

**PREVALENCE OF CONSISTENT CONDOM USE AND ASSOCIATED FACTORS AMONG
FEMALE SEX WORKERS IN THE DISTRICTS OF RAKAI AND KYOTERA**

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DECLARATION

I Kigozi Moses hereby declare that this dissertation entitled: Prevalence of consistent condom use and associated factors among female sex workers in the districts of Rakai and Kyotera is my original work done with guidance and support from my great supervisors.

To the best of my knowledge, this dissertation has never been presented in part or in total for any other academic award.

I hereby submit this work for examination.

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This dissertation was duly endorsed, supervised and approved by the research supervisors.

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ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
ART	Anti-Retroviral Therapy
CHEDRA	Community Health Empowerment Development and Relief Agency
CCP	Comprehensive Condom Programming
DHO	District Health Officer
FSW	Female Sex Workers
HIV	Human Immunodeficiency Virus
IDI	In-depth Interview
MakSPH	Makerere University School of Public Health
MoH	Ministry of Health
PLWHIV	Persons Living With HIV
PI	Principal Investigator
PEP	Post Exposure Prophylaxis
PrEP	Pre exposure Prophylaxis
RHSP	Rakai Health Sciences Program
SSA	Sub Saharan Africa
STIs	Sexually Transmitted Infections
UBS	Uganda Bureau of Statistics
UN	United Nations

OPERATIONAL DEFINITIONS

Condom use: For this study, it refers to having used either male or female condom during only hetero sexual relationships in the period specified in this study.

Consistent condom use: For this study, it refers to having used either female or male condom at all time during only hetero sexual relationships in the period specified in this study.

Female Sex Worker: For this study, it refers to females aged at least 18 years or older who receive money or goods in exchange for sexual services, either regularly or occasionally.

Inconsistent condom use: For this study, it refers to either having used a female or male condom sometimes or never at all during only hetero sexual relationships in the period specified in this study.

ABSTRACT

Background

Despite the fact that condoms can reduce HIV transmission, levels of condom use are low among female sex workers (FSW). This study examines prevalence of consistent condom use and associated factors among 602 FSW in Rakai and Kyotera districts.

Methods

In this cross-sectional descriptive study, secondary quantitative data that were collected between July 2016 and September 2018 were obtained with permission from Rakai Health Sciences Program (RHSP), while in June 2022, in-depth interviews were conducted with FSWs through CHEDRA (Community Health Empowerment Development and Relief Agency) to address the qualitative objective.

Results

Only 52% of FSWs reported using condoms consistently in heterosexual relationships in the past 12 months. Consistent condom use was mainly influenced by client preference and peer influence. Independent factors associated with lower risk of consistent condom use were: Presence of sexual violence [adjusted prevalence ratios (aPR) 0.79; 95% confidence interval (CI): 0.68-0.92], Engagement in non-marital sexual relationships (aPR 0.67; 95% CI: (0.58-0.77), High risk perception of HIV acquisition (aPR 0.68; 95% CI: 0.59-0.79) and Lack of knowledge of HIV status (aPR 0.29; 95% CI: 0.11-0.73).

Conclusion

Consistent condom use was lower among female sex workers who experienced sexual violence, it was lower among those who were engagement in non-marital sexual relationships, it was also lower among those who had high risk perception of HIV acquisition, and among those who did not know their HIV results.

Recommendation

Tailored strategies to increase consistent condom use should be designed targeting FSWs who are more vulnerable to HIV infection, alongside efforts to reduce all forms of violence and to increase HIV status awareness among this population.

1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction and Background

HIV continues to be a major global public health issue, having claimed 40.1 million [33.6–48.6 million] lives so far. There is no cure for HIV infection. In 2021 there were an estimated 38.4 million [33.9–43.8 million] people living with HIV of who (25.6 million) are in the WHO African Region. In 2021, 650 000 [510 000–860 000] people died from HIV-related causes and 1.5 million [1.1–2.0 million] people acquired HIV (WHO 2021). Every day there are 4000 new HIV infections with in sub-Saharan Africa contributing up to 60%. Of these new infections 51% are among women. With female sex workers having 26 times greater risk of acquiring HIV than women (Stover, Glaubius et al. 2021).

Nearly two-thirds of these infections happened in sub-Saharan Africa (SSA)(Brown, Williams et al. 2018). New HIV infections are highest in key populations, such as fishing communities, people who inject drugs, commercial female sex workers and men who have sex with men, who account for nearly half of new HIV infections in SSA(Brown, Williams et al. 2018). These infections are happening in the presence of several biomedical and behavioural interventions that have been tested and proven effective against HIV and other sexually transmitted infections.

Efforts to prevent HIV infection have been less successful. The annual number of new infections among adults globally has hardly changed over the past four years. The total new infections have declined by just 31% since 2010, far short of the 75% target for 2020 that was set by the UN General Assembly in 2016. Too many countries have failed to put in place a combination of structural, behavioural and biomedical approaches to HIV prevention focusing on those at greatest risk. Although possible, consistent condom use has proved difficult to achieve among all populations. Women in many countries, for example, need greater agency and support to negotiate consistent condom use. The annual number of new HIV infections also climbed in the Middle East and North Africa. (Stover, Glaubius et al. 2021).

Biomedical interventions have included antiretroviral therapy (ART) in the form of treatment for HIV positive individuals as a means of reducing their risk of transmitting HIV, post exposure prophylaxis (PeP), pre-exposure prophylaxis (PrEP), medical male circumcision (MMC) and condoms. While behavioural interventions include abstinence, being faithful to one sexual partner, and HIV testing and counselling. Although gains have been noted over the past 20 years from the

peak of the HIV epidemic, available interventions have been affected by sub optimal adherence and/or lack of access especially in SSA (Baeten, Donnell et al. 2012). New interventions and strategies may be required to end the epidemic. In the absence of an effective HIV vaccine, promotion and provision of accessible and affordable interventions such as condoms can help improve access to HIV prevention and reduce the risk of HIV infections in key populations such as sex workers on the shores of Lake Victoria. Apparently, the selected area for this study is along the shores of Lake Victoria as shall be described later.

In these communities on the shores of Lake Victoria, HIV prevalence and incidence are four times higher than that estimated in the general population (Mafigiri, Matovu et al. 2017). The population is confined to isolated locations with limited or no access to healthcare services, but interacts with the general population through fish trade and could extend the HIV transmission network.

Much of the available literature about condom use is drawn from HIV discordant couples, people living with HIV/AIDS or populations with moderate HIV risk, but there is limited information on consistent condom use among communities around Lake Victoria (Mafigiri, Matovu et al. 2017). Condoms, if correctly and consistently are estimated to reduce the risk of HIV transmission by 60% to 96% among heterosexuals in general population and 78% to 100% in the HIV sero-discordant couples (Namisi, Aarø et al. 2015). However, condom use in relatively stable populations in SSA is very low and, in most cases, they are inconsistently used due to socio-cultural, economic and environmental factors (Namisi, Aarø et al. 2015).

1.2 HIV and sex workers in Uganda

In Uganda, the first case of HIV (AIDS — *Slim* disease) was reported in 1982 in Kansensero, a fishing village located in the Western region (Serwadda, Sewankambo et al. 1985). Currently, the district has been divided into two i.e Rakai and Kyotera. This area has continued to experience high HIV rates at 12% compared to the national average of 5.6% (Mwine, Kwesiga et al.) . Despite lack of size estimates on the female sex worker population, Rakai and Kyotera have high concentration of female sex workers, sex worker hot spots and brothels where commercialized sex takes place (Serwadda, Sewankambo et al. 1985).

Uganda has a mature, generalized HIV epidemic; however, sex work is likely an important driver of sexual transmission (Mangen, Odiit et al. 2009). The relative risk of HIV acquisition in female sex workers is 30 times higher than the acquisition rate in the respective general female population

(Commission and Commission 2021). Like other areas of Uganda, female sex workers in Rakai and Kyotera engage in sex work to earn a living; they are widely available at or around different social establishments like bars, liquor shops, and guest-houses.

These places facilitate unlimited interaction between female sex workers and members of the general population. Thus, they play a key role in spreading HIV to the general population (Ratmann, Kagaayi et al. 2020). A recent review estimated that female sex workers are 13.5 times more likely to be HIV infected than other women (Baral, Beyrer et al. 2012). One of the most important reasons for the transmission of HIV is having unprotected sex (Eilami, Nazari et al. 2019).

1.3 Efforts by Ministry of Health and other stakeholders to increase consistent condom use

In Uganda, condom use is a critical element in a comprehensive, effective and sustainable approach to triple protection against sexually transmitted infections (STIs), Human Immune deficiency Virus (HIV) and unintended pregnancies, provided they are used correctly and consistently.

While a number of achievements were registered which include; increased capacity for post-shipment and post-market quality assessment and the recognition of the condom testing lab through the WHO, improved availability of condom dispensers; growth in the number of commercially available condom brands; increased financial resources invested into procurement of sufficient male condoms for the public sector and provision of government support for condom programming activities, there are still system challenges to generate reliable data on condom use and needs for the various population groups, to inform responsive programs. (Commission AIDS Commission 2021).

Ministry of Health and partners developed a National Comprehensive Condom Programming Strategy (NCCPS 2020-2025), with the goal of improving access and use of quality condoms in the country. The strategy builds on lessons learned and recommendations derived in implementing previous condom strategies. The new strategy takes on a Total Market, people-centred and data-driven condom programming approach that will improve access and documentation for those that need condoms most.

In addition, this strategy represents Uganda's commitment to comprehensive condom programming with the purpose of ensuring that all sexually active persons at risk of STIs/HIV and unintended pregnancies are motivated to choose and use condoms consistently, have access to quality condoms and the ability to use them correctly and consistently. The strategy therefore, is meant to guide

condom programming among reproductive health and STI/HIV prevention stakeholders in the public, private and commercial sectors at all levels.

However, despite the triple purposes that condoms serve and the high prevalence of risky sexual behaviours, the use of both male and female condoms in Uganda has remained low (Cisek, et al. 2019). This has mainly been attributed to relatively low investment in demand creation, low availability and accessibility to condoms at community level (last mile distribution), as well as persistent stigma and misconceptions surrounding condom use (Cisek, et al. 2019). On top of this, as a strategy to increase correct and consistent condom use; the Uganda's Ministry of Health (MoH) is distributing free condoms with focused training on use among the key populations including female sex workers.

2.0 LITERATURE REVIEW

2.1 Prevalence of consistent condom use among female sex workers

Consistent condom use although possible, has proved difficult to achieve among all populations. Despite efforts to promote consistent condom use, consistent condom use among female sex workers remains low in most settings, with the proportion reporting 100% condom use reported at 26.8% in Kenya and 18.9% in Uganda. (Bukonya, Vandepitte et al. 2013). Condom use has had an enormous impact on the global AIDS pandemic. Model simulations show that increased condom use since 1990 has averted an estimated 117 million new infections. Close to half of these (47%) in sub-Saharan Africa and more than one third (37%) in Asia and the Pacific (Stover, Glaubius et al. 2021)

Data reported by UNAIDS in 2017 suggests that 55.5% of men and 41.2% of women used a condom the last time they had higher-risk sex (defined as being with a non-marital, non-cohabiting partner) (Whittaker, Case et al. 2020). The number of male condoms distributed by the government rose from 87 million in 2012 to around 240 million by the end of 2015. However, this is far below the number of condoms required, given the population size. (Burrage, Patel et al. 2018)

Globally sex workers make up 9% of the total number of new HIV infections(Gruskin, Everhart et al. 2018). Women in many countries, for example Uganda, need greater agency and support to negotiate consistent condom use. Condoms alone therefore, are not sufficient to control HIV epidemics. For example, in eastern and southern Africa, HIV prevalence among female sex workers is often extremely high. In Eswatini (previously known as Swaziland), Lesotho, Malawi, South Africa and Zimbabwe more than 50% of sex workers are living with HIV(Gruskin, Everhart et al. 2018).

If condom use rates are increased to reach the 2025 target of 95% of higher risk sex acts and all other prevention interventions remain at 2019 coverage levels, about one third of the required reductions in HIV infections will be achieved. Full achievement of the 2025 targets requires combining increases in condom availability and consistent use with a full range of prevention choices (Stover, Glaubius et al. 2021).

While one of the major factors in the spread of the epidemic in the region is high HIV prevalence among female sex workers(HIV/AIDS 2017). Stigmatization and marginalisation, limited access to health services, information and means of prevention, and high levels of other sexually transmitted

infections (STIs) elevate new HIV infection among this population. Prevention programs aimed at FSWs have proven to be among the most effective and they have slowed down the spread of HIV in many countries. Correct and consistent use of condoms is the single most effective measure for reducing transmission of STIs and HIV (HIV/AIDS 2017). The prevalence of HIV and other sexually transmitted infections (STIs) among female sex workers equally remains high in most settings, with HIV prevalence of 33–37% reported among Ugandan female sex workers. (Bukenya, Vandepitte et al. 2013).

Condom programmes are among the most cost-effective interventions in the HIV response. Assuming an average cost of about US\$ 0.18 for each male condom distributed, each averted HIV infection during 1990–2019 cost approximately US\$ 230 (Stover, Glaubius et al. 2021). In recent years however, condom social marketing programmes and condom demand generation have declined. Data from population-based surveys conducted after 2015 also suggest that condom use has declined among young people in several countries in sub-Saharan Africa including Uganda.

Despite the low cost of condoms, international funding for condom procurement in sub-Saharan Africa has stagnated in recent years. (Schwartz, Papworth et al. 2015). Collective actions at all levels are needed to support efforts of countries that depend on external assistance for condom procurement, promotion and distribution. There is need to increase domestic funding and private sector investment in condom distribution and promotion. Although condoms are part of most national HIV, STI and reproductive health programs, condoms have not been consistently distributed nor promoted proactively enough (Sandøy, Blystad et al. 2012).

2.2 Factors associated with consistent condom use among sex workers

Condom use among female sex workers is determined by individual and social factors. Perceived self-efficacy is one of the individual factors that can influence condom use. It is a concept derived from social cognitive theory and is considered as a factor that could potentially lead to health-related behavioural change (Bandura 2004).

In the Ugandan context, where gendered cultural norms and inequitable power relations prevail, women including female sex workers have less control in a sexual relationship (Nalwadda, Mirembe et al. 2010). Interpersonal communication along with behavioural skills between partners is an integral part of a relationship that determines behaviour (Walusaga, Kyohangirwe et al. 2012). A positive attitude towards condoms and a greater confidence in one's ability to use them consistently in various circumstances corresponds to higher levels of consistent condom use.

Perceived self-efficacy is defined as confidence in one's ability to exhibit motivation and capability to achieve a given goal (Bandura 1986). Condom efficacy is a person's confidence in his or her ability to successfully use a condom during sexual intercourse(Black, Sun et al. 2011) Such efficacy requires risk reduction and self-regulation skills, but possessing the skills and being able to transform them into action under difficult circumstances are two different matters(Peterson and Mann 1994).

The role of condoms for HIV prevention is known for over 20 years (Bukonya, Vandepitte et al. 2013). While correct and consistent use of condoms is the single most effective measure for reducing transmission of STIs and HIV(Seshu, Hunter et al. 2008), The evidence review of 2015 found that between 33% and 55% of sex workers in Uganda reported inconsistent condom use in the past month, driven by the fact that clients will often pay more for sex without a condom. (Erickson, Goldenberg et al. 2015). In many countries including Uganda, sex work is illegal and there is scanty information on this population because the current HIV surveillance system does not routinely capture data from this population (WHO 2010).

Consistent condom use is also linked to gender in more or less obvious ways. In prior studies 'intention to use a condom consistently' has been shown to be an important predictor(Schaalma, Aarø et al. 2009) The theory of planned behavior (Ajzen 1991)and its extended versions have suggested that in the absence of environmental barriers, any behaviour is more likely to occur if there is a strong intention and ability to carry it out (Halpern-Felsher, Kropp et al. 2004).

Behavioural intentions in turn are determined by attitudes, subjective norms, and self-efficacy which account for considerable variation in actual condom use in different situations (Ajzen 1991). Individual factors affecting behavior change should not be seen in isolation. Numerous social factors influence the behaviours of female sex workers. Peer norms can exert considerable pressure on sex workers and affect their decisions including consistent condom use (Halpern-Felsher, Kropp et al. 2004).

Female sex workers are among the most vulnerable and high-risk groups for HIV acquisition due to their particular circumstances,(Shannon, Strathdee et al. 2015) with 15% of HIV cases attributed to unprotected sex work in adult women worldwide. If we consider the prevalence of HIV in other population groups affected by sex with female sex workers, the overall burden attributed to this high-risk behavior is much higher.(Prüss-Ustün, Wolf et al. 2013).

Individual and structural level barriers impede HIV prevention for female sex workers . At the individual level, severe marginalization associated with poverty, gender based violence, high transience, alcohol or substance use, and other issues that reduce power and limit ability to negotiate condom use. These are some of the major barriers to women's access to prevention (Bekker, Johnson et al. 2015). At the structural level, cultural, economic inequities, stigma, government policies criminalizing sex work and lack of access to medical services including HIV prevention and treatment services further increase susceptibility to HIV infection (Wanyenze, Musinguzi et al. 2017).

Moreover, because female sex workers commonly have low economic and educational status, their ability to choose safer clients is often compromised to reduce their exposure to HIV infection and prevent onward transmission (Bekker, Johnson et al. 2015). This is evidenced by the fact that in Uganda, HIV prevalence among sex workers was estimated at 37% in 2015/2016 and it is estimated that female sex workers and their clients accounted for 18% of new HIV infections in Uganda in 2015/2016 (Pande, Bulage et al. 2019).

Normative perceptions of sexual experiences can be an important influence in sex workers' decisions to engage in risky sexual activities such as having multiple sexual partners, using condoms inconsistently, and alcohol consumption in conjunction to sex. Studies among sex workers have supported the notion that that peer influences can affect risky sexual practices (Cherie and Berhane 2012)

Despite that, access to HIV prevention and treatment services for female sex workers is limited (Baral, Poteat et al. 2013). The high prevalence of HIV in Uganda suggests that there are significant barriers for female sex workers to obtain essential health services (Beyrer, Crago et al. 2015). For example, in Uganda, sex work remains criminalized, increasing stigma and marginalization. Factors such as poverty, discrimination, gender inequality, severe physical violence, and criminalization of sex work increase female sex worker's risk for infection and deter these women from learning their HIV status or accessing prevention and treatment services (Shannon, Strathdee et al. 2015).

The most important reason for not using condoms was trust in the partner (Bandyopadhyay, Banerjee et al. 2018). Barriers to condom use among women at risk of HIV/AIDS include lack of perceived threat, lack of motivation, inadequate knowledge, lack of control, and negative attitude towards condoms (Lotfi, Tehrani et al. 2012). Other barriers to condom use among sex workers are

low self-efficacy, client rejection, poverty, powerlessness and fear of the police (Ghimire, Smith et al. 2011).

The criminalization of sex work and entrenched social stigma means sex workers often avoid accessing health services and conceal their occupation from healthcare providers. Indeed, many female sex workers in Uganda consider social discrimination as a major barrier in accessing HIV services including HIV testing and condoms (Scorgie, Nakato et al. 2011). Female sex workers face many of the same barriers to HIV prevention as their older counterparts including the inability to negotiate condom use and legal barriers to HIV and sexual health services, which are amplified by their age (McClure, Chandler et al. 2015).

A study of female sex workers in Ukraine, reported that inconsistent condom use was associated with variables such as lower age, alcohol consumption, having fewer customers, and lack of participation in HIV prevention programs (Iakunchykova and Burlaka 2017). In India, 37.5% of sex workers did not use condoms consistently. Having a non-monetary partner, violence, and alcohol-related sex were reasons for not using condoms consistently.

Scale-up of prevention and treatment programs could reduce HIV transmission among female sex workers, however, the effectiveness of these interventions are dependent on the extent to which Ugandan female sex workers engage in prevention and treatment services. Being tested and knowing one's HIV status is associated with a reduction in HIV risk behaviors, prevents onward transmission and can lead to mobilization of support networks that may also promote condom use (WHO 2012). Increasing the ability to make informed decisions may in turn lead to utilization of necessary health services including consistent condom use (Staveteig, Wang et al. 2013).

2.3 Perceptions towards consistent condom use among female sex workers

In the Ugandan Penal Code, sex work is criminalized, all aspects of sex work are considered illegal including the sale of sex, solicitation, communications for the purposes of sales, and third party entities such as clients, brothel owners, pimps/managers or those otherwise living off the earnings of prostitution (Rusnak 2014) Additionally, in 2014, the government of Uganda enacted the Anti-Pornography Act (Muldoon 2015), previously known colloquially as the “Miniskirt Bill” (Muldoon 2015).

In its original Bill form, pornography was described as a criminal offence and defined as “a) a person engaged in explicit sexual activities or conduct; b) exposing sexual parts of a person such as breasts, thighs, buttocks or genitalia; c) erotic behavior intended to cause sexual excitement; or d) any indecent act or behavior tending to corrupt morals.”

The broad scope of the Bill was problematic and refined. When the Bill was enacted pornography was defined as “...any representation through publication, exhibition, cinematography, indecent show, information technology or by whatever means, of a person engaged in real or simulated explicit sexual activities or any representation of the sexual parts of a person for primarily sexual excitement”. The Anti-Pornography Act does not specifically use the terms prostitution or sex work; however, it further criminalizes the sex industry and provides sufficient legal infrastructure to arrest, detain, and harass sex workers.

Despite the development of the Anti-Pornography Act, the Ugandan government has made a commitment to improve access to HIV care and treatment for sex workers in the Ugandan National HIV Strategic Plan. Qualitative research among sex workers in Uganda has shown that the criminalized status of sex work excuses extreme violence against sex workers, inhibits their ability to reduce HIV risk and negotiate condom use, and often displaces them to isolated and dangerous areas to avoid police harassment(Mbonye, Rutakumwa et al. 2014)

Many studies have documented the extreme human rights abuses that female sex workers face including homicide, physical and sexual violence, unlawful arrest or detention, and discrimination when accessing health services (Shannon, Strathdee et al. 2015) Female sex workers will often forgo condom use because of fear of violence from clients, police or pimps/managers (Beyrer, Crago et al. 2014)

Even though street-based female sex workers are highly vulnerable to HIV, only about one in every three of them receive adequate HIV prevention services and access to condoms and medical care(Surratt, O’Grady et al. 2014)

Female sex workers encounter numerous challenges from their clients that expose them to unsafe sex, because of their hazardous occupational situation(Mbugua, Bukusi et al. 2017) Therefore, effective, consistent and correct utilization of condom is one of the best preventive intervention methods of HIV and others STIs targeted toward female sex workers. Use of male and female condoms, increasing the availability, accessibility, and affordability of condom among female sex

workers are an essential component to reduce the enormous consequences and costs of HIV, STIs and unintended pregnancies (WHO 2016).

In addition, unsatisfactory and inadequate HIV and condom utilization knowledge, negative risk perception, poor attitude towards condom use are the challenges among female sex workers to fight HIV/STIs(Ankomah, Omoregie et al. 2011). The aim of this study was to determine the prevalence of consistent condom use and associated factors among female sex workers in the districts of Rakai and Kyotera.

3.0 PROBLEM STATEMENT, RATIONALE AND CONCEPTUAL FRAMEWORK

3.1 Problem Statement

Despite the fact that condoms can reduce HIV transmission (Beksinska, Wong et al. 2020), the proportion of female sex workers reporting consistent condom use remains low (Richter, Luchters et al. 2012) with only 18.9% of female sex workers reporting 100% consistent condom use in Uganda (Morris, Morris et al. 2009). Levels of condom use are low in many settings (Muldoon 2015), only 40% of participants reported using condoms consistently (Bukenya, Vandepitte et al. 2013). Due to low levels of consistent condom use, the prevalence of HIV among female sex workers remains high in most settings, with 33–37% reported among Ugandan female sex workers (Bukenya, Vandepitte et al. 2013). As a result, it is estimated that sex workers and their clients accounted for 18% of new HIV infections in Uganda in 2015/2016 (Nsubuga 2020).

Inconsistent condom use is associated with sex work not being the sole source of income, early sexual debut before 14 years (Bukenya, Vandepitte et al. 2013), clients' willingness to pay more money for sex without a condom, poor condom negotiation skills and negative attitudes towards condom use are key barriers to consistent condom use (Muldoon 2015). As a strategy to increase consistent condom use, Uganda's Ministry of Health (MoH) revitalized the condom programme and it is distributing free condoms with focused training on use among key populations including female sex workers. HIV service organisations for example Rakai Health Sciences Program (RHSP), CHEDRA (Community Health Empowerment Development and Relief Agency) and others also promote and provide free condoms and other HIV services to sex workers in the districts of Rakai and Kyotera.

Despite all these efforts, there are still high HIV prevalence rates (37%) among female sex workers (Mafigiri, Matovu et al. 2017) in Rakai and Kyotera districts but uptake of HIV prevention interventions including consistent condom use is very low (Mafigiri, Matovu et al. 2017). Although such statistics call for urgent attention, no study has been done in these areas regarding condom use practices. In addition, the current HIV surveillance system does not routinely capture data on female sex workers because sex work is illegal in Uganda (Baleta 2015) and in most cases, condoms are inconsistently used due to socio-cultural, economic and environmental barriers (Abaasa, Asiki et al. 2016). The aim of this study was to determine the prevalence of consistent condom use and associated factors among female sex workers in the districts of Rakai and Kyotera.

3.2 Study rationale

There is paucity of information regarding prevalence of consistent condom use and associated factors among female sex workers in the districts of Rakai and Kyotera despite the fact that female sex workers contribute 18% of new HIV infections in Uganda.

In Uganda, results may be beneficial to organizations engaged in condom distribution programs for example, RHSP, CHEDRA, TASO and others by providing information necessary to improve strategies aimed at increasing consistent condom use.

Organizations engaged in promotion of sexual reproductive health programs may use findings to guide programming. These may include but not be limited to Medical Research Council (MRC), the International Partnership for Microbicides (IPM) among others.

TASO Uganda may find results useful in improving positive prevention models of HIV care. The National Forum of People living with HIV (NAFOPHANU) may find these results useful for its HIV positive clientele in line with HIV prevention.

3.3 Conceptual framework

This study aimed at determining the prevalence of consistent condom use among female sex workers in the districts of Rakai and Kyotera with an overall aim of improving consistent condom use among key populations like female sex workers. Understanding reasons for inconsistent condom use is critical in designing interventions for improvement.

This study drew on the Andersen and Newman Framework of Health Services Utilization to understand factors associated with consistent condom use. The purpose of this framework is to discover conditions that either facilitate or obstruct utilization. The framework was first developed in the 1960s and has since gone through four phases. Developed in the 1990s, the framework below represents the fourth phase. An individual's access to and use of health services is considered to be a function of three characteristics.

The Andersen and Newman Framework of Health Services Utilization can help explain behaviour and identify factors associated with consistent condom use. Female sex workers are more likely to use condoms consistently when they perceive the threat of HIV acquisition to be serious and feel personally vulnerable to contracting it. They should also have high self-efficacy in condom use and feel that it is an effective means of reducing HIV infection. In addition, attitudes towards condom

use should be favourable and the perceived social norms for condom use are supportive (Sheeran and Taylor 1999).

However, in situations where severity and vulnerability are high but self-efficacy and response efficacy are low, maladaptive behaviours may be adopted instead. Hence, the focus of this study is to examine prevalence of consistent condom use and associated factors that may influence female sex workers' condom use basing on predisposing, enabling and need factors.

3.3.1 Predisposing Factors

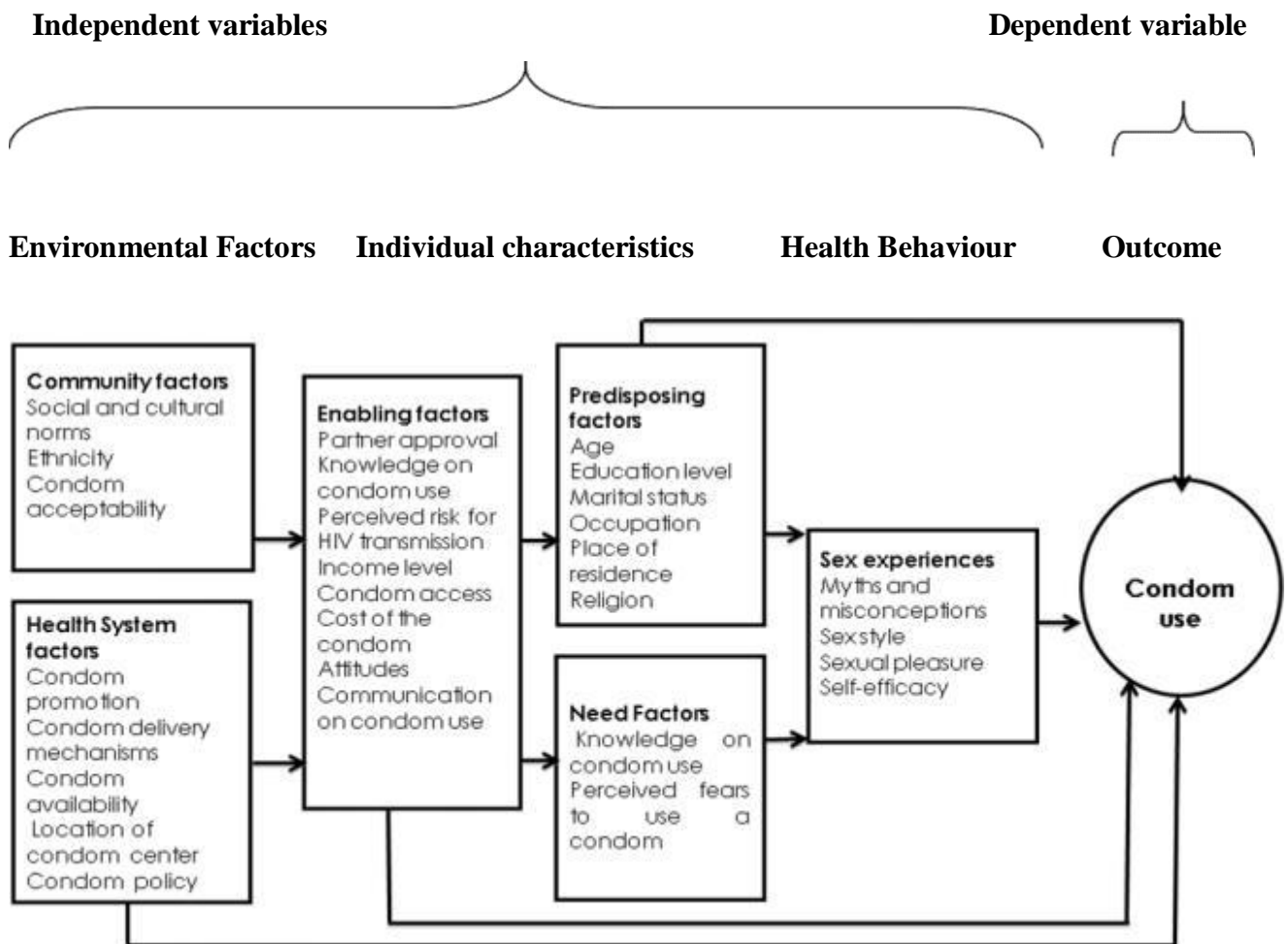
The socio-cultural characteristics of individuals that exist prior to their illness. Social structure includes education level, occupation, ethnicity, social networks, social interactions, and culture. Health Beliefs include Attitudes, values, and knowledge that people have concerning and towards the health care system. Demographics include age and gender. These factors may either be favourable to facilitate consistent condom use or act as barriers to consistent condom use and may differ from person to person.

3.3.2 Enabling Factors

The logistical aspects of obtaining care. Sub sets of enabling factors may be (i) Personal/Family; The means and know how to access health services, income, health insurance, a regular source of care, travel, extent and quality of social relationships. (ii) Community; Available health personnel, health facilities, and waiting time. (iii) Possible additions; These factors may either facilitate or hinder consistent condom use. Persons that may score positively higher on any of these factors are more likely to use condoms consistently compared to those that may have lower scores.

3.3.3 Need Factors: These are the most immediate causes that generate need for health care services. Perceived need helps to understand care-seeking and adherence to a medical regimen, while evaluated need is more closely related to the kind and amount of treatment that will be provided after a patient has presented to a medical care provider." (Andersen, 1995). Perceived need: This refers to how people view their own general health and functional state, as well as how they experience symptoms of illness, pain, and worries about their health and whether or not they judge their problems to be of sufficient importance and magnitude to seek professional help (Andersen, 1995).

Depending on the degree of intensity of any of the above factors, consistent condom use may be promoted or obstructed. Persons that perceive a great need for condom use are more likely to be consistent condom users because they have a higher evaluated need than those who may not perceive the need for condom use, who may in turn end up being inconsistent condom users.



3.4 Figure 1: Illustration of the conceptual framework. A modification of the Andersen and Newman model of Health Care Use (Angel Dal Brown- Ogradnick 2004).

3.4. 1. Conceptual framework narrative

The study will be based on Anderson and Newman’s model of health Service Use. Condom use among female sex workers is believed to be influenced by complex interactions of individual, environmental and health system factors. At the individual level, factors like age, education, religion, knowledge and self-assertiveness determine sex worker’s use of condoms. Health systems factors like , capacity to deliver condoms to the targeted groups, condom policy, condom

promotion, condom promotional materials for information, education and communication, cost, condoms accessibility, personal experiences that includes condom myths and misconceptions, sex style , social gender roles, sexual practices, sexual decisions in relationships, cultural norms, sex myths, the severity of AIDs, sex partners approval, condom perceived fears and women negotiation on condom use. This conceptual frame work explains how consistent condom use among female sex workers may be influenced either positively or negatively.

3.5 Research questions

- 1) What is the prevalence of consistent condom use among female sex workers in the districts of Rakai and Kyotera?
- 2) What are the factors associated with consistent condom use among female sex workers in the districts of Rakai and Kyotera?
- 3) What are the perceptions towards consistent condom use among female sex workers in the districts of Rakai and Kyotera?

3.6 Study objectives

4.1 General objective

To determine the prevalence of consistent condom use and its associated factors among female sex workers in the districts of Rakai and Kyotera.

3.7 Specific objectives

1. To determine the prevalence of consistent condom use among female sex workers in the districts of Rakai and Kyotera.
2. To determine factors associated with consistent condom use among female sex workers in the districts of Rakai and Kyotera.
3. To explore perceptions to consistent condom use among female sex workers in the districts of Rakai and Kyotera.

4.0 METHODOLOGY

4.1 Study area

Both quantitative and qualitative data were collected from the districts of Rakai and Kyotera about 182 kilometres (113 miles), by road, south west of Kampala, Uganda's capital and largest city. Rakai and Kyotera districts are bordered by Kalangala and Masaka Districts. In Uganda, the first case of HIV was reported in 1982 in Kasensero, a fishing village in current Kyotera district (formerly Rakai district) in the Western region (Serwadda, Sewankambo et al. 1985).

The district has continued to experience high HIV rates at 12% compared to the national average of 5.8% (Mwine, Kwesiga et al.). Despite lack of size estimates on the number of sex worker population, Rakai and Kyotera have high concentration of female sex workers, sex worker hot spots and brothels where commercialized sex takes place. The population has different contextual patterns of interactions, patterns of seasonal migration and engagement in sexual relationships that might affect their vulnerability to HIV acquisition (Serwadda, Sewankambo et al. 1985).

4.2 Study population

Female sex workers aged 18- 61 years constituted the study population for both quantitative and qualitative data. Female sex workers have a relative risk of HIV acquisition 21 times higher compared to the general population (Witte, Filippone et al. 2022) and they play a key role in spreading HIV to the general population(Ratmann, Kagaayi et al. 2020) and one of the most important reasons for the transmission of HIV is having unprotected sex.(Eilami, Nazari et al. 2019).

4.3 Study design

This was a cross-sectional descriptive study design using both qualitative and quantitative approaches. Both approaches presented an opportunity to have a complete understanding of the prevalence of consistent condom use and its associated factors among female sex workers in the districts of Rakai and Kyotera.

4.4 Quantitative methodology component

4.4.0 Data collection techniques

For this analysis, the principal investigator (PI) used all the available secondary quantitative data for 602 individuals aged 18 to 61 years. Data were obtained with permission from a research organisation called Rakai Health Sciences program (RHSP). RHSP is a research based organisation and it conducts large community randomized intervention trials for HIV and extensive community epidemiologic and behavioural studies to document HIV and other infection risk factors.

RHSP also implements general HIV service provision in Rakai, Kyotera and neighbouring districts. Between July 2016 and September 2018 RHSP conducted an independent study among female sex workers irrespective of their HIV status. Using an interview guide questionnaire, data were collected on socio-demographic factors, sexual behaviours, condom use, knowledge of HIV status and self-reported engagement in care for the study entitled ‘Sex worker engagement in HIV care and treatment in the districts of Rakai and Kyotera’

Quantitative data collection procedures for secondary data that was utilized have been documented by RHSP but not yet published. Briefly, participants were drawn by RHSP from routine small-group female sex worker health education meetings. Women aged at least 18 to 61 years, attending female sex workers’ community health education meetings were requested to participate in the study. RHSP collected data on number of clients, cost of sex act and first intercourse experience including age of sexual debut, payment for sex with and without a condom, sex type, access to HIV treatment, age, religion, sex workers mobility, education level, pregnancy status, marital status, age at fist sex, condom use practices, alcohol consumption before and during sex, physical violence, sexual violence, HIV risk perception, HIV status, HIV care status, period spent in sex work and access to anti retro viral therapy (ART).

However, for purposes of this study, the PI explored the dataset and abstracted data about key variables of interest related to consistent condom use as cited in literature. These included age, religion, education level, pregnancy status, marital status, age at fist sex, condom use practices, alcohol consumption before sex, physical violence, sexual violence, HIV risk perception, HIV status, HIV care status and period spent in sex work using a data abstraction form attached.

4.4.1 Dependent variable

The main outcome variable was consistent condom use among female sex workers which for this study, referred to having used either male or female condom during sexual intercourse in heterosexual relationships in the previous 12 months before study enrolment. The study considered heterosexual relationships only since heterosexual transmission is the major mode of HIV transmission in Uganda (Serwadda, Sewankambo et al. 1985).

‘Condom use’ was measured as a dichotomized variable of ‘Consistent condom use’ or Inconsistent condom use. This was captured through respondents self-reporting. Respondents were asked whether they consistently used a condom all the time during sexual intercourse with every sexual partner in a period of last twelve months prior to the study.

Condom use responses that included ‘always’, ‘most of the time’, ‘sometimes’, ‘never’ and ‘do not know’ were dichotomised into a new variable with ‘always’ as ‘consistent use’ and ‘‘most of the time, sometimes, never’’ and ‘do not know’ were merged to be ‘Inconsistent condom use’. These responses were merged in such a way because for condoms to be effective in HIV prevention, the user has to ensure usage all the time during all sex acts. Respondents who reported consistent condom use, were coded ‘1’ while those who reported inconsistent or never used a condom were coded ‘0’.

4.4.2 Independent variables

The independent variables were socio-demographic characteristics including age, religion, education level, pregnancy status, marital status, age at first sex, condom use practices, alcohol use before or during sex, physical violence, sexual violence, HIV risk perception, HIV status, HIV care status and period spent in sex work.

4.4.3 Quantitative data analysis plan

Data was imported from excel to Stata software. Merging and appending were done where applicable to obtain a working dataset. Exploratory data analysis (EDA) was done to specifically check for completeness of the data per variable, nature of the variables and an analytic dataset was obtained. Data analysis was performed at three levels; univariate, bivariate and multi-variable analysis. Data analysis was performed in stata version 14 (Stata Corp, College Station, TX).

HIV risk perception was assessed among HIV negative sex workers at enrolment who were asked about chances of acquiring HIV. Women were categorised as having low risk if they answered no/small risk or impossible, and were categorised as high risk if they mentioned moderate, high or do not know. The prevailing explanations for the perceived risk were captured through respondents' open-ended remarks when answering the question on chances of contracting HIV. Previous knowledge of HIV status was measured as having been counselled tested and received HIV status results before enrolment.

4.4.4 Univariate analysis

Descriptive statistics were conducted. Frequencies and proportion for categorical variables were determined. Means and standard deviations were determined for continuous variables for example age.

4.4.5 Analysis for specific objective one.

Objective 1: To determine the prevalence of consistent condom use among female sex workers in the districts of Rakai and Kyotera.

The prevalence of consistent condom use was measured by computing the proportion of female sex workers that used either female or male condom at all time during sexual intercourse in heterosexual relationships in the past 12 months before study enrolment and the proportion of female sex workers that sometimes or never used either female or male condom during sexual intercourse in heterosexual relationships in the past 12 months before study enrolment. Chi-square tests were used to determine whether the characteristics of respondents between consistent and inconsistent condom users were significantly different. This was computed and displayed in table 1 and 2.

4.4.6 Analysis for specific objective two.

Objective 2: To determine factors associated with consistent condom use among female sex workers in the districts of Rakai and Kyotera.

Bivariate and multivariable analysis

Prevalence risk ratios (PR) were used to assess the relationship between consistent condom use (dependent variable) and factors associated with consistent condom use (independent variables). Prevalence risk ratios were used as opposed to using odds ratios because the proportion of the

outcome was higher than 10%, therefore the odds ratio would overestimate the strength of association (Schmidt and Kohlmann, 2008). Prevalence risk ratios were computed using a generalized linear Model with poisson family and a log link with robust standard errors. The level of significance for all the analysis was set at $P < 0.05$. For multivariable analysis, independent variables with $p < 0.05$, 5% ($\alpha = 0.05$) at bivariate analysis and those independent variables cited by literature as important to the dependent variable were included in the multivariable model.

Multivariable analysis

At multivariable analysis, independent variables with $p < 0.05$, 5% ($\alpha = 0.05$) at bivariate analysis and those independent variables cited by literature as important to the dependent variable were included in the multivariable model.

Prevalence ratios (PRs) with their corresponding 95 % confidence intervals (CI) were used to identify independent factors associated with consistent condom use. At this stage, adjusted prevalence risk ratios were obtained. A step wise approach was used to obtain the best model with a log likelihood closer to zero. The likelihood ratio test was used to determine which variables improved the model. PRs were obtained via a modified Poisson regression model using a generalized linear model with Poisson as family and a log link without an offset but including robust standard errors.

5.0 Qualitative methodology component

The Pi collected primary qualitative data in June 2022 to address research objective three which relates to perceptions and barriers to consistent condom use.

5.0.1 Qualitative data collection procedures

5.0.2 Pre-testing of data collection tools

In order to ensure clarity, understandability and completeness of the data, qualitative data collection tools were pre-tested at Lambu fishing ground which is outside the study area but having the same characteristics as those of the selected study area. Any ambiguous or irrelevant questions and phrases were addressed. Any necessary corrections and adjustments were made before data collection. This was done to ensure production of a standardized in-depth interview questionnaire.

5.0.3 Inclusion and exclusion criteria

5.0.3.0 Inclusion criteria

The study included female sex workers aged at least 18 to 61, reporting on only hetero sexual relationships during sexual intercourse and had lived in the selected geographical area for more than one year before the study. A period of more than one year was considered because the study examined condom use practices for the previous 12 months.

5.0.3.1 Exclusion criteria

Female sex workers who were intoxicated, sick and unable to provide information were excluded from the study.

6.0 Sample size estimation

The number of participants to include depended upon the number required to fully inform all important elements of consistent condom use. After 10 in-depth interviews, additional interviews did not result into identification of new concepts and the study had reached its saturation point. Hence, ten interviews were considered enough to inform this study.

6.1 Qualitative data collection techniques

In order to gain access to female sex workers for in-depth interviews, the PI obtained permission from an organisation called CHEDRA (Community Health Empowerment Development and Relief Agency). Just like RHSP, CHEDRA also implements HIV counselling, testing, linkage to treatment and other HIV control interventions among sex workers and the general populations in Rakai, Kyotera, Masaka and neighbouring districts. The PI was attached to the department that focuses on community preparedness to embrace the Dapivirine Vaginal Ring as a new biomedical HIV prevention tool for women at high risk of HIV infection.

The PI joined the CHEDRA field team in June 2022. CHEDRA used ‘Bar to Bar’, ‘Within the Brothel’ ‘Boat to Boat’ and ‘Personalized’ HIV testing services’ (HTS) strategies to intensify advocacy for choice in HIV prevention and the need for female controlled HIV prevention tools. CHEDRA assessed for potential acceptance and uptake of the Dapivirine Vaginal Ring among key populations like sex workers. Together with CHEDRA’s trained front line staff, we penetrated

female sex workers networks, demonstrated how to use the Dapivirine Vaginal Ring, provided 'personalized' HTS, sexually transmitted Infections (STI) management and counselling in small sex worker group meetings within bars and brothels in Rakai and Kyotera districts.

Using a snow-balling method and based on knowledge, experience and involvement in sex work, women ages 18 to 61 years who agreed to study participation were drawn from these female sex worker health education meetings conducted by CHEDRA. They were asked to provide informed written consent prior to in-depth interviews. Participants also provided permission to tape record the sessions which were moderated by the principal investigator (PI) and a note taker.

6.2 Qualitative data collection

In-depth interviews were conducted by the PI and one other trained research assistant. The PI facilitated the discussion of the interview and the other took notes. Interview guides had a series of open-ended questions to elicit responses from respondents. On average, each interview lasted between 45 minutes to 1 hour. In-depth interviews are a recommended method for exploring knowledge, perceptions and attitudes (Cornwall and Jewkes, 1995).

Issues covered in this domain included interference with a condom in the sexual act and other discomforts that could influence condom use. This section also captured respondents' knowledge of condom effectiveness in HIV transmission. Some of the issues considered included whether the respondent had accurate knowledge of the importance of the condom in HIV prevention, preventing unwanted pregnancies and other STIs, and whether the condom is difficult to use and how condoms may be accessed.

Questions consisted of perceptions and barriers to consistent condom use to facilitate interpretation of trends emerging in the quantitative study findings, to place them into context and to explain emerging trends in qualitative data. This provided an opportunity to delve into the lived experiences of participants. Participants were encouraged to give detailed narratives of their experiences, feelings and perceptions regarding condom use.

This facilitated a detailed understanding of broader views about condom use among female sex workers, benefits, challenges, and experiences as well as user preferences, perceptions and barriers to use. Interviews were done in rounds of 5 purposively selected participants per district as the PI assessed for saturation. Five interviews were done in Rakai and five in Kyotera district. Saturation

was attained after conducting the 10th in-depth interview. All interviews were tape recorded and no time compensation was given to participants.

7.0 Quality control and assurance

7.1 Quality assurance

Research assistants that participated in data collection were trained in qualitative data collection procedures. Interview questions were translated into the local language (Luganda) and back translated to English to ensure that the meaning of the questions in both languages is the same. Data collection tools were pre-tested in a non-study area (Lambu) for purposes of clarity, validity and suitability before they were used in the field.

7.2 Quality control

Debrief meetings were conducted at the end of each day to discuss and clarify on any challenges that may have arisen and make adjustments where necessary. Interviews were conducted in convenient places as agreed to by the respondents so as to ensure privacy and confidentiality.

7.3 Qualitative data analysis plan for specific objective three.

Objective 3: To explore the perceptions and barriers to consistent condom use among female sex workers in the districts of Rakai and Kyotera.

This was measured qualitatively. Data was thematically analysed using content analysis techniques. Data was stored on both audio recorders and written notes. The audio records in local language were transcribed from the local language (Luganda) to English while those in English were transcribed directly to English. This was combined with data in the written notes to obtain well organized data. Qualitative data was transcribed verbatim and was entered into an MS Word processing computer program.

The PI printed out copies of transcribed text, indicating the source, demographics, and any other information that will help in analysis. Transcripts were read and re-read several times so as to familiarize with the data and codes were generated from transcripts to facilitated identification of themes as well as categorization. Themes on knowledge, perceptions, and barriers to consistent condom use were generated. The PI then reviewed and compared any emerging themes, to decide

which of these should be considered for detailed analyses. This process continued until no new themes emerged. After the initial coding, a list of relevant themes was generated to guide additional analyses.

Using an MS Word processing computer program, all pre-coded sections of printed transcripts that pertained to each theme were copied and pasted on a separate page, and were then grouped under relevant themes in preparation for paper writing. Data was thematically analysed using content analysis techniques. Transcribed data was stored using interview identifiers. Data is presented in text using quotes that are arranged under the developed theme. Audio records will be destroyed after completion of dissertation defence.

8.0 Ethical considerations

Study approval was obtained from the Makerere University School of Public Health Higher Degrees Research and Ethics Committee and Uganda National Council of Science and Technology (UNCST). Research assistants trained in human research ethics collected qualitative data. The interviewer read the consent script in the participants' local language detailing study procedures, purpose, procedures risk, benefits and voluntarism to participate and hence obtained an informed written consent to participate prior to study enrolment.

Respondents' information was kept confidential and was only used for study purposes and only accessed by those involved in this study. To ensure confidentiality, the researcher generated study specific serial numbers to be used instead of the real respondents' names. Information collected from respondents was kept confidential (secret) by the investigator to the full extent allowed by law. Participants' names were not linked to their views. Data was reported about people's views in general and no attempt was made to link views to those who shared them. Participants were free to decline participation in the study or withdraw from it at any time. Permission to use secondary data was also obtained from RHSP as described above.

9.0 Dissemination of findings

The findings of this study will be disseminated to Makerere University School of Public Health for the award of a Masters of Health Services Research. On request, results will be further disseminated to Kyotera District Health Team and to participating organizations for example RHSP and CHEDRA. Findings will also be presented at both local and international conferences with permission from RHSP and CHEDRA who provided access to data.

10.0 RESULTS

10.1 Introduction

This cross sectional descriptive study was set out to determine prevalence of consistent condom use and associated factors among female sex workers in the districts of Rakai and Kyotera so as to inform HIV control program implementers on appropriate interventions aimed at increasing consistent condom use. The study used secondary quantitative data collected by RHSP between 2016 and 2018 and primary qualitative data that were collected by the study PI in June 2022. Results are presented according to study objectives.

10.2 Socio-demographic characteristics of the study population

Of the 602 female sex workers in the data set used, majority (51.7 %) were aged between 20-29. The median age was 28 years [interquartile range (IQR) 18–61 years]. More than a half (60.1%) of the female sex workers reported primary as their highest level of education. Majority were Catholics (60.6%), followed by Anglicans (16.6), Moslems (18.3%) while only (4.5%) belonged to other religions (Seventh-Day Adventists and Pentecostals). A few (8.6%) were currently married and the majority (73.9%) were divorced, separated or widowed at the time of data collection.

10.3 Table 1: Demographic characteristics of the study population.

Characteristics	Condom use		Total N=602
	Inconsistent N (%) N=289	Consistent N (%) N=313	
Age			
Mean	28.9	28.3	28.6
Standard deviation	7.1	6.8	7.0
Median	28	27	28
Range	18 – 61	18 - 50	18 – 61
Education level			
Primary	174(60.2)	188(60.1)	362(60.1)
Secondary	86(29.8)	96(30.7)	182(30.2)
Others	29(10)	29(9.3)	58(9.6)
Marital status			
Married	24(8.3)	28(8.9)	52(8.6)
Divorced/separated	214(74)	231(73.8)	445(73.9)
Never married	51(17.6)	54(17.3)	105(17.4)
Religion			
Catholic	163(56.4)	202(64.5)	365(60.6)
Anglican	55(19)	45(14.4)	100(16.6)
Muslim	56(19.4)	54(17.3)	110(18.3)
Other	15(5.2)	12(3.8)	27(4.5)

10.4 Objective 1:

Prevalence of consistent condom use

Overall prevalence of consistent condom use in the past twelve months was 52% out of the 602 female sex workers in the data set that was used for this analysis.

10.5 Objective 2

Factors associated with consistent condom use.

Prevalence of consistent condom use was lower (47.3%) among female sex workers who had experienced domestic violence, compared to (60.3 %) among female sex workers who had not experienced domestic violence. Consistent condom use was lower (45%) among participants that had experienced sexual violence compared to (59%) among those that did not report any physical violence. About (66%) of female sex workers reported having knowledge of their HIV status prior to enrolment in the RHSP study. Among HIV positive female sex workers, only (49.3%) reported consistent condom use compared to (50.7%) who reported inconsistent condom use. HIV risk perception was lowest (47.1) among HIV-negative sex workers that reported consistent condom use compared to those who did not perceive themselves at high risk of HIV acquisition (75.2).

Consistent condom use was higher (54.3%) among respondents that did not take alcohol before or during sex compared to (50.5%) among those that took alcohol before or during sex. Consistent condom use was higher (57.1%) among women whose age at the first sex experience was 15-17 compared to (47.7) among those that initiated sex below age 15 or higher than 17 years of age. Consistent condom use was highest (54.7 %) among sex workers who did not know their pregnancy status and lowest (37.8%) among those that were pregnant. (Table 2).

10.6 Table 2: Factors associated with consistent condom use.

	Condom use	
	Consistent	P value
Characteristics	N=313/602(52)	
Domestic violence		
Yes	181/383(47.3)	
No	132/219(60.3)	0.002
Sexual violence		
Yes	136/302(45)	
No	177/300(59)	0.001
Age at first sex		
below 15	73/153(47.7)	
15-17	185/324(57.1)	
18-50	55/125(44.0)	0.021
Alcohol use before and or during sex		
Yes	186/368(50.5)	
No	127/234(54.3)	0.372
Sex workers perceived HIV acquiring risk		
High	234/497(47.1)	
Low	79/105(75.2)	<0.001
Years of being a sexual worker		
1-2 years	123/233(52.8)	
3years and above	123/257(47.9)	
Don't know	67/112(59.8)	0.102
HIV results		
Negative	205/372(55.1)	
Positive	105/213(49.3)	
Don't know	3/17(17.6)	0.006
Pregnant status		
Not pregnant	258/490(52.7)	
Pregnant	14/37(37.8)	
Don't know	41/75(54.7)	0.195

10.7 Bivariate and Multivariable Analysis.

In both the unadjusted and adjusted models, the prevalence of consistent condom use was (21%) [Adjusted prevalence ratios (APR) 0.79; 95% confidence interval (CI): 0.68-0.92], lower among female sex workers who experienced sexual violence compared to those who did not. The prevalence of consistent condom use was (33 %) [APR 0.67; 95% CI: (0.58-0.77)], lower among those who were engaged in non-marital sexual relationships. High perception of HIV risk was associated with a (32%) [(APR) 0.68; 95% CI: 0.59-0.79] Lower prevalence of consistent condom use compared to those with lower risk perception for HIV acquisition. Female sex workers who did not know their HIV status had (71%) [(APR) 0.29; 95% CI: 0.11-0.73] lower prevalence of consistent condom use compared to those who knew their HIV results.

Independent factors associated with lower risk of consistent condom use were: Presence of sexual violence [adjusted prevalence ratios (aPR) 0.79; 95% confidence interval (CI): 0.68-0.92], engagement in non-marital sexual relationships (aPR 0.67; 95% CI: (0.58-0.77)), High risk perception of HIV acquisition (aPR 0.68; 95% CI: 0.59-0.79) and lack of knowledge of HIV status (aPR 0.29; 95% CI: 0.11-0.73). (Table 3).

10.8 Table 3: Independent factors associated with consistent condom use.

Characteristic	Unadjusted prevalence ratios	(CI 95%) P Value	Adjusted prevalence ratios	(CI 95%) P Value
Sexual violence				
No	1		1	
Yes	0.76	(0.65-0.89)0.001	0.79	(0.68-0.92)0.003
Age at first sex				
Below 15	1		1	
15-17	1.2	(0.99-1.45)0.065	1.13	(0.94-1.36)0.202
18-50	0.92	(0.71-1.19)0.539	0.87	(0.68-1.11)0.254
Education level				
Primary	1		1	
Secondary	1.02	(0.86-1.20)0.857	1.04	(0.89-1.22)0.628
Others	0.96	(0.73-1.27)0.788	1.05	(0.81-1.37)0.695
Non-marital sexual relationship				
No	1		1	
Yes	0.66	(0.57-0.77)<0.001	0.67	(0.58-0.77)<0.001
Alcohol use before and or during sex				
No	1		1	
Yes	0.93	(0.80-1.09)0.369	0.98	(0.85-1.14)0.829
Sex workers pperceived risk of acquiring HIV				
High	1		1	
Low	0.63	(0.54-0.72)<0.001	0.68	(0.59-0.79)<0.001
Years spent in sex work				
1-2 years	1		1	
3years and above	0.91	(0.76-1.08)0.276	0.93	(0.79-1.10)0.418
Don't know	1.13	(0.93-1.38)0.208	1.08	(0.90-1.30)0.408
Pregnant status				
Not pregnant	1		1	
Pregnant	0.72	(0.47-1.10)0.125	0.73	(0.49-1.09)0.124
Don't know	1.04	(0.83-1.30)0.741	1.03	(0.82-1.28)0.812
HIV results				
Negative	1		1	
Positive	0.89	(0.76-1.05)0.184	0.96	(0.82-1.13)0.630
Don't know	0.32	(0.11-0.90)0.031	0.29	(0.11-0.73)0.009

11.0 Objective 3: Perceptions towards consistent condom use

In-depth interviews with sex workers indicated that condom use was influenced by client's preference and peer influence.

11.1 Individual Factors

This category consisted of the sub-categories of knowledge about HIV, loyalty and love as well as personality traits.

Lack of enough knowledge about HIV

Many female sex workers in Rakai and Kyotera districts did not have a proper understanding of HIV transmission, how it affects the body and the behaviour of the virus while in the human body. This compromised consistent condom use. Also, female sex workers perceived themselves to be at lower risk of HIV acquisition. This affected consistent condom use practices.

“I don't accept everyone. I first keenly look at the customer I am going with. If he looks healthy and doesn't seem to have AIDS, I'm not worried about HIV and I don't need condoms” (Female sex worker aged 34 from Kasensero landing site, Rakai district).

“I am not like other girls here who practice anal sex where HIV comes from mainly, so sometimes I think its okay to go live but this should not be with every man”(Female sex worker aged 22 at Kasensero landing site, Rakai District).

‘The condom bursts and you have just started to enjoy, you can't stop. You keep doing and you find that it is normal. But me I am still negative.’ (Female sex worker aged 24 in Kyotera district).

Loyalty and Love

Many female sex workers perceived condom use as a sign of distrust and disloyalty to the partner. Others mentioned that condom use promotes mistrust. This explains why consistent condom use was low among the married. Female sex workers did not realise the need to use condoms in emotional relationships since they perceived condom use as an expression of lack of interest and love. Most of them expressed that they rarely use condoms with customers who know them better or have an emotional relationship, compared to the customers who come to them occasionally, hence, inconsistent condom use.

“When you want to use a condom, I think it means you don’t like the guy” (Female sex worker aged 26 at Ddimu landing site, Kyotera district).

“Using condoms may make you lose your man, sometimes these men are not our husbands but he can also provide basic needs if you show him good love (sex without a condom) (Female sex worker aged 30 at Kyotera town, Kyotera district).

Personality characteristics and personal background

Personality characteristics and personal background make female sex workers less worried about HIV acquisition. Many perceive themselves as failures in life and hence no need to do much protection of their sexual activities.

‘It doesn’t matter to me anymore that I get HIV or not, “I lost everything, moreover corona (COVID 19) kills faster than Slim (HIV)’ (Female sex worker aged 37 at Ddimu landing site, Kyotera district).

“I will survive AIDS; if God wants you to get sick you will be sick. I believe God put me into sex work and he will protect me, not condoms (Female sex worker aged 23 at Ddimu landing site, Kyotera district).

Structural and gender factors

This category consists of sub-categories of sexual partner’s desire and challenges with condom availability and refers to structures that are barriers to condom use.

Partner’s desire and willingness to pay more money

Female sex workers also consent to sex without a condom in order to gain more customer satisfaction for more money since most of their clients are willing to pay more for sex without a condom.

“Moreover I earn more when I go live, I do what helps me to get money, Can you refuse money?’ (Female sex worker aged 25 at Kyotera town, Kyotera district).

Peer influence and social media as source of information

Many female sex workers considered a lack of condom use to be influenced by their peers and what they watch on internet.

“Honestly speaking, none of my friends uses condoms, why should I yet we are doing the same dirty job? I don’t even want my children to know I do these things (Female sex worker aged 38 at Kasensero landing site, Rakai district)

“Musawo (Health worker) you will forgive me, I watch porn, but I have never seen a movie where they use condoms and most of these are bazungu (Europeans) who know more than I do, any way I will begin to use condoms.’ (Female sex worker aged 27 at Kyotera town, Kyotera district.)

Peer pressure and exposure to influential models in films and porn movies has a negative influence on consistent condom use. This distorts the true picture and essence of condom use.

12.0 Discussion

This study was conducted among female sex workers in the districts of Rakai and Kyotera and aimed at determining the prevalence of consistent condom use and associated factors among female sex workers in the districts of Rakai and Kyotera, drawing on the Andersen and Newman model of health care use.

Consistent condom use was found to be lower among female sex workers who experienced domestic or sexual violence. It was also lower among those who were engaged in non-marital sexual relationships, lower among those that had very high perceived risk of acquiring HIV and lower among those who did not know their HIV results. These findings have important programmatic implications for designing strategies to increase consistent condom use for female sex workers who are more vulnerable to HIV infection.

12.1 Prevalence of consistent condom use.

This study suggests that only (52%) of female sex workers in the districts of Rakai and Kyotera were using condoms consistently over the previous twelve months. These findings are similar to another study that showed that only (60%) of female sex workers reported using condoms consistently in the past month (Bukonya, Vandepitte et al. 2013). These findings agree with another study done in Singapore that reported consistent condom use to be 55.0% (Wee, Barrett et al. 2004).

Study results did not differ much from other international studies in different populations. For example according to the pooled condom use prevalence from 22 studies, only 42.6 % of international travellers in China who reported having a new sexual partner abroad reported consistent condom use. (Svensson, Sundbeck et al. 2018). This implies that a significant portion of this population did not use condoms consistently.

Although this study shows 52% prevalence of consistent use of condoms, there is need to continue promoting safer sexual behaviour among high-risk women. However, in this study, the reported prevalence of inconsistent condom use (48%) among sex workers in Kyotera and Rakai districts, is relatively lower compared to that among female sex workers in northern Uganda where one study established that in total, 15.5% of the 381 female sex workers servicing regular clients and 76.8%

of the 393 female sex workers servicing one-time clients reported inconsistent condom use (Duff, Birungi et al. 2018).

12.2 Factors associated with consistent condom use

Factors independently associated with risk of consistent condom use in this study were presence of sexual violence, as reported by another study which reported that female sex workers who experience violence are less likely to use condoms, experience condom breakage and have a concurrent STI infection, compared to female sex workers who don't experience violence (Beattie, Isac et al. 2016). Another study also established that sexual violence was dependently associated with condom non-use with clients of female sex workers in Cameroon. (Abelson, Lyons et al. 2019).

Other factors that were independently associated with consistent condom use included; Having non-marital sexual relationships, high HIV risk perception and lack of knowledge about HIV sero status. Women, who were HIV negative and reported lower consistent condom use, were more likely to perceive themselves to be at higher risk for HIV than women who used condoms consistently. Being tested and knowing one's HIV status is associated with a reduction in HIV risk behaviours, prevents onward transmission, and can lead to mobilization of support networks that may also promote condom use (WHO 2012).

These findings were in agreement with another study conducted in Tehran, Iran which established that 77% of female sex workers that reported high HIV risk perception did not consistently use condoms (Shushtari, Hosseini et al. 2019). This calls for effective HIV prevention educational programs to enable female sex workers to correctly assess their own HIV risk and change risk behaviours based on self-assessment of actual risk. Scale-up of prevention and treatment programs could reduce HIV transmission among female sex workers, however, the effectiveness of these interventions are dependent on the extent to which female sex workers engage in prevention services for example consistent condom use. (Staveteig, Wang et al. 2013).

About 66% of women were aware of their status before enrolling in the study and HIV prevalence was about 35.4%. Consistent condom use was very low among sex workers who did not know their HIV status. This high HIV prevalence among female sex workers has been reported by other studies to be as high as 37%. (Witte, Filippone et al. 2022). This suggests that HIV testing and counselling services provided to women may not have included effective promotion of condom use.

Yet, HIV counselling and testing services designed specifically for female sex workers may reduce risk-taking behaviour. For example in a study done in Zambia, Knowledge of HIV status affected consistent condom use. Compared with knowledge of HIV status unknown, knowledge of HIV-negative status significantly increased participants' consistent condom use by 8.1%, whereas knowledge of HIV-positive status non-significantly increased participants' consistent condom use by 6.1%. (Ortblad, Chanda et al. 2020).

Even in Uganda where sex work is illegal, these results emphasise the significance of implementing specific HIV risk reduction interventions among high risk women such as promoting consistent condom use with multiple partners during HIV post-test counselling in this specific population group.(Bukonya, Vandepitte et al. 2013). With concerted efforts, it may be feasible to reduce the rate at which female sex workers hold responsibility of HIV transmission. To date, female sex workers account for 18% of all new infections in the country.(Witte, Filippone et al. 2022)

In the past, condoms have widely been distributed in Uganda by the Ministry of Health (MoH) as a strategy to prevent transmission of HIV so the observed inconsistent condom use is not due to unavailability or inaccessibility of condoms. The re-introduction of the female condom should be expedited, with well-planned promotional activities especially among women at high risk of HIV, considering their potential role in HIV transmission.

Additionally, biomedical HIV prevention strategies need to be tailor made to address women specific needs and need of high risk women, especially women at high risk of HIV acquisition.(Glaubius, Ding et al. 2019). While it is not yet approved for use in Uganda, the Dapivirine vaginal ring is a potential female controlled HIV prevention option that may bridge the gap in HIV prevention needs for women. Condoms alone may not work for every one since no one size fits all.(Morton, Chege et al. 2021) .

12.3 Perceptions to consistent condom use.

In this study female sex workers also reported consenting to sex without a condom in order to provide more customer satisfaction for more money since most of their clients are willing to pay more for condom less intercourse. This is similar to another study that informed that consistent condom use was very high with non-regular partners who were willing to pay more money, but less frequent with regular partners who paid less.

The main reason for inconsistent condom use was that the partner did not want to use a condom. (Andrews, Fixelid et al. 2015). Condom promotion programs should include both female sex workers and their partners for effective intervention efforts.

Most of the reasons for inconsistent condom use with regular partners were related to the respondent's partners not wanting to use condoms. The regular partners' most common reason for not wanting to use condoms was related to reduce sexual pleasure when using condoms. Some of the partners' reasons were also directly related to difficulties when using condoms including allergic reactions to condoms, difficulties with ejaculation and sustaining an erection, and the condom being too small to fit the penis (Andrews, Fixelid et al. 2015).

Some sex workers did not mind about getting HIV or not. Neither did some fear HIV and STI acquisition while others did. FSWs that had worked less than six months were more likely to use condoms as compared to FSWs that had worked for a year or more. One explanation could be that young FSWs who were new in sex work had more sexual clients compared to their older peers as has been shown in other settings. It has been shown in other studies that FSWs who have worked for many years receive fewer clients and in order to keep clients, FSWs often accept sex without a condom (Todd, Nasir et al. 2011). Newcomers might also have higher perceived fear of the consequences of condomless sex such as STI and pregnancy more than the experienced FSWs.

13.0 Strength and limitations of the study

Strength

The study used both quantitative and qualitative research methods. The use of qualitative approach gave added insights on the predictors for consistent condom use.

This study based on the Andersen and Newman model of Health Care Use to determine factors associated with consistent condom use. The purpose of this framework is to discover conditions that either facilitate or impede utilization. The goal being, to develop a behavioural model that provides measures of access to medical care (Aday and Andersen 1974).

Study limitations

Social desirability is a key limitation to self-reported condom use because it may over-estimate the level of self-reported condom use practices.

There could have been recall bias where the women may not have remembered their condom use practices over a twelve months period.

The data set that was used contained secondary data which may have had missing variables that would comprehensively answer research questions.

Health system factors were not adequately studied but would hopefully have provided more insights on the research topic.

14. Conclusions

Objective 1:

Prevalence of consistent condom use was low (52%) among female sex workers. This calls for urgent actions to address consistent condom use among this population.

Objective 2

Presence of sexual violence, engagement in non-marital sexual relationships, and high risk perception of HIV acquisition and lack of knowledge of HIV status are factors associated with lower risk of consistent condom use.

Objective 3

The most common barriers to consistent condom use are client preference and peer influence. These barriers strongly affect condom use among female sex workers and need urgent redress.

15. Recommendations

Strategies to increase consistent condom use should be tailored to address all forms of violence against female sex workers since these are more vulnerable to HIV infection. Organisations involved in violence prevention programs should draft interventions to address this problem.

HIV-negative women assessed themselves as being at high risk of HIV acquisition because they were not using condoms consistently, hence targeted HIV prevention interventions should be developed basing on this high perceived HIV acquisition risk to promote consistent condom use among this population. CHEDRA and IPM are organisations that promote women's sexual

reproductive health as well as choice in HIV prevention. These should take a key role in addressing consistent condom use together with other organisation involved in such interventions.

Organisations like TASO, RHSP and others that have women empowerment programs should design interventions to find alternative sources of income for vulnerable women and girls in order to prevent influx in sex work since it has its own health hazards. Also, many respondents reported that sex without a condom has a higher pay, implying that money is a great need. Hence economic empowerment program may be critical. These programs should target women and girls in urban canters especially the jobless as a mechanism of increasing consistent condom use.

HIV prevention programs should emphasise the value of HIV status awareness among female sex workers. With knowledge of negative HIV results, appropriate HIV prevention steps can be taken including consistent condom use.

16 Public health implications

Sensitisation about consistent condom use should target populations most at high risk of HIV infection especially women engaged in HIV high risk behaviour for example female sex workers.

17. Further areas for research

Since female sex workers engage in risky sexual behaviour with male clients, reasons for inconsistent condom use among male partners of female sex workers should be investigated.

REFERENCES

18. Ajzen, I. (1991). "The theory of planned behavior." Organizational behavior and human decision processes **50**(2): 179-211.
- Andrews, C. H., et al. (2015). "Determinants of consistent condom use among female sex workers in Savannakhet, Lao PDR." BMC women's health **15**(1): 1-8.
- Ankomah, A., et al. (2011). "HIV-related risk perception among female sex workers in Nigeria." HIV/AIDS (Auckland, NZ) **3**: 93.
- Baeten, J. M., et al. (2012). "Antiretroviral prophylaxis for HIV prevention in heterosexual men and women." New England Journal of Medicine **367**(5): 399-410.
- Baleta, A. (2015). "Lives on the line: sex work in sub-Saharan Africa." The Lancet **385**(9962): e1-e2.
- Bandura, A. (1986). "Social foundations of thought and action." Englewood Cliffs, NJ **1986**(23-28).
- Bandura, A. (2004). "Health promotion by social cognitive means." Health education & behavior **31**(2): 143-164.
- Beksinska, M., et al. (2020). "Male and female condoms: Their key role in pregnancy and STI/HIV prevention." Best Practice & Research Clinical Obstetrics & Gynaecology **66**: 55-67.
- Bandyopadhyay, K., et al. (2018). "Predictors of inconsistent condom use among female sex workers: a community-based study in a red-light area of Kolkata, India." Indian Journal of Community Medicine: Official Publication of Indian Association of Preventive & Social Medicine **43**(4): 274.
- Baral, S. D., et al. (2013). "Worldwide burden of HIV in transgender women: a systematic review and meta-analysis." The Lancet infectious diseases **13**(3): 214-222.
- Baral, S., et al. (2012). "Burden of HIV among female sex workers in low-income and middle-income countries: a systematic review and meta-analysis." The Lancet infectious diseases **12**(7): 538-549.
- Bekker, L.-G., et al. (2015). "Combination HIV prevention for female sex workers: what is the evidence?" The Lancet **385**(9962): 72-87.
- Beyrer, C., et al. (2014). "HIV and sex workers 7 An action agenda for HIV and sex workers."
- Beyrer, C., et al. (2015). "An action agenda for HIV and sex workers." The Lancet **385**(9964): 287-301.
- Black, D. S., et al. (2011). "Decision-making style and gender moderation of the self-efficacy-condom use link among adolescents and young adults: Informing targeted STI/HIV prevention programs." Archives of pediatrics & adolescent medicine **165**(4): 320-325.

- Brown, K., et al. (2018). "Status of HIV epidemic control among adolescent girls and young women aged 15–24 years—seven African countries, 2015–2017." Morbidity and Mortality Weekly Report **67**(1): 29.
- Bukenya, J., et al. (2013). "Condom use among female sex workers in Uganda." AIDS care **25**(6): 767-774.
- Burrage, A., et al. (2018). "Trends in antiretroviral therapy eligibility and coverage among children aged < 15 years with HIV infection—20 PEPFAR-supported sub-Saharan African countries, 2012–2016." Morbidity and Mortality Weekly Report **67**(19): 552.
- Cherie, A. and Y. Berhane (2012). "Peer pressure is the prime driver of risky sexual behaviors among school adolescents in Addis Ababa, Ethiopia." World Journal of AIDS **2**(03): 159.
- Commission, U. A. and U. A. Commission (2021). HIV fact sheet 2020.
- Eilami, O., et al. (2019). "Investigation of HIV/AIDS prevalence and associated risk factors among female sex workers from 2010 to 2017: a meta-analysis study." HIV/AIDS (Auckland, NZ) **11**: 105.
- Erickson, M., et al. (2015). "Structural determinants of dual contraceptive use among female sex workers in Gulu, northern Uganda." International Journal of Gynecology & Obstetrics **131**(1): 91-95.
- Ghimire, L., et al. (2011). "Reasons for non-use of condoms and self-efficacy among female sex workers: a qualitative study in Nepal." BMC women's health **11**(1): 1-8.
- Graham, S. M., et al. (2013). "Loss to follow-up as a competing risk in an observational study of HIV-1 incidence." PloS one **8**(3): e59480.
- Gruskin, S., et al. (2018). "'In transition: ensuring the sexual and reproductive health and rights of transgender populations.' A roundtable discussion." Reproductive Health Matters **26**(52): 21-32.
- Halpern-Felsher, B. L., et al. (2004). "ADOLESCENTS' SELF-EFFICACY TO COMMUNICATE ABOUT SEX: ITS ROLE IN CONDOM ATTITUDES, COMMITMENT AND USE." Adolescence **39**(155).
- HIV/AIDS, J. U. N. P. o. (2017). The Gap Report. Geneva, Switzerland: UNAIDS; 2014.
- Iakunchykova, O. P. and V. Burlaka (2017). "Correlates of HIV and inconsistent condom use among female sex workers in Ukraine." AIDS and Behavior **21**(8): 2306-2315.
- Januraga, P. P., et al. (2020). "The logic of condom use in female sex workers in Bali, Indonesia." International Journal of Environmental Research and Public Health **17**(5): 1627.
- Levi, J., et al. (2015). "Can the UNAIDS 90-90-90 target be reached." Analysis of **12**: 19-22.
- Lotfi, R., et al. (2012). "Barriers to condom use among women at risk of HIV/AIDS: a qualitative

study from Iran." BMC women's health 12(1): 1-10.

Mafigiri, R., et al. (2017). "HIV prevalence and uptake of HIV/AIDS services among youths (15–24 Years) in fishing and neighboring communities of Kasensero, Rakai District, South Western Uganda." BMC public health 17(1): 1-10.

Mafigiri, R., et al. (2017). "HIV prevalence and uptake of HIV/AIDS services among youths (15–24 Years) in fishing and neighboring communities of Kasensero, Rakai District, South Western Uganda." BMC public health 17(1): 1-10.

Mangen, F. W., et al. (2009). "HIV modes of transmission and prevention response analysis."

Mwine, P., et al. "HIV Positivity Rate and Recent HIV Infections Among Adolescent Girls and Young Women 10-24 years, Uganda, 2017-2021."

Mbonye, M., et al. (2014). "Alcohol consumption and high risk sexual behaviour among female sex workers in Uganda." African Journal of AIDS Research 13(2): 145-151.

Mbugua, N., et al. (2017). P6. 14 Determinants of condom use among female sex workers in kenya: a case-crossover analysis, BMJ Publishing Group Ltd.

McClure, C., et al. (2015). "Responses to HIV in sexually exploited children or adolescents who sell sex." The Lancet 385(9963): 97-99.

Morris, C. N., et al. (2009). "Sexual behavior of female sex workers and access to condoms in Kenya and Uganda on the Trans-Africa highway." AIDS and Behavior 13(5): 860-865.

Muldoon, K. A. (2015). "A systematic review of the clinical and social epidemiological research among sex workers in Uganda." BMC public health 15(1): 1-14.

Muldoon, K. A. (2015). "A systematic review of the clinical and social epidemiological research among sex workers in Uganda." BMC public health 15(1): 1-14.

Nalwadda, G., et al. (2010). "Persistent high fertility in Uganda: young people recount obstacles and enabling factors to use of contraceptives." BMC public health 10(1): 1-13.

Namisi, F., et al. (2015). "Adolescents' communication with parents, other adult family members and teachers on sexuality: effects of school-based interventions in South Africa and Tanzania." AIDS and Behavior 19(12): 2162-2176.

Nsubuga, Y. (2020). "Reducing HIV transmission in developing countries."

Organization, W. H. (2016). Global health observatory (GHO) data, world health statistics 2016: monitoring health for the SDGs, WHO, Geneva, Switzerland.

Pande, G., et al. (2019). "Preference and uptake of different community-based HIV testing service delivery models among female sex workers along Malaba-Kampala highway, Uganda, 2017." BMC

health services research 19(1): 1-11.

Peterson, R. J. D. J. L. and J. Mann (1994). Preventing AIDS: Theories and methods of behavioral interventions, Springer Science & Business Media.

Prüss-Ustün, A., et al. (2013). "HIV due to female sex work: regional and global estimates." PloS one 8(5): e63476.

Ratmann, O., et al. (2020). "Quantifying HIV transmission flow between high-prevalence hotspots and surrounding communities: a population-based study in Rakai, Uganda." The Lancet HIV 7(3): e173-e183.

Richter, M., et al. (2012). "Female sex work and international sport events-no major changes in demand or supply of paid sex during the 2010 Soccer World Cup: a cross-sectional study." BMC public health 12(1): 1-12.

Rizkalla, C., et al. (2010). "Structural impediments to condom access in a high HIV/STI-risk area." Journal of environmental and public health 2010.

Rusnak, S. A. M. (2014). "Reconciling Three Countries' Current Laws with Human Rights In the Face of International Law." Ann. Surv. Int'l & Comp. L. 20: 139.

Sandøy, I. F., et al. (2012). "Condom availability in high risk places and condom use: a study at district level in Kenya, Tanzania and Zambia." BMC public health 12(1): 1-12.

Schaalma, H., et al. (2009). "Correlates of intention to use condoms among Sub-Saharan African youth: the applicability of the theory of planned behaviour." Scandinavian journal of public health 37(2_suppl): 87-91.

Schwartz, S., et al. (2015). "An urgent need for integration of family planning services into HIV care: the high burden of unplanned pregnancy, termination of pregnancy, and limited contraception use among female sex workers in Côte d'Ivoire." JAIDS Journal of Acquired Immune Deficiency Syndromes 68: S91-S98.

Scorgie, F., et al. (2011). "I expect to be abused and I have fear": Sex workers' experiences of human rights violations and barriers to accessing healthcare in four African countries." Cape Town: African Sex Worker Alliance.

Serwadda, D., et al. (1985). "Slim disease: a new disease in Uganda and its association with HTLV-III infection." The Lancet 326(8460): 849-852.

Serwadda, D., et al. (1985). "Slim disease: a new disease in Uganda and its association with HTLV-III infection." The Lancet 326(8460): 849-852.

Seshu, M., et al. (2008). "UN guidance note on HIV and sex work" reworked" by activists." HIV/AIDS Policy & Law Review 13(2-3): 95-97.

Shannon, K., et al. (2015). "Global epidemiology of HIV among female sex workers: influence of structural determinants." The Lancet 385(9962): 55-71.

Shannon, K., et al. (2015). "Global epidemiology of HIV among female sex workers: influence of structural determinants." The Lancet 385(9962): 55-71.

Sheeran, P. and S. Taylor (1999). "Predicting intentions to use condoms: A meta-analysis and comparison of the Theories of Reasoned Action and Planned Behavior 1." Journal of applied social psychology 29(8): 1624-1675.

Stover, J., et al. (2021). "Modeling the epidemiological impact of the UNAIDS 2025 targets to end AIDS as a public health threat by 2030." PLoS medicine 18(10): e1003831.

Surratt, H. L., et al. (2014). "Outcomes of a behavioral intervention to reduce HIV risk among drug-involved female sex workers." AIDS and Behavior 18(4): 726-739.

Svensson, P., et al. (2018). "A meta-analysis and systematic literature review of factors associated with sexual risk-taking during international travel." Travel medicine and infectious disease 24: 65-88.

Walusaga, H. A., et al. (2012). "Gender differences in determinants of condom use among HIV clients in Uganda." AIDS Patient Care and STDs 26(11): 694-699.

Wanyenze, R. K., et al. (2017). "'When they know that you are a sex worker, you will be the last person to be treated': perceptions and experiences of female sex workers in accessing HIV services in Uganda." BMC international health and human rights 17(1): 1-11.

Wee, S., et al. (2004). "Determinants of inconsistent condom use with female sex workers among men attending the STD clinic in Singapore." Sexually Transmitted Infections 80(4): 310-314.

Whittaker, R., et al. (2020). "Monitoring progress towards the first UNAIDS 90-90-90 target in key populations living with HIV in Norway." BMC infectious diseases 20(1): 1-11.

WHO (2010). "PMTCT strategic vision 2010-2015: preventing mother-to-child transmission of HIV to reach the UNGASS and Millennium Development Goals: moving towards the elimination of paediatric HIV, December 2009."

Witte, S. S., et al. (2022). "PrEP acceptability and initiation among women engaged in sex work in Uganda: Implications for HIV prevention." EClinicalMedicine 44: 101278.

APPENDIX 1: INFORMED CONSENT

PREVALENCE OF CONSISTENT CONDOM USE AND ASSOCIATED FACTORS AMONG FEMALE SEX WORKERS IN THE DISTRICTS OF RAKAI AND KYOTERA

Introduction

Good morning/afternoon. My name is Kigozi Moses. I am a master's student from Makerere University, School of Public Health and I am conducting a study entitled "**Prevalence of consistent condom use and associated factors among female sex workers in the districts of Rakai and Kyotera**". You have been identified to participate in the study and I wish to ask you a few questions regarding consistent condom use. Before you decide, you are free to ask me any questions that you may have at this level. If there may be some words that you do not understand or don't feel comfortable speaking, please let me know and we shall skip. Please ask me to stop as we go through the information and I will take time to explain. If you have questions later, you can ask them now or any time as we go on.

Major objective of the study: Prevalence of consistent condom use and associated factors among female sex workers in the districts of Rakai and Kyotera.

Procedures: The study will be conducted among female sex workers. You will be asked to answer a few questions regarding use of condoms in hetero sexual relationships only in the previous 12 months. You will also be required to consent before you participate in the interview. A copy of the consent form will be given to you.

Risk from being in the study: There are no foreseeable risks as a result of you participating in this study except for the time you are according to us and we appreciate this.

Benefits: There are no physical benefits for your participation in this study. However, your responses will help us to establish how best we can improve consistent condom use and consequently reduce HIV incidence.

Voluntary participation: Your participation in this research is entirely voluntary. It is your choice whether to participate or not. You may change your mind later and stop participating even if you agreed earlier and there are no repercussions.

Confidentiality: Information collected from you will be kept confidential (secret) by the investigators to the full extent allowed by law. Your name will not be linked to your views; we will

report about people's views in general and no attempt will be made to link the views to those who shared them.

Right to refuse or withdraw: You do not have to take part in this research if you do not wish to do so. You may stop participating in the research at any time that you wish. It is your choice and all of your rights will still be respected.

If you have questions related to this study or your rights as a participant, you can contact the principal investigator, **KIGOZI MOSES** on Telephone number +256 776 512 227 or via email kigozim20@gmail.com . If you have any issues pertaining to your rights and participation in this study, please contact the Chairperson, Makerere University School of Public Health Higher Degrees Research and Ethics committee on telephone number: 0312-297565.

Do you agree to participate in the study? Yes..... [] No..... []

.....

Name of participant

Signature/thumb print

Date.....

APPENDIX 2: INDIVIDUAL STATEMENT OF CONSENT

**PREVALENCE OF CONSISTENT CONDOM USE AND ASSOCIATED FACTORS
AMONG FEMALE SEX WORKERS IN THE DISTRICTS OF RAKAI AND KYOTERA**

I have been well informed of the purpose of the study, what is going to be done, the risks, the benefits involved and my rights regarding this study. I understand that my decision to participate in this study will not alter my usual medical care anywhere. In the use of this information, my identity will be concealed. I am aware that I may withdraw at any time. I understand that by signing this form, I do not waive any of my legal rights but merely indicate that I have been informed about the research study in which I am voluntarily agreeing to participate. A copy of this form will be provided to me.

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Name of participant	Signature/thumb print	Date
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Name of Research assistant	Signature/thumb print	Date
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APPENDIX 3: LIST OF ABSTRACTED STUDY VARIABLES

ABSTRACTED FROM THE RHSP SEX WORKER ENGAGEMENT IN HIV CARE AND TREATMENT, RAKAI, UGANDA BASELINE QUESTIONNAIRE VER 1.0 SEPTEMBER 13, 2016

1. Age
2. Religion
3. Education level
4. Pregnancy status
5. Marital status
6. Age at fist sex
7. Condom use practices
8. Alcohol consumption before sex
9. Physical violence
10. Sexual violence
11. HIV risk perception
12. HIV status
13. HIV care status
14. Period spent in sex work.

APPENDIX 4: QUALITATIVE DATA COLLECTION TOOL

PERCEPTIONS TOWARDS CONSISTENT CONDOM USE AMONG FEMALE SEX WORKERS

PREVALENCE OF CONSISTENT CONDOM USE AND ASSOCIATED FACTORS

AMONG FEMALE SEX WORKERS IN THE DISTRICTS OF RAKAI AND KYOTERA

Categories	Sub-Categories	Codes
Individual factors	Lack of enough knowledge about HIV	Lack of enough knowledge about AIDS, optimism about clients who look healthy and may not have HIV, a stylish client does not have HIV, HIV patients die very soon so those still alive may not have HIV
	Opposition to loyalty and love	Using condoms is a sign of lack of intimacy, Sex without a condom is a sign of love, Using condoms is a sign of distrust to your partner
	Personality characteristics	Disappointed about the future, Condoms are risky in sex, Drug abuse
	Lack of adequate knowledge on condom use	Anxiety that the condom may burst, reduced sexual pleasure ,
Structural and gender factors	Partner's desire	Violence from male client, Partner's consent, Fear of losing a customer
	Problems with condom availability	Condoms are expensive, scarcity of condoms, limited access to good condoms
Social-cultural factors	Peer influence	Lack of condom use in porn videos, condoms not being used among friends, not being used in marriage and in romance
	Cultural taboos	Difficulty of talking about condoms, feeling embarrassed to get condoms, HIV stigma

