't see signs of STI ❑ Medical provider did not suggest it

			❑ Parent didn't suggest it ❑ Fear of being positive ❑ Cost of STI test ❑ Lack of health workers confidentiality ❑ Stigma ❑ Others; specify__________
57. Have you ever gone through STI counseling?			If yes, why? ❑ It was done before STI testing ❑ It was done after STI testing
58. Are you being treated for STI?			
59. Which STI are you treated for? ________			
60. Do you acquire contraceptives, STI or HIV services from anywhere else besides a health center or health care worker in the camp? Yes [ ] No [ ] If Yes, where? ____________			

Questionnaire Adapted from: (Cleland et al., 2001; Guzzo & Hayford, 2018., Tlaye et al., 2018 & Zakaria et al., 2020)

APPENDIX 2: Focus Group Discussion Guide

Introduction: Hello! Thank you so much for joining us today. We're here on behalf of the UGHE student's practicum project to learn about your experiences and thoughts on the topics of contraceptives, STI and HIV. The most important thing is that we want to learn from you! When we make note of what you share here today, we will not document your names. We also ask you to not share any information you hear today with anyone outside of this group unless you've been given permission to do so.

I am going to start by asking you a few questions about your experiences. There are no right or wrong answers. If you don't like any of the questions, you don't have to answer. Do you have any questions before we begin?

(After the introduction, pause a few seconds and ask the potential participants if they have any questions about this discussion, you are about to hold with them. This is another opportunity to further inform and clarify expectations and misunderstandings. Answer questions that may be raised briefly, truthfully, precisely, and in an adolescent-friendly manner).

Interview Questions

1. **I would love to start by getting to know more about each of you. How have you been this year?**

   a. *Probing Q:* What would you like to be when you grow up?
   b. *Probing Q:* How do you intend to get there? Is there anything you need to do this year, next year, the year after in your effort to get there?

2. **If you could improve upon your health right now, what would it be?**
   a. *Probing Q:* Do you feel like you have the ability to improve your health?

3. **What are some of the prevalent health concerns among people your age in this community?**
   a. *Probing Q*: What are some of the concerns people your age have about sex, puberty, contraceptive use, HIV and STIs
   b. *Probing Q:* Who does someone your age discuss their issues on sexuality, sex, reproduction, pregnancy with?
   c. *Probing Q*: What do you think are the health concerns of the people your age of the opposite gender?

4. **Some people believe that people your age should not access contraceptive services such as condoms, IUD, Injectables while some believe they should be able to access them. What do you think?**
   a. *Probing Q:* Do people your age in the camp have access to these services? Where do they go?
   b. *Probing Q:* Are there reasons why someone your age would not utilize these services?
   c. *Probing Q:* What information exists on contraception? What are some contraceptive services you know of?
   d. *Probing Q:* What do you think about the opposite gender having access to contraceptives

5. **In your opinion, why do you think someone your age would need to access HIV testing, treatment or counselling?**
   a. *Probing Q:* What could prevent someone your age from accessing HIV testing, treatment and or counseling?

6. **What are your thoughts on STI prevention and treatment services for people your age in the camp?**
   a. *Probing Q***:** When was the last time someone your age you know had an STI? Can you walk us through the experience of the person in terms of seeking treatment? Are there reasons why someone your age wouldn't utilize these services?

7. **What sexual or reproductive services among your age group or your peers would be useful to you?**
   a. *Probing Q:* Are there any sexual and reproductive health services you wish were available to you?

8. **What would you like to change about accessing contraceptive, HIV and STI services?**
   a. *Probing Qs:* Do young people your age think the clinic is gives enough information? Are young people your age satisfied with their services? If yes, why? If no, why not?

9. **If you were given an opportunity to design the perfect place for boys and girls to receive contraceptive, HIV and STI services, what would this place look like? What are your recommendations to strengthen sexual reproductive health services for young people?**
    a. *Probing Q:* What makes young people your age feel the most comfortable accessing these types of services?

10. **Is there anything else that you would like to share in relation to the topic we talked about today?**

Closing:
Thank you very much for your time and willingness to share your thoughts. Everything you shared today will be held in the highest confidence

NYANDIKO IYOBORA IBIGANIRO MU MATSINDA
Igihe kimara: Iminota 60-90

Intangiriro: Muraho! Mwakoze kwitabira kwifatanya natwe muri iki kiganiro uyu munsi. Twateraniye hamwe kugirango twumve ubumenyi n'ibitekerezo byanyu ku ngingo zitandukanye zirekeye ku kuboneza urubyaro, Indwara zandurira mu mibonano mpuzabitsina n' agakoko gatera SIDA. Ikingenzi kurusha ibindi ni ukugirango tubigireho. Igihe twandika bimwe mubyo mutubwira ntabwo twandika imyirondoro yanyu. Turabasaba kandi kutagira amakuru mwumviye aha musangiza uwo ariwe wese kereka igihe mwabiherewe uruhushya.
Ndatangira Mbabazi ibibazo bike kubigendanye n'ubuzima mubayeho. Nta gisubizo kiricyo cg kirataricyo. Uramutse wumva hari ibibazo utifuza gusabiza, nta kizabo ntubisubize. Hari ikibazo mwaba mufite mbere yuko dutangira?
(Nyuma yo kwibwirana no kumenya, itsa akanya gato maze ubaze abitabiye ikiganiro niba hari ikibazo baba bafite bifuza gusobanukirwa ku kiganiro mwitegura kugirana. Uyu nundi mwanya mwiza wo gusobanura biruseho ibyitezwe n'ibitarasobanuka. Subiza ibibazo byabajijwe mu ncamake, mu kuri, ugusha ku ntego kandi mu buryo buboneye ingimbi n'abangavu.)

Ibibazo by'ikiganiro

1) **Ndifuza gutangirana no kumenya buri umwe muri mwe. Uyu mwaka muwifashemo gute?**
    a) *Ikibazo cy'inyunge:* Nukura wifuza kuzaba iki?
    b) *Ikibazo cy'inyunge: Ni gute uteganya gukora kugirango ugere aho wifuza? Haricyo uteganya gukora uyu mwaka, umwaka utaha, cg ukurikiyeho mu bushobozi bwawe ngo ugere aho wifuza?*

2) **Ugize icyo uhindura ku buzima bwawe ubu none aha, cyaba ariki?**
    a) *Ikibazo cy'inyunge: wumva ufite ubushobozi bwo kugira icyo wongera ku buzima bwawe?*

3) **Ni ibihe bibazo by'ubuzima bikunze kugirwa n'abantu muri mu kigero kimwe cy'imyaka aha mutuye?**
    a) *Ikibazo cy'inyunge: Ni ibihe bibazo abantu mungana bakunze kugira ku mibonano mpuzabitsina, ubugimbi/ubwangavu, kuboneza urubyaro, agakoko gatera SIDA (VIH) n'indwara zandurira mu mibonano mpuzabitsina?*

b) *Ikibazo cy'inyunge:* Ninde muntu uwo muri mu kigero kimwe cy'imyaka aganira nawe ibigendanye n'imyororokere, imibonano mpuzabitsina, cg ibijyanye no gutwita?
c) Ikibazo cy'inyunge: Ni ibiki wumva byaba ari ingorane k'ubuzima abantu muri kigero kimwe mudahuje igitsina baba bahura nabyo?

4) Abantu bamwe bemerako abantu muri mu kigero kimwe badakwiriye gukoresha uburyo bwo kuboneza urubyaro harimo udukingirizo, IUD, cg inshinge mu gihe abandi bemezako bagakwiriye kubukorersha. Ubitekerezaho iki?
a) Ikibazo cy'inyunge: abantu muri mukigero kimwe babasha gukoresha izo serivisi hano mu nkambi? Bajya kuzishakira he?
b) Ikibazo cy'inyunge: haba hari impamvu zatuma umuntu muri mu kigero adakoresha izo serivisi?
c) Ikibazo cy'inyunge: Ni ayahe makuru mufite ku kuboneza urubyaro? Ni ubuhe buryo bwo kuboneza urubyaro muzi?
d) Ikibazo cy'inyunge: Ubyumva ute kukuba abo mudahuje igitsina babasha kubona uburyo kuboneza urubyaro?

5) Ku giti cyawe, wumva ari ukubera iki umuntu muri mu kigero kimwe yakenera kwipisha agakoko gatera SIDA(VIH), kwivuza cg gasaba ubujyanama?
a) Ikibazo cy'inyunge: n'iki cyabuza umuntu muri mu kigero kwipisha agakoko gatera SIDA(VIH), kwivuza cg gasaba ubujyanama?

6) Ni ibihe bitekerezo ufite kuri serivisi zo kwirinda indwara zandurira mu mibonano mpuzabitsina no kuzivuza ku bantu muri mu kigero kimwe mu nkambi?
*a) Ikibazo cy'inyunge***:** Nijyari uherukira kumva umuntu muri mu kigero kimwe yagize indwara zandurira mu mibonano mpuzabitsina? Watubwira inzira binyuramo kugirango umuntu abashe kwivuza? Haba hari impamvu zatuma umuntu muri mu kigero kimwe adakoresha izo serivisi?

7) Ni izihe serivisi z'imyororokere wumva zagufasha wowe nabo muri mu kigero kimwe?
a) Ikibazo k'inyunge: hari serivisi z'imyirorokere wumva mukeneyeko zabegerezwa mu nkambi?

8) Ni iki wumva cyahindurwa mukubona serivisi zo kuboneza urubyaro, agakoko gatera SIDA (VIH) n'indwara zo kuboneza urubyaro?
a) Ikibazo cy'inyunge: abantu muri mukigero kimwe bumva Ivuriro ryo mu nkambi ritanga amakuru ahagije? Abantu bo kigero kimwe bishimiye serivisi zitangwa? Niba ari yego ni ukubera iki? Niba ari Oya ni ukubera iki?

9) Uhawe amahirwe yo guhanga ahantu habereye ingimbi n'abangavu ho kubonera serivisi zo kuboneza urubyaro, agakoko gatera SIDA (VIH) n'indwara zandurira mu mibonano mpuzabitsina, aho hantu haba hasa hate? Ni ibihe bitekerezo watanga mu kunoza serivisi z'imyororokere ku ingimbi n'abangavu?

a) *Ikibazo cy'inyunge: Ni iki gituma abantu muri mu kigero kimwe bumva banyuzwe na serivisi z'imyororokere?*

10) Hari ikindi wumva mwadusangiza kigendanye n'ingingo twaganiriyeho?

Gusoza:
Mwakoze cyane ku mwanya wanyu n'ubwitange mwagize mudusangiza ibitekerezo byanyu. Amakuru yose mwadusangije uyu munsi azabikwa mu ibanga rikomeye.

APPENDIX 3: ENGLISH ADULT INFORMATION AND CONSENT FORM

Participant ID: ______________________
Project title:
Knowledge, Perceptions and Utilization of Contraceptive & STI/HIV Services Among Adolescents in Mugombwa Refugee Camp, Gisagara District Rwanda
Study population: Adolescents of all genders between the age of 10-19 years of age living in Mugombwa refugee camp
Version date: 02/18/2022
Principal Investigator: Oluwatomi Olunuga and Autumn Eastman, who are students of the University of Global Health Equity (UGHE) pursuing a Master's in Global Health Delivery with a concentration on Gender, Sexual and Reproductive Health, will be conducting this study as a requirement for graduation. This study will acquire ethical approval by the UGHE IRB board in partnership with UGHE and African Humanitarian Action (AHA) to conduct this study in Mugombwa Refugee camp, Rwanda.
Address: University of Global Health Equity, Butaro Campus, Burera District – Rwanda
Contact: autumn.eastman@student.ughe.org; oluwatomi.olunuga@student.ughe.org
Preceptors: Dr. Mulugeta Tenna, & Dr. Emmanuel Sibomana from Africa Humanitarian Action
Supervisor: Dr. Tayechalem Moges Girma from UGHE

PARTICIPANT INFORMATION SHEET
About this consent form:
Dear participant,
Before joining this project, it is important that you understand and take into consideration the contents of this form, since it contains important information to assist you in deciding whether or not to participate. Please take your time in choosing whether or not you would like to participate in this research and feel free to discuss this with your family, friends and doctor if necessary. Please also feel free to ask any questions you have about this research or this form. If you agree to participate, you will sign this form and be given a copy for your records.
Participation is voluntary
It is your choice whether or not to participate in this study. If you choose to participate, you are free to change your mind and leave the study at any time. If you refuse to participate or stop participating, you will not receive any penalty or loss of benefits to which you are otherwise entitled.
What should you know about this research study?

This study is conducted by African Humanitarian Action (AHA) and UGHE students to assess the knowledge, perceptions and utilization of sexual and reproductive health services of adolescents aged 10-19 living in Mugombwa refugee camp. Data collectors will individually inform research participants about the research study prior to and during the data collection process. You have been asked to be a part of this study because you and/or your child are living in Mugombwa Camp and we consider your participation to add meaningful value to our research study.

What is the purpose of this project?

The purpose of this research is to assess the knowledge, perception and utilization of contraceptive, STI and HIV services of adolescents aged 10-19 living in Mugombwa Refugee camp.

The objectives of this study are the following:

1. To assess the level of adolescent knowledge of sexual and reproductive health (SRH), including contraception, STIs and HIV
2. To assess adolescent knowledge of the availability of contraceptive, STI and HIV services
3. To assess the perceptions of adolescent refugees in relation to contraceptive, STI and HIV services in Mugombwa camp
4. To determine the utilization of contraceptive, STI and HIV services among adolescent refugees in Mugombwa camp
5. To identify factors associated with knowledge, perceptions and utilization of SRH services
6. To understand the barriers and recommendations adolescents have regarding contraceptive, STI and HIV services in the Mugombwa camp.

If you or your child chooses to take part in this study, they will be privately asked several questions for 15-20 minutes about their knowledge, perceptions and utilization of SRH services. If your child is also randomly selected to participate in a Focus Group Discussion, they will be asked 10 questions in a group setting for 60-90 minutes about adolescent's barriers, needs and recommendations for SRH services. This study will provide important information that will help to create and manage sexual and reproductive health programs for adolescents within Mugombwa Refugee camp.

How many people will take part in this research?

Approximately 385 people will take part in the quantitative survey and of those 385 people, 32 of them will be randomly selected to additionally participate in a focus group discussion.

What is the procedure for participation in this project?

Study participants will be informed about the research study and detailed objectives by data collectors via home visits before the interview begins. Data collectors will visit participants' homes to conduct the interview. The interview will consist of a questionnaire that will be administered in a private room confidentially for participants to provide their answers. The interaction duration will last for about 20 minutes per participant during the individual survey. If your child is randomly selected to participate in a Focus Group Discussion, they will participate in a group interview for 60-90 minutes. The data collectors will record all verbal information provided by the participant on a digital data collection database, called Kobo Collect.

What are the possible risks or discomforts related to taking part in this project?

If you or your child choose to participate in this research study, there is the possibility of experiencing emotional distress due to the sensitive nature of the interview topic. We will share

referral information with you at the end of the interview in case you would like to seek support. Psychosocial support will be available through AHA.

What are the possible benefits of taking part in this project?
Your participation will help us understand the challenges adolescents face in accessing important SRH services for their overall wellbeing. If you choose to participate, you will be helping to develop specific recommendations to improve the delivery of SRH services to adolescents in Mugombwa refugee camp.

What are my alternatives to participating in this study?
The alternative to participating in this research study is not to participate if you would not like to participate.

Will I be compensated for participating in this research?
No form of compensation will be given for participating in this study.

What will I have to pay for if I participate in this research?
It will not cost you anything to participate in this research study.

What happens if I am injured as a result of participating in this research study?
If physical injury resulting from participation in this research should occur, although UGHE's policy is not to provide compensation, medical treatment will be available including first aid, emergency treatment and follow-up care as needed, and your insurance carrier may be billed for the cost of such treatment. In making such medical treatment available, or providing it, the persons conducting this research project are not admitting that your injury was their fault.

Can my taking part in the research end early?
You may decide not to participate or continue in the research at any time without any penalty. The person in charge of the research can also remove you from the research at any time without your approval for any reason.
If you decide to leave the research due to psychological distress or any other reasons, contact the investigator.

If I take part in this project, how will my privacy be protected? What happens to the information you collect?
Research investigators will work to ensure your full privacy and protection if you participate in the research study. Information collected from you during data collection will not have your name on it, but an unidentifiable code for the research team or AHA to identify you for your benefit. Data collected will be analyzed by the researchers and may be reviewed by the AHA and UGHE project team to verify that data collection has been completed properly. Personal data will not be shared with anyone outside of the research team and full protection will be ensured that this data will not be used against them. At the end of the research study, all data will be locked in a cabinet or encrypted online and destroyed after 10 years.
Data collected, including your identifiable information, may be seen by the UGHE Institutional Review Board (IRB) that oversees the research including the AHA Quality Improvement team if required. We may also share your information related to this study with other parties including UNHCR, thesis committee and/or other federal agencies as applicable.

If I have any questions, concerns or complaints about this project, who can I talk to?
The research institution for this study is the University of Global Health Equity. The principal investigators are Autumn Eastman and Oluwatomi Olunuga who can be reached through the information below for any questions, concerns, complaints or to withdraw from the study:

- Autumn Eastman
  - +250791504902
  - autumn.eastman@student.ughe.org
- Oluwatomi Olunuga
  - +2349055771916
  - oluwatomi.olunuga@student.ughe.org
- Faculty Advisor: Dr. Tayechalem Moges Girma
  - tgirma@ughe.org

This research study has been reviewed by the University of Global Health Equity Institutional Review Board (UGHE IRB). For any ethical issues arising from the research study, please contact the IRB at:
The Office of Human Research Administration (OHRA) at Kigali Heights Building, 5th floor, Kacyiru, Kigali, P.O. Box 6955, Rwanda.
Email: irb@ughe.org,
Phone number: +250788316894

Statement of consent
Signing an X next to each statement below indicates that:

- You have understood the content of this form;
- You have had the opportunity to ask questions and received answers that were satisfactory;
- If needed, you took time to discuss this information with others to help you decide whether to participate;
- You will receive a dated and signed copy of the form;
- You agree to participate in this research project.

☐ I consent to participate in this research study

__________________________________ ___________________
Full name and signature of the witness Date and location

_____________________________________ ___________________
Full name and signature of the person requesting consent Date and location

I have read the information in this consent form including risks and possible benefits. All my questions about the research have been answered to my satisfaction. I understand that I am free to withdraw at any time without penalty or loss of benefits to which I am otherwise entitled.

SIGNATURE

Your signature below indicates your permission to take part in this research

Date

Name of participant

Signature of participant | Date

Signature of person obtaining consent | Date

Alternatively, if your participant is illiterate, you could use the following for your statement of consent. Example: "Your signature below indicates you acknowledge that:

- You have understood the content of this form;
- You have had the opportunity to ask questions and received answers that were satisfactory;
- If needed, you took time to discuss this information with others to help you decide whether to participate;
- You will received a dated and signed copy of the form;
- You agree to participate in this project.

______________________________ ______________________

Full name and signature of the participant | Date and location

______________________________ ______________________

Full name and signature of a parent or legal guardian if participant is a minor (>21) | Date and location

______________________________ ______________________

Co-signature by child if they are older than 9 years and of appropriate maturity, psychological and physical condition | Date and location

______________________________ ______________________

Full name and signature of the person requesting consent | Date and location

APPENDIX 4: KINYARWANDA TRANSLATED CONSENT FORM

IFISHI ISOBANURA IBIJYANYE N'UBUSHAKASHATSI NO GUTANGA UBURENGANZIRA BW'UBAZWA UKUZE

Numero iranga ubazwa: ______________________

Umutwe w'umushinga:

UBUSHAKASHATSI K'UBUMENYI, IMYUMVIRE, N'IMIKORESHEREZE YA SERIVISI Z'UBUZIMA BW'IMYORORKERE MU INGIMBI N'ABANGAVU MU NKAMBI Y'IMPUNZI YA MUGOMBWA MU KARERE KA GISAGARA

ABO UBUSHAKASHATSI BUREBA: INGIMBI N'ABANGAVU BAFITE IMYAKA 10-19 BABA MU NKAMBWI Y'IMPUNZI YA MUGOMBWA
Version date: 02/18/2022
Principal Investigator: Oluwatomi Olunuga and Autumn Eastman, who are students of the University of Global Health Equity (UGHE) pursuing a Master's in Global Health Delivery with a concentration on Gender, Sexual and Reproductive Health, will be conducting this study as a requirement for graduation. This study will acquire ethical approval by the UGHE IRB board in partnership with UGHE and African Humanitarian Action (AHA) to conduct this study in Mugombwa Refugee camp, Rwanda.
Abashakashatsi b'ibanze : Oluwatomi Olunuga na Autumn Eastman, abanyeshuli muri kaminuza y'ubuvuzi University of Global Health Equity (UGHE) mu cyiciro cya gatatu Masters in Global Health Delivery mu gashami ka Gender, Sexual and Reproductive Health bazakora ubushakashatsi nka kimwe mu bisabwa nga babashashe gusoza amasomo yayo. Ubu bushakashatsi bukenera ubunganzira butangwa UGHE IRB ifatanije hamwe na UGHE na African Humanitarian Action (AHA) bwo gukora ubushakashatsi mu nkambi y'impunzi ya Mugombwa, Rwanda.

Address: University of Global Health Equity, Butaro Campus, Burera District – Rwanda
Contact: autumn.eastman@student.ughe.org; oluwatomi.olunuga@student.ughe.org
Preceptors: Dr. Mulugeta Tenna, & Dr. Emmanuel Sibomana from Africa Humanitarian Action
Supervisor: Dr. Tayechalem Moges Girma from UGHE

AMAKURU AGENEWE UBAZWA
IBIJYANYE NIYI FISHI:

KU UBAZWA,
Mbere yo kwinjira muri uyu mushinga, ni ingenzi ko wumva ukanasobanukirwa n'ubutumwa buri muri iyi fishi, ku bw'amakuru y'ingenzi yagufashwa guhitamo kwitabira cg kutitabira ubu bushakashatsi. Ufate umwanya wawe witonze kugirango ubashe guhitamo niba witabira cg utitabira ubu bushakashatsi wabiganiraho n'umuryango wawe, inshuti cg muganga wawe igihe bishoboka. Igihe ufite ikibazo ku bushakashatsi cg iyi fishi wemerewe kubaza. Niba wemeye kwitabira uzasinya iyi fishi kandi unahabwe kopi uyibikire.

Kwitabira ni ubushake
Ni amahitamo yawe yo kwitabira cg kutitabira ubu bushakashatsi. Iyo uhisemo kwitabira, wemere guhindura ibitekerezo ukaba wava mu bushakashatsi igihe icyo aricyo cyose. Niba uhisemo kuva mu mubushakashatsi nta gihano cg icyo uzahomba wari ukwiriye.

Icyo wamenya kuri ubu bushakashatsi
Ubu bushakashatsi buri gukorwa na African Humanitarian Action (AHA) ifatanyije n'abanyeshuli ba UGHE mu gusuzuma ubumenyi, imyumvire, n'imikoreshereze ya serivisi z'ubuzima bw'imyororokere mu ingimbi n'abangavu bafite imyaka 30 mu nkambi y'impunzi ya Mugombwa. Abakusanyamakuru bajya babanza guha ubazwa amakuru ku bushakashatsi mbere yo gutangira

y'ikusanyamakuru. Wasabwe kwitabira ubushakashatsi wowe n'umwana wawe muba mu nkambi ya Mugombwa, twitezeko kwitabira kwanyu kuzongerera agaciro ubu bushakashatsi.

Ni izihe ntego zubu bushakashatsi?
Intego nyamukuru y'ubu bushakashatsi ni ugusuzuma ubumenyi, imyumvire, n'imikoreshereze ya serivisi z'ubuzima bw'imyororokere mu ingimbi n'abangavu bafite imyaka 10-19 mu nkambi y'impunzi ya Mugombwa.
Intego zubu bushakashatsi nizi zikurikira:

1. Gusuzuma urwego rw'ubumenyi bw'ingimbi n'abangavu k'ubuzima bw'imyororokere harimo kuboneza urubyaro, indwara zandurira mu bonano mpuzabitsina n'agakoko gatera SIDA.
2. Gusuzuma ubumenyi kuri serivisi zitangwa zo kuboneza urubyaro, indwara zandurira mu bonano mpuzabitsina n'agakoko gatera SIDA.
3. Gusuzuma Imyumvire y'ingimbi n'abangavu bo mu nkambi ya Mugombwa igendanye no kuboneza urubyaro, indwara zandurira mu bonano mpuzabitsina n'agakoko gatera SIDA.
4. Kugena ikoreshwa rya serivisi zo kuboneza urubyaro, indwara zandurira mu bonano mpuzabitsina n'agakoko gatera SIDA mu nkambi y'impunzi ya Mugombwa
5. Kumenya neza impamvu zijyanye n'ubumenyi, imyumvire n'imikoreshereze ya serivisi z'ubuzima bw'imyororokere.
6. Gusobanukirwa neza imbogamizi ndetse n'ibitekerezo ingimbi n'abangavu bafite kuri serivisi zo kuboneza urubyaro, indwara zandurira mu bonano mpuzabitsina n'agakoko gatera SIDA mu nkambi y'impunzi ya Mugombwa.

Umwana wawe nahitamo kwitabira ubu bushakashatsi azabazwa ibibazo bitandukanye mu minota 30 k' ubumenyi, imyumvire n'imikoreshereze ya serivisi z'ubuzima bw'imyororokere. Umwana wanyu naramuka atoranyirijwe kugira uruhare mu biganiro byo mu itsinda, hamwe nabandi bazabazwa ibibazo bigera ku icumi(10) mu itsinda mu gihe cy'iminota 60-90 ku mbogamizi z'ingimbi n'abangavu, ibyifuzo ndetse n'ibitekerezo kuri serivisi z'ubuzima bw'imyororokere. Ubu bushakashatsi buzafasha mugutanga amakuru y'ingenzi azafasha mu gushinga no kugenzura serivisi z'ubuzima bw'imyororokere ku ngimbi n'abangavu mu nkambi y'impunzi ya Mugombwa.

Ni abantu bangahe bazitabira ubu bushakashatsi?
Abasaga 422 nibo bazitabira ubu bushakashatsi nuko muri abo 422 Mirongo itatu na babiri(32) muri bo bazatoranyirizwa kugira uruhare mu biganiro byo mu itsinda.

Ni mubuhe buryo umuntu azitabira ubu bushakashatsi?
Abazitabira ubu bushakashatsi bazajya babanza gusobanurirwa neza intego zubu bushakashatsi n'abakusanyamakuru babasanze mu ngo. Abakusanyamakuru bazajya basura buri umwe mu rugo kugira bakore ibazwa. Ibazwa rizaba rigizwe n'ibibazo bizajya bisubirizwa mu cyumba cy'ibanga kugirango ubazwa asubize atekanye. Buri bazwa rizajya ritwara byibuza iminota 30. Umwana wanyu naramuka atoranyirijwe kugira uruhare mu biganiro byo mu itsinda, bazigira uruhare mu ibazwa mu itsinda rizamara iminota 60-90.
Abakusanyamakuru bazajya babika amakuru yatanzwe mu ikoranabuhanga ryitwa Kobo Collect.

Ni izihe ngaruka cg kutamererwa neza bijyanye no kwitabira ubu bushakashatsi?

Wowe cg umwana wahisemo kwitabira ubushakashatsi birashobokako yagira ihungabana ry'amarangamutima biturutse ku miterere y'ingingo z'ibazwa. Tuzabaha amakuru yaho mwabariza nyuma y'ibazwa igihe mukeneye ubufasha. Ubufasha mu bw'imitekerereze buraboneka binyuze muri AHA.

Ni izihe nyungu zo kwitabira ubu bushakashatsi?
Kwitabira kwanyu bizadufasha kumva ingorane ingimb n'abangavu bahura nazo mu kubona serivisi zijyanye n'ubuzima bw'imyororokere ku bw'imibereho yabo myiza muri rusange. Nuhitamo kwitabira, uzaba ufashize mugutanga ibitekerezo mu kunoza itangwa rya serivisi z'ubuzima bw'imyororokere ku ngimbi n'abangavu mu nkambi y'impunzi ya Mugombwa.

Ni iki gihari kitari ukwitabira ubu bushakashatsi?

Igihari kitari ukwitabira ni ukureka kwitabira ubu bushakashatsi igihe wumva utifuza kwitabira.

Ese haba hari igihembo cyo kwitabira ubu bushakashatsi?
Oya nta buryo na bumwe bwo gushumbushwa buzatangwa kukwitabira ubu bushakashatsi.

Haba hari icyo nzishyura ngo nitabire ubu bushakashatsi?
Ntacyo usabwa kwishyura ngo witabire ubu bushakashatsi.

Ni iki giteganijwe igihe nkomeretse biturutse kukwitabira ubu bushakashatsi?
Igihe habayeho gukomereka biturutse ku kitabira ubu bushakashatsi, nubwo ntacyo amabwirizwa ya UGHE atenganya nko gushumbushwa, hatangwa ubuvuzi buri ubutabazi bw'ibanze, gutabarwa byihuse no gukurikiranwa igihe bikenewe. Umwishingizi wawe wo wikwivuza niwe wishyuzwa ikiguzi cy'ubuvuzi. Ibyo byubuvuzi bishobora gukora igihe abakora ubushakashatsi atemera ko gukomera aribo kwaturutseho.
Ese nshobobora kuva muri ubu bushakashatsi mbere yuko burangira?
Yego, ushobora guhitamo kutitabira cg kugakomeza muri ubu bushakashatsi igihe icyo aricyo cyose nta nkurikizi. Ushinjwe ubushakashatsi ashobora kugukura mu bushakashatsi igihe icyo aricyo cyose ku mpamvu iyo ariyo yose.

Niba uvuye mu bushakashatsi kubw'impamvu z'ihungabana ry'amarangamutima, ugomba kumenyesha ukuriye ubushakashatsi.

Ese nitabiye ubu bushakashatsi, ni gute muzabungabunga ibanga yanjye? Amakuru yakusanyizwe azakoreshwa ute?
Abakuriye ubushakashatsi bazakora uko bashoboye ngo barinde banabungabunge ibanga ryawe uramutse witabiye ubushakashatsi. Amakuru yakusanyijwe mu ikusanyamakuru ntabwo azaba afite amazina yawe, ariko azaba afite numero izafasha ikipe y'ubushakashatsi cg AHA kukumenya kubw'inyungu zawe. Amakuru yakusanyijwe azanonosorwa neza n'abashakashatsi kandi anasuzumwe n'ikipe y'ubushakashatsi ya AHA na UGHE kugira ngo harebwe niba amakuru yarakusanyijwe mu buryo bwuzuye. Amakuru bwite ntazigera asangirwa nundi utari mu ikipe y'ubushakashatsi kandi azarindwa bikomeye kugirango atirega akoreshwa mu kabangamira banyirayo. Nyuma y'ubushakashatsi amakuru yose yakusanyizwe azafungirwa mukabati ndetse mu ikoronabuhanga anasenywe nyuma y'imyaka 10.

Amakuru yakusanyijwe hamwe n'ibibaranga ashobora kurebwa na UGHE IRB ireberera ubushakashatsi hamwe na AHA Quality Improvement team igihe bibaye ngombwa. Dushobora no gusangira aya amakuru aberekeye hamwe n'abandi nka UNHCR, itsinda ry'ubushakashatsi n'ibindi bigo bya leta igihe bikenewe.

Ndamutse mfite ikibazo, icyo gusobanuza cg ibyo ntumva ku bushakashatsi navugisha nde?
Ikigo gikurikirana ubu bushakashatsi ni University of Global Health Equity. Abashakashatsi b'igenzi ni Autumn Eastman na Oluwatom Olunuga ushobora kubageraho ufite ikibazo, icyo gusobanuza cg ibyo utumva cg kuva mu bushakashatsi:

- Autumn Eastman
    - +250791504902
    - autumn.eastman@student.ughe.org
- Oluwatomi Olunuga
    - +2349055771916
    - oluwatomi.olunuga@student.ughe.org
- Faculty Advisor: Dr. Tayechalem Moges Girma
    - tgirma@ughe.org

Ubu bushakashatsi bwasuzumwe na UGHE IRB. Hagize ikibazo kijyanye n'ubudakemwa kuri ubu bushakashatsi mwavugisha UGHE IRB kuri;
The Office of Human Research Administration (OHRA) at Kigali Heights Building, 5th floor, Kacyiru, Kigali, P.O. Box 6955, Rwanda.
Email: irb@ughe.org,
Phone number: +250788316894

Inyandiko yemeza kwitabira ubushakashatsi
Gushyira akamenyetso X kuri buri nteruro ikurikira bisobanuyeko:

- Wumvise neza ibigize iyi fishi;
- Wagize umwanya uhagije wo kubaza no gusabonuririrwa kandi byakunyuze;
- Aho byari bikenewe wagize umwanya wo kuganira n'abandi aya makuru bagufasha guhitamo niba wakitabira;
- Uzahabwa kopi y'iyi nyandiko iriho italiki kandi iriho n'umukono;
- Wemeye kwitabira ubu bushakashatsi

☐ Nemeye kwitabira ubu bushakashatsi

______________________________ ____________________
Amazina n'umukono y'umutangabuhamya Italiki n'aho bikorewe

____
Amakuru n'umukono by'usaba uburenganzira Italiki n'aho bikorewe

Nasomye amakuru yose kuri iyi fishi harimo ingaruka n'inyungu zirimo. Ibabazo byanjye kuri ubu bushakashatsi byarasubijwe biranyura. Numva neza ko mfite uburenganzira bwo kuba naba mu bushakashatsi igihe mbihisemo kandi nta nkurikizi.

UMUKONO

Umukono wawe aha hakurikira uramenyesha uruhushya rwawe rwo kwitabira ubushakashatsi

____
Italiki

Amazina

Umukono | Italiki

Umukono w'uwakiye iyi fishi | Italiki

Mu bundi buryi, usubiza abaye atazi gusoma no kwandika wakoresha inyandiko ikurikira.
Urugero: Gushyira umukono aha hakurikira bisobanuyeko:

- Wumvise neza ibigize iyi fishi;
- Wagize umwanya uhagije wo kubaza no gusabonurirwa kandi byakunyuze;
- Aho byari bikenewe wagize umwanya wo kuganira n'abandi aya makuru bagufasha guhitamo niba wakitabira;
- Uzahabwa kopi y'iyi nyandiko iriho italiki kandi iriho n'umukono;
- Wemeye kwitabira ubu bushakashatsi

Amazina n'umukono | Italiki n'aho bikorewe

Amazina n'umukono by'uhagarariye umwana (>21) | Italiki n'aho bikorewe

Co-signature by child if they are older than 9 years and of appropriate maturity, psychological and physical conditions | Italiki n'aho bikorewe

Amazina n'umukono by'ubusaba uburenganzira | Italiki n'aho bikorewe

APPENDIX 5: PRACTICUM PROJECT ASSENT FORM FOR MINORS

Researcher identification: _________________
Project title:
Knowledge, Perceptions and Utilization of Contraceptive & STI/HIV Services Among Adolescents in Mugombwa Refugee Camp, Gisagara District Rwanda
Main researcher: Autumn Eastman, Oluwatomi Olunuga

Master of Science in Global Health Delivery candidate, University of Global Health Equity
Dear Proposed participants,

Purpose of Research

We are conducting a study on **Sexual and Reproductive Health Knowledge, Perception And Service Utilization among Adolescent in Mugombwa Camp.** The study is aimed at determinig the knowledge, perception and utilization of Sexual and Reproductive services among adolescents in Mugombwa camp. Your insight will assist us in understanding key gaps in knowledge, perception and barriers associated with utilization of services.

Research Procedure

If you agree to be in this study, you will be asked to answer questions about yourself as well as questions about your knowledge, perception and utilization of Sexual and Reproductive services on camp. These questions will be asked in the form of an individual interview using an interviewer administered structured questionnaire. This will take between 15 – 20 minutes. You may also be randomly selected to participate in a Focus Group Discussion, which would involve a group interview for 60-90 minutes.

Risks and benefits: There are no risks if you take part in this study. There are also no incentives but the information you provide may help in the improvement of intervention and policies on your sexual and reproductive health issues adolescents face in Mugombwa camp.

Voluntary Nature of Participation

Your participation in this study is highly voluntary. If you decide to participate in this study, you are free to answer the questions with much or as little details as you wish and feel comfortable to ask any question if you do not understand for further explanation. You are also at liberty not to answer some questions or withdraw from the study at any time for any reason with no penalty.

Compensation

There is no compensation or incentive for participating in this study.

Confidentiality

You are assured of strict anonymity and confidentiality on any information you give. Only the research team will have access to the answered questionnaires. Confidentiality and privacy will be maintained by keeping all materials under lock and key. Your name will be deidentified by using selected identification number making it impossible to identify you or your answers in anything written about this study.

Contact and Questions

If you have any further information or questions about the study, you may contact the principal investigator, Autumn Eastman and Oluwatomi Olunuga on phone number:
Or email: autumn.eastman@ughe.student.org; oluwatomi.olunuga@ughe.student.org

Statement of Consent

I have read the information above, or it has been read to me. I consent voluntarily to be a participant in this study

Name of Participant: ___________________________________

Signature or Thumb print of Participant: _________________________________

Date: ___________________________

Thank you for agreeing to participate!

Adapted from: (Ayinne, 2017)

APPENDIX 6: KINYARWANDA ASSENT FORM

INYANDIKO ITANGA UBURENGANZIRA BW'INGIMBI N'ABANGAVU BATARENGEJE 18N'AMAKURU

IFISHI ITANGA UBURENGANZIRA BW'INGIMBI N'ABANGAVU BATARENGEJE 18 K'UBUSHAKASHATSI K'UBUMENYI, IMYUMVIRE, N'IMIKORESHEREZE YA SERIVISI Z'UBUZIMA BW'IMYORORORKERE MU INGIMBI N'ABANGAVU MU NKAMBI Y'IMPUNZI YA MUGOMBWA MU KARERE KA GISAGARA

IBIRANGA UBUSHAKASHATSI: ______________________

Umutwe w'umushinga:
UBUSHAKASHATSI K'UBUMENYI, IMYUMVIRE, N'IMIKORESHEREZE YA SERIVISI Z'UBUZIMA BW'IMYORORORKERE MU INGIMBI N'ABANGAVU MU NKAMBI Y'IMPUNZI YA MUGOMBWA MU KARERE KA GISAGARA

ABASHAKASHATSI B'INGENZI: Autumn Eastman, Oluwatomi Olunuga
Master of Science in Global Health Delivery candidate, University of Global Health Equity
KU UBAZWA;

IMPAMVU Y'UBU BUSHAKASHATSI
Turi gukora ubushakashatsi **K'ubumenyi, Imyumvire, N'imikoreshereze Ya Serivisi Z'ubuzima Bw'imyororokere Mu Ingimbi N'abangavu Mu Nkambi Y'impunzi Ya Mugombwa.** Ubushakashatsi bugamije kugaragaza Ubumenyi, Imyumvire, N'imikoreshereze Ya Serivisi Z'ubuzima Bw'imyororokere Mu Ingimbi N'abangavu Mu Nkambi Y'impunzi Ya Mugombwa. Ibitekerezo byawe bizafasha mu kugaragaza no mu kumva ahari icyoho mu Ubumenyi, Imyumvire, n'imbogamizi mu gukoresha serivisi.

Uko Ubushakashatsi buzakorwa
Niba wemeye kwitabira ubu bushakashatsi, uzabazwa ibibazo bikwerekeyeho n'ibibabazo bijyanye n' Ubumenyi, Imyumvire, N'imikoreshereze Ya Serivisi Z'ubuzima Bw'imyororokere mu nkambi. Ibi bibazo bizabazwa mu buryo bw'ikiganiro hifashishijwe ifishi y'ibibazo, bizatwara iminota 30. Ushobora no gutoranyirizwa kugira uruhare mu biganiro byo mu itsinda, bigizwe n'ibazwa rizamara iminota 60-90.

Ingaruka n'inyungu: Nta ngaruka zizaturuka kukwitabira ubushakashatsi. Nta n'igihembo kirimo ariko amakuru azatangwa azafasha mukogaragaza ahakwiye kongerwa imbaraga no gushyiraho imirongo migari ku bibazo ingimbi n'abangavu bahura nabyo ku buzima bw'imyororokere mu nkambi ya Mugombwa.

Kwitabira ni ubushake
Kwitabira kwawe ni ubushake. Niba uwisemo kwitabira ubu bushakashatsi, ufife uburenganzira bwo gusabubiza ibibazo n'ubumenyi ubwo aribwo bwose ufite kandi ukaba wabaza n'ikibazo icyo aricyo cyose kugira ubone ubusobanuro buruseho. Ufite uburenganzira who kudasubiza ibibazo byose cg kuba wava mu bushakashatsi nta mbogamizi.

Ibihembo
Nta bihembo cg ingororano zihari kugirango umuntu yitabire ubushakashatsi.

Kugirirwa ibanga
Wijejweko amakuru yose uzatanga azabikwa mu ibanga rikomeye. Itsinda ry'abashakashatsi nibo bonyine bazagira uburenganzira bwo kureba ku mafishi y'ibibazo ariho ibisubizo. Ibanga rizagumaho amakuru yakusanyijwe azabikwa ahantu hatekanye kandi hafungwe. Amazina yawe ntazakoreshwa ahubwo hazifashishwa numero ikuranga kugirango igaragaze ibyo wasubije bijyanye n'ubushakashatsi.

Ibibazo
Uramutse ukeneye andi makuru yisumbuye ku bushakashatsi wabaza abashakashatsi b'ingenzi Autumn Eastman na Oluwatomi Olunuga on phone number:
Kuri email: autumn.eastman@ughe.student.org; oluwatomi.olunuga@ughe.student.org

Inyandiko itanga uburenganzira
Nasomye amakuru ari hejur cg nasomewe. Ntanze uburenganzira ku bushake bwo kwitabira ubu bushakashatsi
Amazina: ________________________________

Umukono cg Igikumwe: ________________________________

Italiki: _____________________________________

Murakoze kwemera kwitiabira ubushakashatsi!

APPENDIX 7: Ethical Considerations

Vulnerable Populations

Refugees are an inherently vulnerable population due to their transition from conflict into a new environment. Furthermore, the refugee camp setting qualifies as a space of vulnerability as a result of limited protective social structures. Therefore, all participants possessed a degree of vulnerability. Our study population, refugee adolescents between the ages of 10-19 years old, are particularly vulnerable due to their status as minors. Additionally, participants who possessed additional vulnerable identities, such as those who were pregnant or disabled, were not excluded from participation in this research study as we didn't see any additional vulnerability to their participation.

Data collectors were trained on standards of ethical conduct and sensitization of adolescent refugees, including topics on gender-inclusiveness and refugee vulnerability, prior to conducting any data collection. Gender-inclusiveness sensitization included topics on the use of non-stigmatizing language and the highest standards of gender-confidentiality so as not to "out" participants in their communities. Furthermore, in the dissemination of results, principal

investigators carefully, accurately and sensitively reflected their views in a manner which protects the identities and safety of adolescents.

Ethical approval was acquired from the Institutional Review Board through the University of Global Health Equity (UGHE). Moreover, all additional required approvals were acquired from AHA, UNHCR, MINEMA and the Ministry of Health prior to the commencement of the study. A robust consent form was acquired from parents of the adolescent and assent was acquired from adolescents prior to participation in the study to ensure that thorough informed consent had been acquired. Additionally, extensive measures were taken to ensure privacy and confidentiality of all data acquired from this study.

Assessment of Risks of Participants & Risk Mitigation

This research study entailed asking participants questions about their knowledge, experiences and perceptions related to sexual and reproductive health services. Since the topic of sexual and reproductive health was sensitive, our research questionnaire and focus group discussions had the potential to cause distress to the participants. To minimize this risk, data collectors were trained to ethically administer informed consent to parents and informed assent to adolescents. Data collectors informed participants that they have the right to refuse participation at any point in the study and that refusal will not affect AHA or UNHCR's support of them. Furthermore, data collectors were trained over the course of an entire day on ethical conduct, and human research study on vulnerable populations. Ethical and sensitivity training included training on gender inclusiveness and sensitivity, providing psychosocial support, first aid mental health counseling, effective and sensitive communication techniques, clarification of participant questions, as well as procedures for escalating any participant concerns.

Another risk of this study was the possibility that the data collector could discover that a research participant had experienced a form of gender-based violence (GBV). In the event that happened, the data collectors were trained to report these findings to a senior research lead who would then act according to the refugee camp policy. AHAs's duty to report policy states that when a victim is identified, their privacy is to be kept confidential and the lead researcher will refer the victim a qualified health provider who will work in collaboration with the lead GBV professional on site and the Rwandan Investigation Board One-Stop Center to provide the victim with support. We also separated the focus group discussions based on gender to prevent harassment or other potential psychosocial distress from any gender in addition to ensure that views were expressed freely.

Information, Assent and Consent Process

Participants above 18 years old were required to give consent to participate in the study. Participants below 18 years old were required to give assent and parental/guardian permission was obtained before adolescents were allowed to participate in the study. In the process of obtaining informed consent from the potential participants, the data collectors explained the purpose of the study, what it would involve, the use of the data collected from them and assured them of their privacy and confidentiality. The potential participant was allowed to ask questions about the study and get clarifications on areas uncleared. They were also be informed of their right to not participate in the study, not respond to any questions without giving reasons and stop the interview and withdraw their consent to participate at any time during the research process without giving any reason. The potential participants were assured that their decision to participate or not in the

study would not affect them in any way, including their relationship with UNHCR or other organizations within the camp.

Protection of Privacy and Confidentiality

All data containing participant information was de-identified using a participant identification number (as described below). All research data, materials and tools containing participation information was kept private and confidential in an encrypted digital format in the possession of the UGHE and research leads. During qualitative data analysis, participants' identity was also preserved by removing their names during transcription and assigning participants a participant identification number.

When results were disseminated at the end of the research study, the principal investigators were reflexive in terms of how the data was analyzed and communicated. Principal investigators made sure that the results of the study were analyzed and shared in a way that would not reflect poorly on Mugombwa refugee camp. For focus group discussion results, one person translated and transcribed each transcription, and a team of people analyzed the data to make sure that the participant's words had been interpreted correctly. In this dissemination process, all participant identification was removed and rendered untraceable. Recommendations developed from the research findings cut across addressing the SRH needs of both males and females. In the future, to prevent this research study from being extractive and promote the sharing of research fruits with the researchers, we plan to share the research with community actors and leaders.

De-identification of Data

Data collected during the study containing participant information was de-identified using a participant identification number. The participant identification number code book was stored in an encrypted excel sheet that only the researchers, AHA and UNHCR have access to.

Safekeeping of Data

Records acquired throughout the research study, including participant interviews, consent forms and other field notes, if digital were password-protected and link-anonymized in a secure UGHE computer and if hard-copy, was stored in a locked file at UGHE. The data is being kept secure at UGHE for 10 years, after which it will be destroyed according to the UGHE Institutional Review Board requirements.

APPENDIX 8: Ethical Approvals

University of Global Health Equity Institutional Review Board Academic Ethics Review

Notification of Approval

Ref: UGHE-IRB/2022/013
April 19, 2022

Protocol Title:	**Assessing the Knowledge, Perceptions and Utilization of Contraceptive, STI & HIV Services Among Adolescents in Mugombwa Refugee Camp, Gisagara District Rwanda**
Principal Investigator(s):	Oluwatomi Olunuga & Autumn Eastman
Protocol #:	163
Funding Source:	
Review Date	March 22, 2022
Review Type:	Full Review
IRB Review Action:	Approval
Effective Date:	April 19,2022
Expiration Date:	April 18,2023

Dear Oluwatomi Olunuga & Autumn Eastman
On April 19,2022, the University of Global Health Equity Institutional Review Board (UGHE IRB) approved this resubmission with modifications review. **Please note that the approval for this protocol will lapse after one (1) year and must be renewed according to the procedures of the UGHE IRB.**

The IRB reminds you that you are responsible for fulfilling the following requirements:

1. Changes, amendments, and addenda to the protocol or consent form (if applicable) must be submitted to the committee for review and approval, prior to activation of the changes.
2. Only approved consent forms are to be used for the enrollment of participants.
3. All consent forms signed by subjects must be retained on file, and are submitted to inspection, along with other project materials, during routine onsite visits or audits.
4. Failure to submit an application for continuing review will result in the suspension or termination of the study.
5. The UGHE IRB must be notified at the closure of the study.

Please contact the UGHE IRB via email at irb@ughe.org with any questions.
Sincerely,

Daniel Seifu, IRB Chair

Republic of Rwanda
Ministry in charge of Emergency Management

Kigali, 28/4/2022
Ref: 0363/MINEMA/SPIU/22

Professor Agnes Binagwaho, MD, PHD.
Vice Chancelor
University of Global Health Equity (UGHE)
RWANDA

Re: **Authorization for Educational Practical Training in Mugombwa Refugee Camp.**

Dear Madam,

Reference is made to your letter requesting the Ministry in charge of Emergency Management (MINEMA) an authorization for two UGHE students to undertake a research project titled **"Assessing the knowledge, perceptions and utilization of contraceptive, STI&HIV services among Adolescents in Mugombwa refugee camp"**;

I am pleased to inform you that an authorization to access the aforementioned refugee camp between May-September 2022 is granted to **Oluwatomi Olumuga** and **Autumn Eastman**.

You are requested to respect COVID 19 preventive measures including a COVID-19 test.

For any assistance they may require, they are advised to contact Mr. Karayenzi Kevin, Mugombwa Camp Manager on 0788657711.

Sincerely.

HABINSHUTI Philippe
Permanent Secretary

Cc:

- Honorable Minister in charge of Emergency Management
  KIGALI
- Mugombwa Camp Manager
  GISAGARA