



UNIVERSITY OF RWANDA
COLLEGE OF MEDICINE AND HEALTH SCIENCES
SCHOOL OF PUBLIC HEALTH

**PREVALENCE AND FACTORS ASSOCIATED WITH HIV/STIs AMONG
CHILDREN VICTIMS OF VIOLENCE ATTENDING KACYIRU ISANGE ONE
STOP CENTER: A CROSS-SECTIONAL STUDY, 2020-2022**

A dissertation submitted in partial fulfilment of the requirements of Masters Degree in
Epidemiology in the College of Medicine and Health Sciences

By

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Declaration

I, Denyse UWIMANA, declares that this dissertation is my original work. It is being submitted at the University of Rwanda for the fulfilment of the requirement for the Award of a Masters' Degree in epidemiology science. It has not been presented for any award at any other institution. Where other people's work was used, it was recognized in the reference list.

Names: Denyse UWIMANA

Signed

Date://2023

Dedication

To the Almighty God;

To my supervisor;

To all my family;

To all my Friends;

I dedicate this work.

Acknowledgement

"I am very grateful and extend my lovely appreciation to the almighty God, whose unwavering guidance and blessings have illuminated my path throughout this academic journey.

I am profoundly thankful for the guidance, support, and expertise provided by Dr Judith MUKAMURIGO and Mr Albert NDAGIJIMANA, your invaluable mentorship and wisdom shaped my research and academic growth and your excellence has been a driving force throughout this research journey

To my beloved husband, Giovanni NDAYISABYE, your unwavering love, patience, and encouragement sustained me during the late nights and long hours.

I extend my gratitude to my friends for their camaraderie, moral support, and understanding during the ups and downs of this academic pursuit. I am indebted to my fellow classmates and colleagues who shared their insights, engaged in thought-provoking discussions, and provided a stimulating academic environment.

Abstract

Background; Child violence has been a growing problem around the world for decades. It is estimated that over one billion children are exposed to physical, psychological or sexual abuse each year with an estimated one in four children experiencing physical, sexual, or emotional abuse before the age of 18. The extent of child abuse that leads to HIV/STI infection is substantial and widespread, affecting millions of children worldwide through various forms of child abuse and the impacts of such violence can be serious and long-lasting, affecting a child's health, including STIs/HIV infection. This study aims to investigate the prevalence of HIV/STIs infection and associated factors among children victims of violence attending Kacyiru IOSC.

Method: Using a retrospective cross-sectional study involving secondary analysis of data collected among children who experienced violence before the age of 18. Data were collected from records into Excel sheet and a total of 384 participants were selected, frequency and median were used to describe characteristics of participants. Bivariate and multivariate logistic regression modelling were performed where association between socio-demographic and HIV or STIs were estimated using Chi-square test. The $p < 0.05$ was significant and the odds ratios (OR) were measured at 95% Confidence Interval (CI) were analyzed with STATA 17.0 version.

Results: A total of 384 participants were considered, included 83.3 % of females and 16.7%. male, the median 12 age was between 0 and 17 years. prevalence of STIs among children violence victims was 21.8%, HIV prevalence was 0.52% and among 2 HIV positive one participant experienced sexual violence only as another one experienced both physical and sexual violence. The risk of having STIs was higher in female than male (AOR: 2.72; 95% CI [1.01 – 7.36]); it was higher in those who live in educational level compared to others (AOR: 1.6; 95% CI [0.65 – 4.08]; it was higher in persons who experienced sexual violence than those who experienced physical violence (AOR: 13.55 ;95% CI [1.79 – 102.57], also higher in adult adolescent (AOR: 2.45 ;95% CI [0.84 – 7.20]),

Conclusion: A significant number of children aged 0-17 years were reported to have experienced physical, sexual, or both types of violence. This study also discovered a low incidence of HIV and a high prevalence of STIs among children who had suffered sexual violence, and it demonstrated that the factors associated with STIs were: being female, living in Gasabo, and having experienced sexual violence. These findings highlight the need of reinforcing intervention, preventing and controlling STIs in children.

Key words: HIV/STIs, children, violence, victim, factors

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List of abbreviation and acronyms

VAC:	Violence Against Children
VAW:	Violence Against Women
WHO:	World Health Organization
UNICEF:	United Nations Children's Fund
UN:	United Nation
VACYS:	Violence against Children and Youth Survey
CDC:	Centers for Disease Control and Prevention
ES:	Economic Status
ICRP:	Integrated Child Rights Policy
HIV:	Human Immunodeficiency Virus
IOSC:	Isange One Stop Center
AIDS:	Acquired Immunodeficiency Syndrome,
ART:	Antiretroviral Therapy
HPV:	Human Papilloma Virus
HSV:	Herpes Simplex Virus
PMTCT:	Prevention of Mother-to-child transmission
PLWA:	People Living With HIV
PEP:	Post-exposure Prophylaxis
STIs:	Sexual Transmitted Infections
UNAIDS:	United Nations Programme on HIV/AIDS
CSA:	Children Sexual Abused
VACYS:	violence against children and youth survey

Definition of key concept

HIV: HIV stands for Human Immunodeficiency Virus and this virus that attacks the cells of the immune system (the body's natural defense against disease). The virus destroys a type of immune system white blood cell called a T helper cell - also called a CD4 cell - and uses these cells to make copies of itself.[1]

STI: Stand for Sexual Transmitted Infection. Involve the transmission of an organism are (more than 30 infection) between sexual partners through different routes of sexual contact, either oral, anal, or vagina. Some STIs can also be spread through blood.[2]

AIDS: AIDS stands for Acquired Immunodeficiency Syndrome, AIDS is a disease that can develop after HIV causes severe damage to the immune system, leaving the body vulnerable to life-threatening conditions, such as infections and cancers. [1]

HIV Prevalence: Prevalence is the proportion of a population that has a specific characteristic over a given period of time. For HIV prevalence, this means the proportion of persons in a given population who are living with HIV at a specific point in time, [1]

Violence: The intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation.[3]

Violence against children: all forms of physical and/or emotional ill-treatment, sexual abuse, neglect or negligent treatment or commercial or other exploitation, resulting in actual or potential harm to the child's health, survival, development or dignity in the context of a relationship of responsibility, trust or power.[4]

A child is any person under the age of 18; childhood is someone's life time before the age of 18. Or every human being below the age of 18 years unless, under the law applicable to the child, majority is attained earlier. .[5]

Sexual abuse against child defined as any act of abuse occurring before the age of 18 years' old.[5]

I. INTRODUCTION

1.1 Background

Worldwide nearly 39 million HIV/AIDS-related deaths in 2017 and more than 36 million people living with HIV, HIV/AIDS continues to have severe health implications with an increasing incidence of 2 million each year and recognized as a threat to children and adults.[1]

According to UNAIDS, the number of AIDS patients in 2019 reached 38 million with nearly 21% unaware of their HIV status [2]. Of these, 68% of general adults, 85% of pregnant and lactating women, and 53% of children living with HIV worldwide were receiving lifetime antiretroviral therapy (ART) [3] [2].

HIV and other sexually transmitted infections are connected. Sexual contact is the most prevalent route for HIV and other STIs to spread. The interventions' target audiences and HIV and STI prevention strategies are the same. Furthermore, there is strong evidence that STIs promote HIV transmission by increasing HIV infectiousness and susceptibility

The United Nations Children's Fund (UNICEF) estimates that 6 in 10 (almost 1 billion) children worldwide, ages 2 to 14, experience regular physical violence proportions (about 7 in 10); an average of 17% of children from 58 countries where data are available, while about 1 in 10 (120 million) girls under 18 worldwide have experienced forced sexual intercourse or other unwanted sexual acts Although less frequently than girls, boys also report experiencing sexual abuse.[6] Individuals who have experienced sexual violence, such as rape or coercive sex, may be at a higher risk of HIV. This is common in abusive relationships, where one partner is HIV-positive and the other is not, and there is a heightened risk of HIV transmission due to non-consensual or unprotected sex.

Evidence suggests that there is a biological explanation for why men who are physically violent are also more likely to be HIV positive, which appears to be the case. According to evidence from around the world, violent men engage in more risky sexual behavior, such as multiple and concurrent sexual partnerships, transactional sex, and substance use. [6]

In some circumstance, gender-based violence, can restrict an individual's ability to negotiate safe sex practices, access condoms, or seek healthcare services for HIV prevention. A partner tested HIV positive may fear to disclose which can deter them from disclosing and seeking support. Key populations such as sex workers, men who have sex with men (MSM),

transgender individuals, and people who use drugs often face violence, discrimination, and social marginalization, which can hinder HIV prevention and treatment efforts.[6]

Millions of children worldwide are affected by violence against children, which has serious health, social, and economic impacts. Violence against children is not a recent phenomenon; HIV /STIs was the most prevalent health outcome in an ancient world, and it still occurs in the world today. Violence against women (VAW) and violence against children (VAC) are acknowledged as worldwide public health and human rights issues by the international community [7].

The prevalence of HIV infection among violence victims against children varies widely among different countries and regions. [6]

This alarming statistic underscores the importance of understanding global trends of HIV infection among children violence victims and taking action to prevent it from occurring in the first place. [6]

Children orphaned by HIV, who may be living with extended family members or in orphanages, can experience neglect, exploitation, and various forms of abuse, including sexual and physical violence. Adolescents and older children, particularly in resource-constrained settings, may engage in transactional sex to meet basic needs. This can expose them to sexual violence and increase their vulnerability to HIV infection. Children who experience abuse, such as sexual abuse or neglect, may engage in risky behaviors as a coping mechanism, including early sexual activity, substance use, or engagement in sex work, all of which heighten their risk of HIV transmission.[6][5]

Children who are trafficked for various purposes, including sexual exploitation, can face violence and sexual abuse. These experiences can put them at risk of HIV and other STIs and children who experience violence, particularly within the family or community, may have limited access to healthcare services, including HIV testing and treatment, due to fear, stigma, or restricted mobility. Children who experience violence in the context of HIV may suffer from a range of psychosocial issues, including depression, anxiety, and post-traumatic stress disorder, which can further affect their well-being and risk behaviors.[7]

Following the genocide in Rwanda, many children were orphaned or separated from their families, putting them at risk of further violence or exploitation because they were likely to be targeted because of their ethnic background. Many children were separated from their

families and forced to flee their homes or hide in order to survive. The Rwandan Government and international organizations have worked to meet these children's needs, including by establishing programs to support education, health, and other essential services. However, child experienced violence remains a significant issue in Rwanda, particularly in the form of sexual and physical violence against children. [8].

According to a UNICEF report from 2018, over 50% of Rwandan children are victims either sexual, physical, or emotional violence, with 20% of girls and 8% of boys experiencing it before the age of 18. The report also found that many cases of sexual violence go unreported and that many children lack access to support services. It's important to note that these types of violence can overlap, and that children may experience more than one type of violence simultaneously.[9]

Isange One Stop Centre at Kacyiru hospital alone has since July 2009 received over 16,900 cases with majority 71% related to sexual abuse; domestic violence accounting for 29% of the cases. Statistics show that about 81% of the total victims of sexual assault are aged below 18 years, those below five years' account for 17% while male victims are 2%. Overall, male victims of domestic violence account for 19% Between January and August 2018, all the 44 Isange One Stop centers across the country have received a total of 3,378 cases with a quarter of them received at Isange Kacyiru.in all gender-based cases presented by prosecution in 2017, child defilement was rated high at 99 %.[10]

The goal of this study is to provide insight into the prevalence of HIV/STIs among children violence victims as well as the various factors that contribute to these infections. The study also aims to understand the specific characteristics, circumstances, and experiences of children violence victims that contribute to their risk of acquiring HIV/STIs. By identifying these factors, the study contributed to the existing knowledge on the intersection between violence and HIV/STIs among children, and finally informed interventions, policies, and programs that can effectively address the needs of children violence victims and reduce their risk of HIV/STIs transmission. [11]

1.2 Problem statement

HIV/STIs is a global epidemic and a public health issue that has devastating consequences for children and adolescent's violence victims of physical, sexual, mental, and emotional well-being. The vast distribution, burden, and complexity of the determinants such as poverty,

inequality, and social norms etc., against them demonstrate the epidemiological extent of HIV/STIs [4][17]

With an estimated 150,000 new child infections among children aged 0-14 years in 2020, the world fell far short of the year-end target of fewer than 20,000 new infections in that age group. Access to ART among children (54%) lags far behind that of adults (74%), pregnant women, and others (85 per cent).[8]

According to UNICEF's 2019 report on child protection from violence, an estimated one billion children worldwide experience physical abuse annually. Additionally, 150 million girls and 73 million boys under 18 years old are victims of sexual violence each year; while nearly half of all children aged 2-17 have experienced some form of psychological aggression or violent. These alarming statistics demonstrate the need for greater efforts to reduce child vulnerability to such forms of abuse around the world. [18][19]

A 2015-2016 survey conducted in Rwanda showed that the prevalence of child experienced violence males and females was 65% and 50% respectively before the age of 18. Physical (male (59.5%) female (37.2%), sexual female (23.9) male (9.6%)and emotional male (11.8%) female (17.3%). [20] etc.

Isange One Stop Center at Kacyiru Hospital received over 16,900 cases in 2009, the majority of which (71% of them) involved sexual abuse. Of those, 81% involved victims who were under the age of 18, while 17% involved children under the age of five. Regardless the total number of violence victims received at all working Isange one stop center, at least 25% among them are received at Kacyiru Isange One Stop center. As for example 3,378 cases total received between January and August 2018 at all 44 Isange one Stop center locations across the nation, with Isange Kacyiru receiving 25% of them.[16]

Despite numerous attempts to compile data on violence, there still a lack of information on the prevalence of HIV infection among children violence victims, the risk factors associated with it, and the underestimation of its effects among children who have been exposed to violence for a variety of reasons, such as the violence's covert nature. social expectations, stigma, lack of knowledge, Limited reporting systems and insufficient funding, etc.[15]

Since less is known about the phenomenon of child abuse in Rwanda in general and its relation to the engagement in HIV risk particularly in children victims that why we need to conduct this study in order to prevent and address these difficulties, it is crucial to spread knowledge of the connection between violence, abuse, and HIV/STIs infection and to offer

victims support and services.[15]. Therefore, as a special Center that offers comprehensive services to victims of violence, including children, conducting research on prevalence and factors associated with of HIV infection among children violence victims at the Isange One Stop Center contributed in raising awareness of the problem, highlight the experiences of children who have been the victims of abuse, and inform interventions and policies to address it.[21]

1.3 Research objectives

1.3.1 General objective

The aim of this study was to investigate the prevalence of HIV and STIs infection and associated factors among children victims of violence attending Kacyiru Isange one Stop center from 2020 to 2022.

1.3.2 Specific objectives

- Determine the prevalence of HIV/STIs infection among children violence victims attended Kacyiru Isange One stop centre from 2020 to 2022.
- To determine factors associated with HIV/STIs infection among children violence victims attended Kacyiru Isange One stop centre from 2020 to 2022.

1.3.3. Research questions

- What are the prevalence of HIV/STIs infection among children violence victims attended Kacyiru Isange One stop centre from 2020 to 2022?
- What are factors associated with HIV/STIs infection among children violence victims attended Kacyiru Isange One stop centre from 2020 to 2022?

1.5 Significance of the study

There is scarcity of data on prevalence of HIV//STIs infection and associated factors among children violence victims in Kigali Rwanda. Even though much effort has been done like developing a national policy framework on child protection that outlines the government's commitment to protecting children from violence, abuse, neglect, and exploitation and Legislation. This study helped to know the prevalence of HIV/STIs infection and associated factors among children violence victims attending Kacyiru Isange One Stop Center in Kigali

Rwanda. It also contributed in taking precautions in the management of children experiencing violence in order to minimize the occurrence of HIV/STIs infection among children.

II. LITERATURE REVIEW

2.1 Literature review

The magnitude of violence against children that leading to HIV/STIs infection is significant and widespread, affecting millions of children globally through different forms of violence against children including sexual abuse. The consequences of such violence can be severe and long-lasting, impacting a child's health including STIs/ HIV infection, development, and future prospects. It is a complex issue with multiple causes and requires a comprehensive approach involving families, communities, and governments to prevent and address it effectively.[22] [23]

Every day over 1 million STIs are acquired. In 2020, WHO estimated 374 million new infections with one of four STIs: chlamydia (129 million), gonorrhea (82 million), syphilis (7.1 million) and trichomoniasis (156 million). More than 490 million people were estimated to be living with genital HSV (herpes) infection in 2016, and an estimated 300 million women have an HPV infection, the primary cause of cervical cancer. An estimated 296 million people are living with chronic hepatitis B globally. Both HPV and hepatitis B infections are preventable with vaccination. [4] [17]

According to UNICEF report 2021, around 850 children globally contracted HIV every day in 2021, and these infections can be aggravated by violence and abuse. In order to prevent and address these difficulties, it is crucial to spread knowledge of the connection between violence, abuse, and HIV infection and to offer victims support and services. Another study carried out in Zimbabwe, the prevalence of HIV/STIs was reported to be 1.6%, 2.5%, and 1.8%, respectively, among children aged 2-4 years, 5-9 years, and 10-14 years, the prevalence of HIV among children aged 2 to 14 did not significantly differ by sex, age group, or any other demographic factor (household SES, community type, or mother religion).[24]

The WHO estimates that there were 1.5 million HIV-positive children under the age of 15 worldwide in 2020. The majority of these children living in sub-Saharan Africa, and countries like South Africa, Nigeria, and Mozambique have the highest rates of violence against children globally and children who experience violence may be at increased risk for a range of negative health outcomes, including HIV transmission. Each year, almost 1 billion

children worldwide suffer from physical, sexual, emotional, or other forms of abuse or neglect. Although the findings show no significant differences in the reporting of risk factors (child abuse, or sexual activity, blood transfusions, breastfeeding by a non biological mother, caring for a sick relative,) between HIV-positive and uninfected children.[24]

One study found that 40% of female adolescents and 23% of male adolescents who engage in high risk sexual behavior experienced physical abuse as children, which has been linked to a three-fold increase in high HIV risk behaviors. In contrast to childhood sexual abuse, which has been found to have an independent association with HIV in people at high risk for sexual behaviour, irrespective of psychiatric condition, children who are the victims of physical abuse are also described as having low self-esteem and poor impulse control, mental health problems, and a tendency to anti-social behaviour. Childhood abuse is linked to social norms of violence, male dominance and the justification of severe physical abuse, poverty, a lack of community harmony, instability in family life, Orphan, and inadequate child monitoring.[25]

According to a study from Latin America, there are detrimental health impacts of child sexual abuse in America, including an elevated risk of HIV. A study of 607 teenagers in Peru revealed that sexual coercion of both sexes was linked to decreased sexual awareness, an increase in STI rates, an increase in the prevalence of HIV, and an increase in behaviours that could result in HIV infection. Due to their early age and lack of empowerment, children who have experienced sexual abuse are unable to negotiate safe sex practices since they are unaware of safe sex practices.[26]

A study conducted in Zambia showed that physical and sexual abuse of adolescents experienced violence during their childhood is significantly related to HIV risk behaviors. Child abuse within the family or the immediate environment, African children and adolescents may suffer not only from intra-familial abuse but also from structural extra-familial neglect and abuse deriving from the conditions in which they live: poverty, war, orphanage, sicknesses, HIV/AIDS, and child labor.[27]

Maltreatment of children, including physical and sexual abuse, is a widespread problem in society. In the general population, up to 32% of women and 14% of men claim having experienced child sexual assault, while 22% of men and 19.5% of women report having experienced child physical abuse. However, rates of childhood abuse are much higher in those who are HIV positive, indicating that attention should be paid to childhood abuse in the

context of HIV. Individuals with HIV abuse children at rates ranging from 32% to 76%, respectively. [14]

The cultural issues of sexual assault on minors and sexual violence on women have far-reaching effects. In 1992 and 1993, there were almost 500,000 rapes each year in the United States, and studies show that by the time people are adults, one in three young girls and one in six young males may have gone through at least one instance of sexual abuse compared to women without such a background, women who experienced sexual abuse as children are twice as likely to experience gynaecological issues, including STDs. Additionally, women who have engaged in involuntary sex during their childhood are more likely to engage in voluntary sex at a younger age, which can increase the risk of contracting or spreading HIV/STDs, as well as have other psychological issues later on.[28]

2.2 Theoretical literature

The World Health Organization's (WHO) World report on violence and health, published in 2002, discusses the ecological model as it relates to violence against children. The report recognizes that violence against children is a complex issue that is influenced by a wide range of factors at multiple levels, and highlights the importance of understanding these factors in order to prevent and address violence against children that specifically leading to different problems including spreading of HIV/STIs among children and also the WHO's World report on violence and health highlights the importance of using the ecological model to understand the multiple factors that contribute violence which can lead to HIV/ STIs among violence victims, and to guide prevention efforts that address these factors at multiple levels.

Prevalence of HIV/STIs among children violence victims

Globally, an estimated 29 teenagers contracted HIV every hour in 2015. 250 000 new HIV infections among teenagers were reported. 65 percent of these incidents involved teenage girls. AIDS-related fatalities among teenagers between the ages of 15 and 19 have not been decreasing, even if they have decreased quickly in other age groups. 1.8 million people under the age of 18 were HIV positive worldwide in 2015. Of those, girls made up 56% of the total. About 873 000 children and adolescents were receiving antiretroviral medication in 2015, which corresponds to a coverage rate of 49% for all children with HIV ages 0 to 14. In 2015, SSA accounted for almost 80% of all new HIV infections among adolescent girls under the age of 19.[29].

According to research from around the world, girls and children are disproportionately at risk of contracting HIV because of higher physiological risk, gender inequality, unequal gender norms, and gender-based violence, including violence against intimate partners. A continuous and significant correlation between male dominating behaviour, physical and emotional violence, and female HIV infection has been found in contexts with an HIV incidence exceeding 5%, according to data on physical, sexual, and emotional violence from ten sub-Saharan African nations. The correlation between male dominating behaviour and the associations between HIV and violence is positive. Over 700 million women alive now in the world were married when they were younger than 18 years old. 250 million people got married before becoming 15 years old where Child brides frequently struggle to negotiate safer sex, making them susceptible to STIs (including HIV) and unplanned pregnancies. At some time in their lives, almost 120 million females worldwide (little more than 1 in 10) have engaged in forced sexual activity.[29]

According to a UNAIDS report, 34% of sub-Saharan African people living with HIV/AIDS and 35.3 million other people globally were HIV positive and receiving ARV medication. The global HIV prevalence in 2015 was 36.7 million, with rates of 20–27% in Sub-Saharan African nations like Lesotho and Botswana. In SSA countries, there are more than 25 million people who have HIV or AIDS. There were 1.6 million new infections, of which 61% were in people under the age of 18. 68% of people have access to ART in 2020. Teenage girls and women are more likely than teenage boys and men to contract HIV. Since the AIDS pandemic began in 1981 and spread around the world, about 33 million individuals died from the disease.

A study conducted in 2015 from developed countries, revealed that the prevalence of STIs and HIV infection among those who commit child sexual assault and those who survive it, among 51 boys and 485 girls each had one or fewer STIs, and the key findings in the girls included a genitourinary prevalence of 3.1% for *C. trachomatis* and 3.3% for *N. gonorrhoea*, (*T. vaginalis* identified by WM in 5 of 85 (5.9%) symptomatic girls; detectable herpes simplex virus type 2 (HSV-2) antibody in 2.5% and positive HSV-2 cultures from 5 of 12 (42%) of children with lesions; a prevalence of 0.3% for syphilis by serologic testing; and no cases of HIV infection. [17][30]

In south Africa HIV seropositivity prevalence was most significant public health issues, among children victims compared to adults where a million women are raped every year and

the country has about 5 million people living with HIV, STIs, and AIDS, due to sexual assault. In the past five years (2000-2004), 831 occurrences of sexual assault (rape) have been documented. Over the course of five years, there has been a threefold increase in sexual assaults and a 1.5-fold increase in HIV seropositivity. Sexual assault cases increased from 76 (9.7%) in 2000 to 237 (28.5%) in 2004. Of those, 443 (or 53.3%) were minors under the age of 15. 23 (2.7%) of the 114 people who tested HIV positive had a minimum age of 15 years. In 2000, only 8 (10.5%) tested positive for HIV, and this had increased to 39 (16.5%) in 2004.[17] [31]

Factors associated with HIV/STIs among children violence victims

Evidence of an association between sexual violence and HIV is rising among children who have experienced it before the age of 18 in Zimbabwe, although studies including children are few. In 1994, new research on its connections to being orphaned and HIV found that 59% of girls and 93% of boys were clinically diagnosed. Penetrative sexual abuse was reported by 94% of clients, most frequently in the child's home. Children under the age of 12 and teenage girls typically described the attackers as family members or neighbors and "boyfriends" respectively. 31 of the 520 individuals tested for HIV during the presentation (6%) were positive. 39 (6%) clients recorded within three days of the abuse, and 36 received PEP for HIV prophylaxis.[32]

High HIV/AIDS rates have been seen in Uganda in particular during the post-war period and were associated with long-term community violence, family disruption, HIV/STIs transmission, and financial instability among formerly internally displaced people (IDPs) in Northern Uganda along with early marriage, exposure to conflict, and the disintegration of child protection services. [13] Among the cases that were reported in 2018 were child exploitation, child neglect, child trafficking, mental abuse, murder, online child sex and violence, physical assault, and sexual abuse. Neglecting children was the most prevalent type of violence reported (1,791 incidents), then sexual abuse (753 cases) that actual led to health problem outcomes including HIV/AIDS high prevalent transmission. [13]

KIGALI, Rwanda - Violence against children is a fundamental violation of their rights. Before the age of 18, 5 in 10 females and 6 in 10 boys in Rwanda suffer some kind of violence, whether it be sexual, physical, or emotional. Parents, neighbors, teachers, or friends are the most common abusers of children. According to the report, 10% of boys and 24% of

girls had experienced sexual violence. 60% of males and 37% of girls reported being physically abused. Concern was also raised about emotional abuse; 17% of boys and 10% of girls reported having been victims at some point during their childhood. [21]

HIV prevalence has remained stable at 3% for adults since 2005 and in 2020 there were an estimated 227,904 people living with HIV (PLHIV) in Rwanda. [21]. According to the Rwanda Population-based HIV Impact Assessment (RPHIA) 2018-2019, among adults 15-64 years old, HIV prevalence among women was 3.7% compared to 2.2% among men. The estimated annual incidence of HIV among adults 15-64 in Rwanda was 0.08%, representing approximately 5,400 new cases of HIV among adults per year. The prevalence of HIV among adolescents 10-14 years was 0.4%, indicating that there are approximately 5,900 young adolescents living with HIV in Rwanda. [21]

Among HIV-exposed infants, representing vertical transmission, rates have drastically declined. Mother-to-child transmission is now below 2 percent for HIV-exposed infants at 18 months of age, down from 6.9 percent in 2009. The annual deaths due to HIV-related illness are estimated to be 2,264 and there are an estimated 150,885 AIDS orphans 15 years or younger. The Rwanda HIV and AIDS National Strategic Plan (2018-2020 Extension) estimates that up to 35 percent of eligible children are not accessing antiretroviral therapy (ART).[19]

The research conducted among childhood maltreatment and HIV association revealed that in the general population, physical and sexual abuse of children is a frequent occurrence. In the general population, up to 32% of women and 14% of men report experiencing CSA, compared to 22% of men and 19.5% of women who report experiencing physical abuse. However, rates of childhood abuse are much higher in those who are HIV positive, indicating that attention should be paid to childhood abuse in the context of HIV.[2] CSA rates in people with HIV range from 32% to 76%, respectively. Same study has discovered that those who frequently report experiencing abuse, exchange sex for money, and be current users of sex-related medications were more likely to be HIV-positive. Additionally, it has been reported that women with CSA who have used drugs, had more than ten sexual partners, traded sex for money, drugs, or shelter, or who were forced to have sex with someone known to be HIV-positive are more likely to contract HIV/STIs than women without such histories. [14]

2.3 Conceptual framework

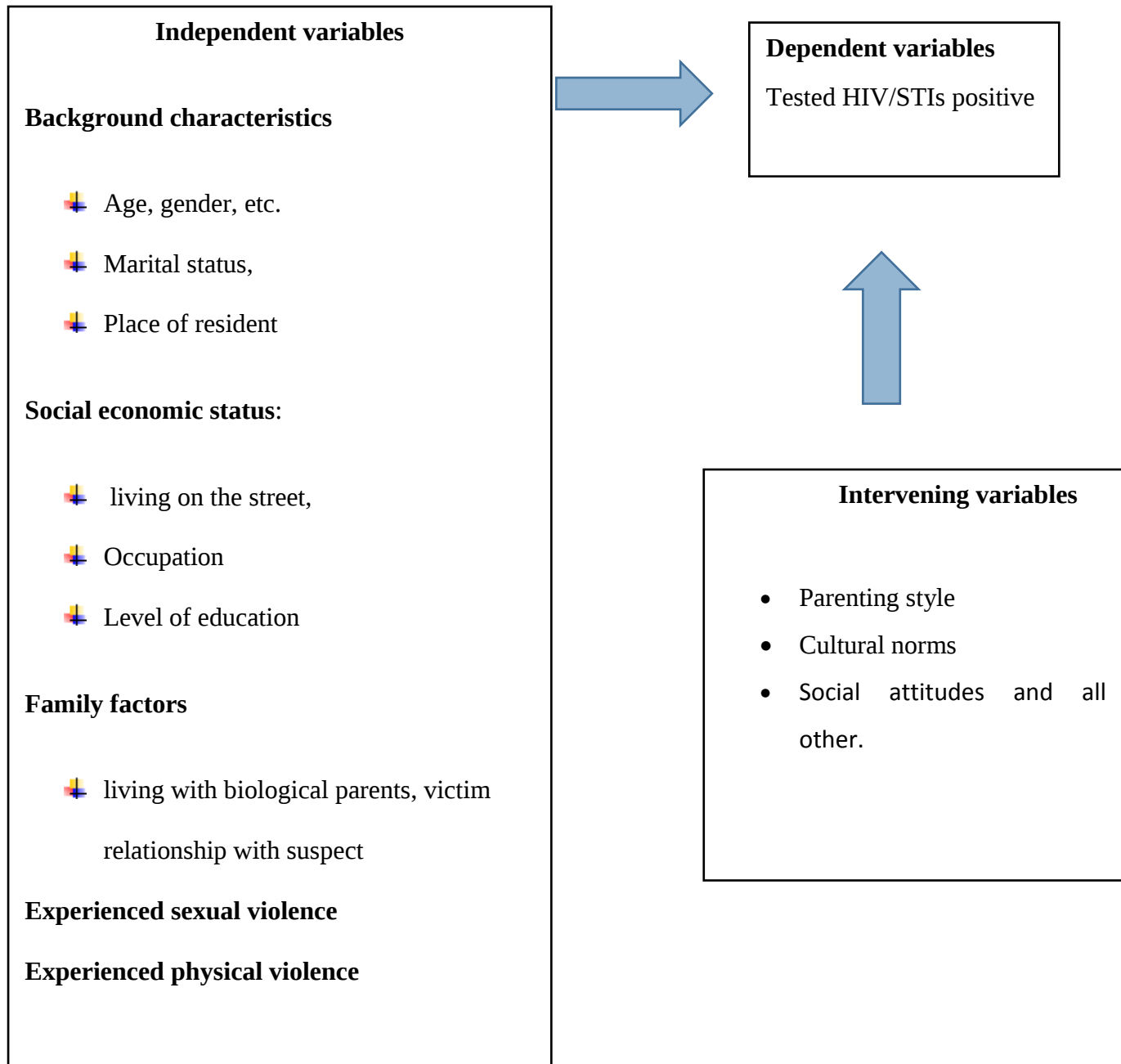


Figure 1: Predictors of HIV/STIs among children violence victims

The conceptual framework for the study is shown in the above figure. Among the social and demographic factors that affected our desired outcome, which is the prevalence of HIV/STIs among children violence victims, and its associated factors including social demographic factors (age, gender, education level, etc.) and all other factors with the outcome (HIV infection or STIs) such as victim experienced either sexual, physical, emotional or neglect violence and others.

The vertical upright arrow represents the intervening factors, such as the GoR's government policy to guarantee that children's rights are met through the provision of basic needs and services for all children in the nation and protect them from abuse and exploitation. The outcome variable, HIV infection or STIs toward child violence victims, is impacted by these independent and intermediate variables either directly or indirectly.

III METHODOLOGY

3.1 Study design

This is a retrospective cross-sectional study aiming to investigate the factors associated with HIV/STIs to all Children experienced violence who visited Kacyiru Isange One stop Center from January 2020-December 2022.

3.2 Study setting

This study was done among children victims of violence received at Isange one stop center Kacyiru Kigali Rwanda as one of the departments of RIB, as a model of integrated and comprehensive care for survivors of gender-based violence and child abuse in Rwanda.

At Isange One Stop Center, information from victims (children), is recorded using a standardized victim form. When a child comes to the center, received by a trained professional who conducts a clinical assessment to determine their needs. During this assessment, the professional gathers information from the child and their caregiver or parent about the nature of the violence experienced, the duration of the violence, and any associated symptoms or injuries.

The information is then recorded on the standardized medical form, which captures details such as the child's age, gender, the type of violence experienced, the perpetrator, and any injuries sustained. The form also captures information about any interventions provided to the

child, such as medical sample taken, type of test requested to the lab and treatment or counselling and then data on child violence recorded on medical forms is transferred to EMR through a process of data entry. Isange One Stop Center staff work closely with other health and social services providers to ensure that clients receive the necessary support and follow-up care.

3.3. Study population

The participants of this study were all children attended Isange one stop center aged under 18 years old in the period of experiencing violence. All children experienced violence and attended Isange one stop center at Kacyiru, aged under 18years in the selected period (2020-2022) were recruited for this study.

Children aged above 18years old during the period of experiencing violence and also those who experienced violence and not attended Isange one stop center department excluded.

Children who reported at Isange one stop center yet their cases were identified as not being related to violence and children with cases that have not yet been closed to have full information as of 2023.

3.4 Study procedure

The collected data from the victim record (registers) of Isange one stop center at Kacyiru using the investigators recording format, extraction form on which necessary information gathered

All children who experienced violence before the age of 18 during the selected period and attended Kacyiru Isange One Stop Center

Study variables

Independent variable: Demographic characteristics like age, sex, date of violence, occupation, level of education, living with both biological parent, orphanage, living on street, suspect or perpetrators, experiencing either sexual, physical or emotional violence, and other were measured

Dependent variable: Tested HIV/STIs positive

3.5. Sample size and sampling techniques

3.5.1 Sample size

The sample size for our study to estimate a proportion from the population i.e. the presence using the Cochran formula (formula for proportions), sample size calculated as follows:

$$n = Z^2 \frac{p(1-p)}{e^2}$$

n= the sample size required

Z²= the standard normal value corresponding to 95% level of confidence equalling to 1.96

p= the estimated proportion or prevalence of violence among children 50%

e= level of precision set at 5%.

Thus,

$$n = 3.84 \frac{0.50(1-0.50)}{0.0025} = 384$$

The study used a simple random sampling but the minimum required sample from our population is 384 participants.

3.5.2 Sampling techniques

For this study, we collected Isange one stop center archival data on child violence from victim form in the study period. After obtaining the dataset from records using excel template we selected children with inclusive criteria in addition to the needed variables that recorded before the selection including age, orphan, live with biological parent, living on the streets, level of education, etc.

3.6. Data collection

The data was collected using Excel template from registries where the necessary information gathered. The department identification numbers of victims retrieved from the records of Isange one stop center, these children IDs used to get the individual victim file from the system.

3.7. Data analysis

Collected data were entered into Epidata version 3.1 for database creation and then uploaded into Stata version 17. The data on factors associated with HIV or STIs were analyzed using STATA software 17. Descriptive statistic was performed by running frequency and median (Min, Max) distributions of socio-demographic. Bivariate analysis was performed, where analysis was made by the chi square (X²) test for categorical variables, the association between outcome (HIV or STIs) and independent variables were measured by odds ratio for which 95% confidence interval was calculated. The risk factors that showed statistically significant association ($p < 0.10$) were selected for the next step of analysis which was the multivariate analysis using logistic regression model for testing the association between more than two independent variables and dependent variable; then the adjusted odds ratios were measured at 95% CI and the $p < 0.05$ was considered.

3.9. Ethical considerations

This study was reviewed and approved by the Institutional Review Board of the College of Medicine and Health Sciences, University of Rwanda and Rwanda Investigation Bureau with the Ethics committee of Isange one stop center for accessing the data. The principal investigator assured the confidentiality and anonymity of the study participants where participants assigned the unique code numbers. Any information de-identified before data entry and no individual respondents' information presented. Data on hard copies locked in a cupboard which accessed only by the Principal investigator and soft data stored in a password protected folder on the personal computer of the principal investigator and destroyed one year after publication of the results from the study. Any gaps in quality identified during the study process communicated with the project investigators and immediate steps taken to rectify those gaps.

The results of this study strictly disseminated for educational purposes. Copies of the study findings submitted and presented to the University of Rwanda and School of Public Health, Epidemiology department and the findings from the study will be published. Ref CMHS/IRB/283/2023

IV RESULTS

Social demographic and economics characteristics

The findings revealed that the age distribution of the respondents is as follows: 14.84% are children under 5 years old, 10.94% are aged 5-9, 21.88% are young adolescents aged 10-14, and the majority, 52.34%, fall into the category of adult adolescents aged 15-17. The majority of respondents were female, 83.33%. Regarding education level, 39.84% had no education, 26.30% had primary education, and 33.85% had secondary education. The occupation of those children showed that 33.33% of respondents are students, while almost 60% were either not at the age of starting education, dropped out, or never attend school.

Besides the socio-economic and socio-demographic characteristics, the respondents were evaluated for living with their biological parents at the time of the violence experience, finding that more than a half were not (55.99%). The study also categorizes the suspects responsible for the violence, with 8.33% being family members, 10.24% other individuals, and the majority, 81.35%, not identified. See table 1 for details

Table 1: Characteristics of children who suffered from child violence, n=384

Variable	Frequency (%)
Age group (years)	
0-4	57 (14.84)
5-9	42 (10.94)
10-14	84 (21.88)
15-17	201 (52.34)
Sex	
Female	320 (83.33)
Male	64 (16.67)
Education level	
None	153 (39.84)
Primary	101 (26.30)
Secondary	130 (33.85)
Occupation	
House worker	26 (6.77)
Student	128 (33.33)
None	230 (59.90)
Residence	
Gasabo	177 (46.09)
Kicukiro	67 (17.45)
Nyarugenge	69 (17.97)
Outside of Kigali City	71 (18.49)
Living with biological parent at the time of violence	
No	215 (55.99)
Yes	169 (44.01)
Suspect	
Family member	32 (8.33)
Other (Neighbors, teachers, friends, home maids etc.)	40 (10.24)
Not identified	312 (81.35)

Types of violence reported among children

Children who reported at Kacyiru Isange One-Stop Centre faced physical, sexual violence or both, and the data is presented in the table2 based on the number of victims. 50 children reported experiencing only physical violence, with 46.00% being female while 54.00% are male. In contrast, a larger number of children, reported experiencing sexual violence, with 88.79% being female and 11.21% being male. Four children reported experiencing both physical and sexual violence, with all of them being female.

Table 2: Violence faced by children violence victims who attended Kacyiru Isange One-Stop Center from 2020 to 2022

Types of violence	Sex		Total
	Male n (%)	Female n (%)	
Sexual	37 (11.21)	293(88.79)	330
Physical	27 (54.00)	23 (46.00)	50
Both	0	4 (100)	4
Total	64 (16.67)	320 (83.33)	384

The prevalence of HIV among children violence victims attended Kacyiru Isange One stop centre from 2020 to 2022

Among the 384 children who attended, 0.52% (2 individuals) tested positive for HIV three months after exposure to violence, there was no children who was positive at the initial visit and this prevalence can strongly be linked with the outcome of the violence. The figure 2 demonstrate the prevalence of HIV among included individuals.

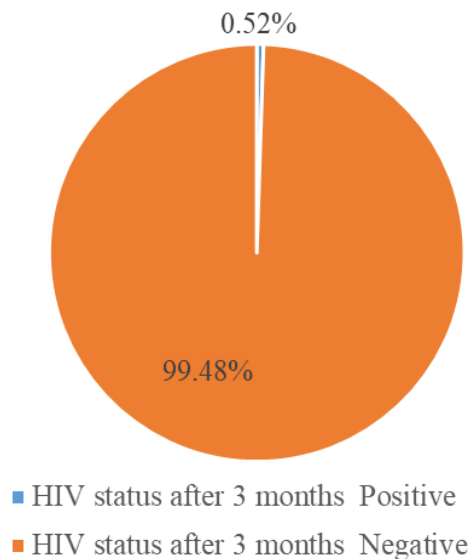


Figure 2:Prevalence of HIV among children violence victims who attended Kacyiru Isange one-stop Centre from 2020 to 2022

The prevalence of STIs among children violence victims attended Kacyiru Isange One stop centre from 2020 to 2022

Around 22% were found to have had STIs and received treatment while 78% were not developed STIs. See Figure 3 demonstrate the prevalence of STIs among the study participants.

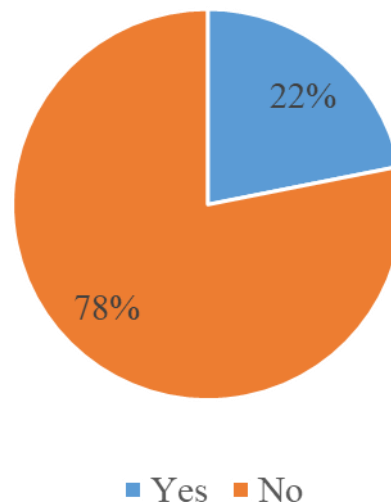


Figure 3:Prevalence of STIs among children violence victims who attended Kacyiru Isange one-stop center from 2020 to 2022

Factors associated with HIV infection among children violence victims attended Kacyiru Isange

Considering that there was a low rate of HIV seropositivity among included children, there were no test conducted to determine the association between HIV and child violence, However, descriptively, both individuals who acquired HIV suffered a sexual violence with one suffering a physical violence in addition. Both victims were females, living in Kigali, had 15 years or above, were students, and their suspects were not identified. As specified earlier, those individuals tested negative at initial visit. They also tested negative for pregnancy during the first visit. Although they have been given post-exposure prophylaxis, they become infected.

Factors associated with STIs infection among children violence victims attended Kacyiru Isange

Gender distribution significantly influenced STI infection rates, with 24.69% of females testing positive compared to 7.81% of males ($p = 0.003$). Age groups also showed variation in STI prevalence, but the differences were not statistically significant ($p > 0.05$). Regarding education level and occupation, no significant associations were observed with STI positivity, as STI prevalence remained relatively consistent across these categories ($p > 0.05$). These findings underscore the importance of gender-specific interventions and highlight the need to explore other factors that may contribute to the higher STI rates among female child victims of violence.

Table 3: Bivariate analysis for Socio-demographic and economic characteristics of STI positive children who were violated

Variable	N(%)	STI+ve (%)	P value
Gender distribution			
Female	320 (83.33)	79 (24.69)	0.003*
Male	64 (16.67)	5 (7.81)	
Age group (years)			
[0-5[	45 (11.74)	5 (11.11)	0.297
[5-10[	54 (14.06)	13 (24.07)	
[10-15[	84 (21.88)	18 (21.43)	
15+	201 (52.34)	48 (23.88)	
Level of education			
None	153 (39.84)	31 (20.26)	0.634
Primary	101 (26.30)	25 (24.75)	
Secondary	130 (33.85)	28 (21.54)	
Occupation			
None	128 (33.33)	7 (26.92)	0.521
Housework	26 (6.77)	24 (18.75)	
Student	230 (59.90)	53 (23.04)	
Note: * Significant at 95% confidence interval			

Other factors that were investigated as reported in table 3 included being pregnant at the visit study visit as this could demonstrate that the participants had sexual intercourse prior to the

violence. The pregnancy status of the victims during their visit showed no significant association with STI prevalence ($p = 0.187$), with 11.54% of pregnant victims testing positive, compared to 22.63% of non-pregnant victims. However, the type of violence experienced was significantly linked to STI infection ($p = 0.001$), with 25.15% of those who endured sexual violence testing positive, in contrast to only 2% of those subjected to physical violence. While not reaching full statistical significance, suspicions surrounding family members as the perpetrators exhibited a borderline association with higher STI rates ($p = 0.056$), with 35.0% of cases linked to family members testing positive. These findings emphasize the critical role of the type of violence experienced and potentially familial involvement as factors influencing STI prevalence among child victims of violence. Further research is warranted to explore these associations in greater detail.

Table 4: Bivariate of other factors associated with STI among children who were violated between 2020-2022

Variable	STI-ve (%)	STI+ve (%)	P value
Pregnant during the 1st visit			
Yes	23 (88.46)	81 (22.63)	0.187
No	277 (77.37)	3 (11.54)	
Violence type			
Sexual	247 (74.85)	83 (25.15)	0.001*
Physical	49 (98)	1 (2)	
Both	4 (100)	0 (0)	
Suspect			
Family member	18 (65.0)	14 (35.0)	0.056**
Other	36 (87.5)	4 (12.5)	
Not identified	246 (78.85)	66 (21.15)	
Note: * Significant at 95% confidence interval			
** Borderline Significant at 95% confidence interval			

Adjusted analysis for confounding for factor associated with STIs among violated children

Notably, gender emerged as a significant factor influencing STI infection rates among these vulnerable children. Female victims had 2.72 times higher odds of testing positive for STIs compared to their male counterparts (aOR=2.72, 95%CI (1.01-7.36), p-value=0.003), warranting further investigation into potential age-related factors contributing to this trend. However, education level and occupation did not exhibit significant associations with STI positivity ($p > 0.05$).

The odds of having STIs were associated with the type of violence, those subjected to sexual violence exhibited a staggering 13.55-fold higher of STI infection compared to those who experienced physical violence, and this difference was statistically significant ($p = 0.012$). See table 5 for details

Table 5: Logistic regression analysis for factors associated with STIs among children who were violated between 2020-2022

Variable	Odds ratio	95% Confidence Interval	P-value
Age (years)			
Children under 5 [0-5[	Reference		
Children [5-10[	1.81	0.47 – 7.06	0.390
Young Adolescent [10-15[	1.87	0.52 – 6.74	0.338
Adult adolescent [15-18[	2.45	0.84 – 7.20	0.102
Sex			
Female	Reference		
Male	2.72	1.01 – 7.36	0.048*
Education level			
None	Reference		
Primary	1.61	0.65 – 4.08	0.305
Secondary	0.81	0.43 – 7.20	0.515
Violence type			
Sexual	Reference		
Physical	13.55	1.79 – 102.57	0.012*
Both	1	N/A	N/A
Pregnancy during the first day of visit			
No	Reference		
Yes	0.33	0.93 – 1.14	0.079**

V. DISCUSSION

Childhood abuse can result in psychological and emotional repercussions with the affected children being more likely to an increased risk of developing conditions like anxiety, depression, and memory difficulties. Noticing this challenge as well as by recognizing the absence of pertinent and all-encompassing data in relation to childhood violence, the Government of initiated the Violence against Children and Youth Survey reporting a high rate of sexual abuse in female than in male[5]. This is also in accordance with the findings that were found in this study.[20]

Among the likelihood impact of sexual childhood violence include being infected with HIV or developing STIs, among the impact of Isange One Stop centre in Rwanda, is to provide adequate support to the children who faced sexual violence through psychological support and provision of post-exposure prophylaxis (PEP) [33]. In this study, 20.83% of the participants received the PEP of whom almost all faced sexual abuse. This highlighted the importance of limited exposure to HIV whereby there was a high rate of STIs (22%) and a low rate of HIV (0.52%). Given the nature of the study, there was no sufficient data to associated with the observed HIV prevalence but possible association could include not adhering to the PEP treatment, delayed initiation and reporting of the abuse among others.

The physical violence was mostly observed in male than female although the difference was slightly low, this also was in consistence with the findings from VACYS whereby the physical violence was often reported in male although in this study, a slight difference is reported compared to VACYS which reported a high difference with the male who were violated being 59.5% .[20]

In the factor associated with STIs, there was a variation in prevalence across different age groups although not significant. This suggests that age alone may not be a primary determinant of STI risk among this population. In addition, education and occupation are not independently impact STI prevalence among child victims at the One-Stop Centre. Instead, our study suggests that this gender-based disparity underscores the need for gender-specific interventions to address the heightened risk faced by female child victims. In addition, the type of violence experienced, play a more substantial role. The borderline association of

familial involvement in influencing STI prevalence among child victims, highlights the potential role and warranting further exploration in future research.

The logistic regression after assessment demonstrated that sex and the type of violence faced influenced the likelihood to have STIs while being pregnant at the time of visit was at the borderline of association with STIs. The borderline association could be due to prior sexual intercourse exposure as the short period of reporting for first visit is not sufficient for STI prevalence.

This study had a limitation of being based only on the data recorded at the Isange One stop Centre which limited the risk factors explored and also limited the prevalence to the person who were reported to Isange one stop centre despite the existence of evidence for unreported violence.[20]

VI CONCLUSION AND RECOMMENDATIONS

6.2. Limitations

This research used a data from Isange one stop center at Kacyiru. This presents a limitation to the research since it is not exhaustive on the expected HIV or STIs risk factors and used only the variables collected and responded during their daily routine. HIV or STIs were likely to be an underestimated of the actual magnitude due to social acceptability bias in interviews during the primary recording information and also due to the fact that individuals do not always feel free to talk about risk factors such as orphanage, living on the street, their suspect relationship, living with disability either mentally or physically, age of the suspect, age and gender of household, family conflict etc, that are very sensitive among community members. It might therefore have led to an underestimation of the association of risk factors and the outcome.

6.1 Conclusion

Child abuse continues to be an important and serious global human security challenge. This retrospective study was conducted out in order to better determine the risks related with HIV/STIs among children who were violated and attended the Kacyiru Isange one Stop center from 2020 to 2022.

The prevalence of HIV was reportedly to be low while there was a high rate of STIs. Unadjusted analysis showed that sex, violence type and the relationship between the victim and the suspect were associated with a high rate of STI infection while after adjustment, it was observed that the sex and the violence type were the only factor associated with high STI rate. This study demonstrated there is a need to conduct more structured study to further understand the factors associated with HIV and STIs among the child victims.

6.2 Recommendations

1. There is a need for Isange one stop Center to revise the data recorded during the documentation of the child abuse case for a more evidence and informative based decision.
2. The Ministry in charge of Gender and Family Promotion (MIGEPROF) in collaboration with Ministry of Youth (MINIYOUTH) should use the data on Gender abuse to conduct more directed campaigns against Gender based violence and to mobilize early reporting of violence case to optimize the intervention of PEPs for HIV prevention.
3. The Ministry of Health should supplement VACYS survey to determine the risk factor associated with HIV rates to further optimize the use of PEP in the prevention of consequences of acquiring HIV as a result of child abuse.

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APPENDICES

Appendix 1: Ethical approval



Appendix 2: Authorization letter

RESTRICTED

cc: SG

RWANDA INVESTIGATION BUREAU
OFFICE OF THE DG CI
GBV CRIMES & CP DIVISION


MEMO

To: DSG

From: Division Manager GBV Crimes
Tel: 0788311778
Date: 23/08/2023
Ref: 115/AGBV/RIB/2023

Mr facilitate and check data provided DSG 23/08/23

Madam DSG,

Re: RESPONSE IN REQUEST TO UWIMANA'S REQUEST

1. Ref to Uwimana's request to conduct a research in Kacyiru hospital in relation to child abuse cases; her research is more related child abuse in the perspective of consequences like HIV and other STIs among victims of child abuse.
2. Initially, the letter was meant to Kacyiru hospital as it would require her to interact with the IOSC GBV officer and other hospital staff like data management and other health practitioners.
3. She can therefore be facilitated by the head IOSC Kacyiru to access the required information since she has an ethical clearance.
4. Respectfully,
Names **MUREBWAYIRE Shafiga** Signature: 

RESTRICTED

RWANDA INVESTIGATION BUREAU
OFFICE OF THE DSG
Receipt date: 23/8/23
Entry No: 293
To be handled by: _____
Copy to: _____

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