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Research Article

Epidemiological insights into sexually transmitted infections and pregnancies among gender-based violence victims in the Northern province of Rwanda: Findings from the Isange One-stop Center at Ruhengeri Referral Hospital

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Abstract

Introduction: Gender-based violence (GBV) is violence directed against a person because of their gender. Both women and men experience gender-based violence, but the majority of victims are women and girls. Sexually transmitted infections (STIs) are infections that are transmitted from one person to another through sexual contact. There is evidence that GBV increases the risk of STIs and pregnancy. The objective of this study was to determine the prevalence of STIs and pregnancy among GBV patients attending the Isange One Stop Center at Ruhengeri Referral Hospital.

Methodology: This retrospective study involved the consultation of archived data and recorded data in files for all GBV cases received from January to December 2021. The victim's information, such as laboratory findings, residential sector information, demographic characteristics, and months in which GBV cases were recorded. The Statistical Package for the Social Sciences (SPSS) version 20 was used for data analysis.

Results: A total of 308 GBV cases were reported, 93.8% of which involved females. Most victims (46.4%) were adolescents aged 11–20 years. Urban areas, particularly the Muhoza (26%) and Cyuve (22.1%) sectors, reported the highest number of cases. The prevalence of STIs among GBV victims was 68.5%, with trichomoniasis (18.2%) and gonorrhoea (14.6%) being the most common infections. Hepatitis B and syphilis were identified in 6.2% and 5.2% of the patients, respectively.

Conclusion: Although efforts are being made in Rwanda to fight against GBV, the number of GBV cases is continually increasing, with the incidence of STIs and undesirable pregnancies increasing, especially among young adolescents. Therefore, additional focus and efforts are needed to lower this rate of GBV among young adolescents. Preventive measures should be improved to eliminate GBV cases and subsequent effects.

Keywords: Gender, Sexual violence, intimate partner violence, STIs, pregnancy.

INTRODUCTION

Gender-based violence involves harmful actions against individuals due to their gender, driven by inequality, power abuse, and harmful norms. It is a severe human rights violation and a global crisis, affecting 1 in 3 women worldwide. Approximately 35% of women face physical or sexual violence, either from partners or others, with risks increasing significantly during displacement and crises¹. A review revealed high rates of domestic violence among women of reproductive age in sub-Saharan Africa,

with 25% affected in Malawi, 35%-45% in Cameroon, Kenya, Rwanda, and Zimbabwe; and 60% in Uganda. Among those experiencing spousal violence, 25%-50% also face sexual violence².

A study by Sharma *et al.* (2021) revealed that STIs are spread mainly through vaginal, oral, or anal sex, but some, such as herpes and HPV, can spread through skin contact. Over 30 different bacteria, viruses, and parasites can be transmitted sexually. Syphilis, gonorrhea, chlamydia, and trichomoniasis are curable, but hepatitis

B, herpes, HIV, and HPV are not. STIs affect both men and women, but they can be more harmful to women, especially during pregnancy³. A study by Asaf (2017) revealed that sexual violence can lead to STIs, unwanted pregnancies, and even death⁴. Another study by Baldasare (2012) also revealed that GBV increases the risk of STIs and human immunodeficiency virus (HIV)⁵.

Violence against women and girls persisted unchecked across all continents, countries, and cultures stated Ban Ki-Moon during the parliamentary board meeting on May 16, 2009. A study conducted by Abraham *et al.* (2014) reported that 155 countries have laws against domestic violence, and 140 have laws on workplace sexual harassment⁶. However, enforcing these laws remains a challenge, limiting women's and girls' access to safety and justice. Violence against women and girls is a human rights violation, and its physical, sexual, and mental effects can be devastating, even leading to death⁷.

GBV remains a major issue in Rwanda, with women being the main victims⁸. However, Rwanda is leading efforts to address this problem. The government has introduced new strategies and policies to end the GBV and promote gender equality⁹. A study by Uwumuremyi *et al.* (2024) reported 320 cases of GBV involving females between 2017 and 2019. Adolescents accounted for the majority of victims (96.25%)¹⁰. Laboratory findings revealed that 23% of the cases involved STIs, with 7.2% testing positive for HIV and 6.8% testing positive for hepatitis B. *Trichomonas* was detected in 4% of the cases, *syphilis* was detected in 5%, and 72% of the victims were pregnant¹⁰.

In 2005, Rwanda National Police (RNP) records revealed that 8 women and girls were raped daily, with 80% of victims being under 18 years of age^{12,13}. In 2019–2020, the Rwanda Investigation Bureau (RIB) reported a 19.6% increase in GBV cases¹¹. While many studies have focused on the prevalence of GBV in Rwanda, data on the prevalence of STIs among GBV cases are limited. This study aimed to determine the prevalence of STIs among GBV victims attending the Isange One Stop Center at Ruhengeri Referral Hospital in the northern province of Rwanda.

METHODOLOGY

Study area

The study was carried out at the Isange One Stop Center under Ruhengeri Referral Hospital, which is located in Musanze District, Northern Province.

Study design

This study was retrospective, where archived data and records of all GBV cases were collected from the logbooks and hospital open clinic system from January to December 2021 and analysed.

Study population and sample size

All GBV samples from patients who presented at the Isange One Stop Center from January to December 2021 and 308 GBV samples were collected from both females and males.

Inclusion and exclusion criteria

The study included all GBV patients attending the Isange One Stop Center within the specified period. All GBV cases outside of this period were excluded.

Data collection

The victims' information, such as laboratory findings, residential sector data, demographic characteristics, and months in which participants attended the Isange One Stop Center was recorded from the GBV case logbook and hospital open clinic system and analysed to determine the prevalence of STIs among GBV cases.

Statistical analysis

After the results were entered into an Excel data collection sheet, SPSS version 20 was used to analyse the data to determine the frequency and percentages. The results are presented in tables or graphs in terms of frequency or percentages for determining the prevalence of STIs among GBV patients attending the Isange One Stop Center at Ruhengeri Referral Hospital from January to December 2021.

Ethical considerations

All methods were performed in accordance with the relevant guidelines and regulations, as outlined by INES–Ruhengeri and Ruhengeri Referral Hospital Ethics Committees. Ethical approval for this study was obtained from Ethics Committees of INES–Ruhengeri and Ruhengeri Referral Hospital.

RESULTS AND DISCUSSION

Distribution of GBV cases on the basis of demographic characteristics.

Table 1 presents the frequencies and percentages of the distribution of 308 GBV cases reported at the Isange One Stop Center. The results revealed that 46.4% of all GBV cases were between 11 and 20 years of age. Compared with the study conducted by Jones *et al.* (2013), one in four individuals had experienced sexual assault before the age of 18 years. Adolescents, especially females, are among the most susceptible individuals to sexual violence¹⁴. Sexual violence among adolescents may be due to anxiety toward peers and a lack of money to meet their needs. Experiencing an abusive intimate relationship exposes them to a high risk of sexual victimization¹⁵.

In terms of gender characteristics, female victims accounted for 93.8% of the sample, whereas male victims accounted for 6.2%. This may be due to the use of alcohol and poverty because females are more vulnerable to social concerns than males are. These findings agreed with those of the study conducted by UNICEF in Rwanda, where 24% of girls and 10% of boys were victims of sexual violence. This was due to low levels of education, poverty, society, peers, and overuse of alcohol where they can be used for sexual intercourse without their will¹⁶.

Table 1: Distribution of GBV cases based on demographic characteristics

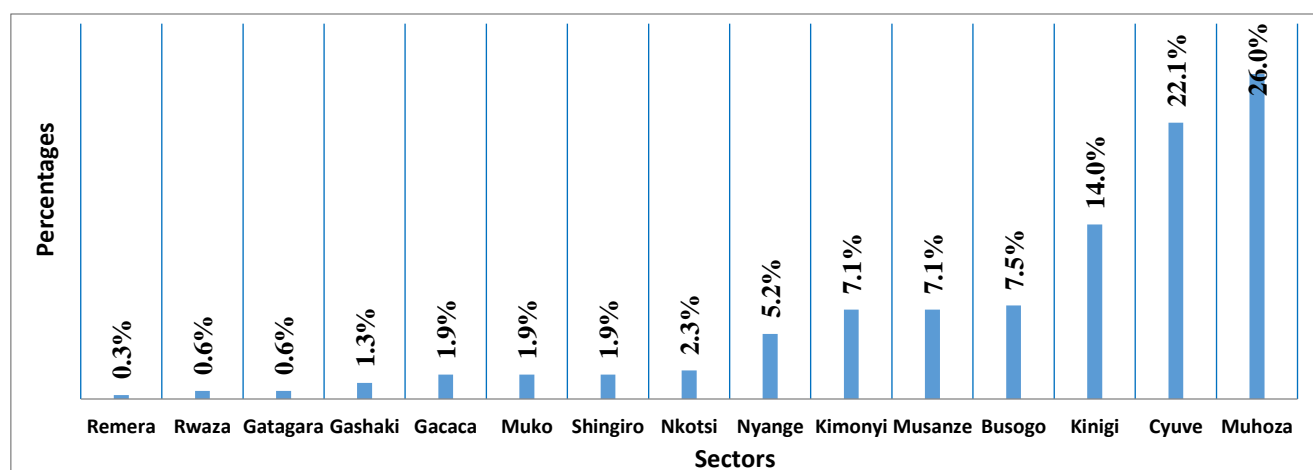
Age	Frequency(N=308)	Percentage (%)
1-10	42	13.6
11-20	143	46.4
21-30	56	18.2
31-40	31	10.1
41-50	23	7.5
51-60	13	4.2
Total	308	100
Gender		
Female	289	93.8
Male	19	6.2

Distribution of GBV cases across residential sectors

In terms of the residential sector of the participants, Figure 1 shows the highest number of GBV cases was reported in sectors located in urban areas, including the Muhoza and Cyuve sectors, with 26% and 22.1%,

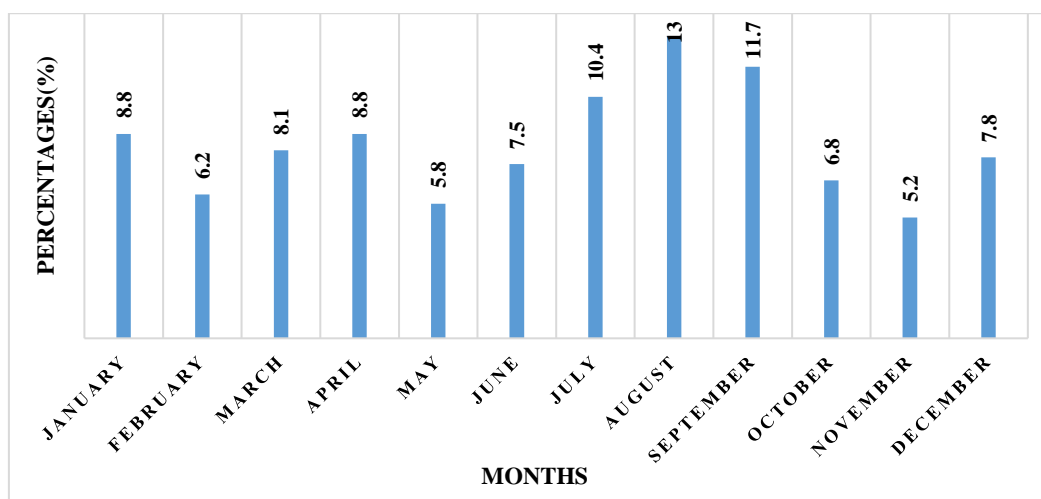
respectively. The lowest number of GBV cases were reported in sectors located in rural areas, including the Remera and Rwaza sectors, with 0.3% and 0.6%, respectively. The findings of this study show that sexual violence is more likely to occur in urban areas than in rural areas. The results of this study were similar to those of Bossarte *et al.* (2009), who reported that 42.3% and 10% of girls in urban areas respectively, were affected by sexual exploitation¹⁷.

A study by Twagirimukiza (2016) revealed that the main setting in which sexual violence against Rwandan school girls took place in the bush was 31.5%, including forests, perpetrators' houses at 25.8%, and 16.9% in victims' family houses. Other settings included shops at 5.6% and 14.5% in lodges¹⁸. The results of the present study are similar to those of the study conducted by Walsh *et al.* (2014), where 31.4% and 20% of the urban and rural areas respectively attempted rape¹⁹. This may be the result of urban lifestyles such as bars or pubs leading to alcoholism, leisure houses such as nightclubs, and a significant number of lodges that are concentrated in urban areas, facilitating sexual violence¹⁸.

**Figure 1:** Distribution of GBV cases across residential sectors

Distribution of the GBV cases across the study period

Figure 2 shows the distribution of the GBV cases across months during the year. The results of this study revealed that a high number of GBV cases were reported in the summer period, especially during school holidays.

**Figure 2:** Distribution of GBV cases across the study period

The percentage of GBV cases reported in August was 13.0%, followed by September, where the percentage of reported cases was 11.7%. In July, 10.4% of GBV cases were reported. The lowest number of GBV cases was reported in November, with 5.2% of the cases reported. These findings are similar to the findings of Paterson (2017), who showed that holidays are a time of joy and freedom, laughter, and memories of loved ones. It can also be a very stressful time and a time of increased negative emotions²⁰.

Another study carried out by Breiding *et al.* (2011) reported that higher rates of sexual assault occurred in the summer months²¹. A similar study reported by the Department of Justice noted that the rates of rape and sexual assault in the summer, on average, were 9% higher than those in the winter and 10% higher than those in the fall⁶. This is due to the many ceremonies and parties, such as marriages and house parties. Others are likely to occur in the summer period, events involving high consumption of alcohol and encouraging sexual violence⁶.

Prevalence of sexually transmitted infections and pregnancy among GBV patients

Table 2 shows the prevalence of STIs and pregnancy among GBV cases, where 68.5% of GBV cases were positive for STIs. Trichomoniasis was reported at a high rate, accounting for 18.2% of all GBV cases. No HIV or HPV cases were reported. Sadly, 6.2% of hepatitis B cases and 5.2% of syphilis cases were reported among GBV cases. A similar study conducted by Christopher (2020) among female adolescents in Uganda revealed self-reported STI symptoms in 84% of participants who were exposed to sexual GBV²². These findings are similar to those of the study conducted by Garcia-Moreno *et al.* (2006), who reported that the highest rates of STIs among GBV cases were observed in the less industrialized settings of Ethiopia (71%), Peru (69%), and Bangladesh (62%)²⁴. The probable reasons for increases in STIs in these regions include imbalances in economic opportunities, educational attainment, health, and political empowerment.

In sub-Saharan Africa, HBV and syphilis are highly prevalent, and these infections can be transmitted from mother to child and may cause severe morbidity in offspring. Contributing factors to the current high rates of HBV include abuse and violence, gender inequalities,

unequal access to education, and a lack of economic opportunities²³.

The findings of this study were also similar to the results reported by Baldasare (2012), who presented evidence of the increased risk of STIs associated with GBV and looked at potential pathways by which GBV and STI are linked⁵. The World Health Organization has estimated that every year in Africa, there are 3.5 million cases of syphilis, 15 million cases of chlamydial disease, 16 million cases of gonorrhoea, and 30 million cases of trichomoniasis. STDs are a high public health priority, especially because of their widespread prevalence and treatability²⁵.

In this study, 22.4% of pregnancies were observed in GBV cases where 17.7% were above 18 years old and 25.7% were less than 18 years old. The findings of this study revealed that a high number of pregnancies occurred in victims who were less than 18 years old. The results of this study agreed with those of Crooks *et al.* (2019), who reported that adolescent pregnancy rates range from 14.3% globally in some sub-Saharan African countries to 6.78% in the USA and approximately 1% in South Korea²⁶. In South Africa, the incidence of pregnancy among adolescents remains high²⁷. In 2003, a health survey reported that 27.3% of women had a pregnancy while they were teenagers⁶.

The World Health Organization defines adolescents as individuals between 10 years and 19 years of age. Adolescence is a period of transition, growth, exploration, and opportunities²⁸. A systematic review by Wilcox *et al.* (2004) described adolescence as a period of experiencing physical and sexual maturation and developing increased interest in sex. With such interest comes certain risks, such as unplanned pregnancy, health risks associated with early childbearing, and sexually transmitted diseases²⁹.

Adolescent mothers may find themselves dependent on their abusers and may feel ashamed and afraid to reach out for help. A study in South Africa on early pregnancy revealed that there is a link between the experience of early trauma and early pregnancy³⁰. The study suggested that relationship dynamics and access to health services play major roles in teen pregnancy and that interventions should consider this. Adolescents' experiences of violence and pregnancy frequently overlap and place young mothers and their children at further risk³¹.

Table 2: Prevalence of sexually transmitted infections and pregnancy among GBV patients

Variables		Frequency (N=308)		Percentage (%)
Hepatitis B		19		6.2
Syphilis		16		5.2
Gonorrhoea		45		14.6
Trichomoniasis		56		18.2
Chlamydia		35		1.4
Fungi		40		13
Total		211		68.5
Pregnancy	>18 years old	27 (17.7%)	66	22.4
	< 18 years old	39(25.7%)		

CONCLUSION

Despite efforts to combat GBV in Rwanda, the number of cases continues to rise, particularly among young adolescents, with increased STIs and unwanted pregnancies. The study revealed high rates of sexual violence among adolescents at Isange One Stop Center in Ruhengeri, with urban areas reporting the most cases, particularly during summer holidays. More effective strategies are needed to address sexual violence among youth. The study recommends life skills education, male involvement, anti-sexual violence initiatives, and stronger support systems such as Isange One-Stop Centers, alongside further research for conclusive findings.

Limitations of the study

The study was conducted in the mentioned area, Ruhengeri Referral Hospital, Musanze District, Northern Province of Rwanda, and further work should consider other geographical areas for GBV cases and related consequences, including STIs.

Ethical approval: The ethics and research committees at INES–Ruhengeri and Ruhengeri Referral Hospital approved this study. Due to the retrospective nature of the study, the requirement for obtaining informed consent was waived by the INES–Ruhengeri and Ruhengeri Referral Hospital.

Availability of data and materials: The data supporting the findings of this study are available from the primary corresponding author upon reasonable request. However, the data are not publicly accessible due to privacy concerns and ethical restrictions related to the sensitive nature of the information collected from gender-based violence victims.

Competing interest: The authors declare no conflicts of interest in conducting and publishing this article whether financial or non-financial.

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Contribution of authors: FU conceptualized and initialized the study; FU, VD, GT, LM, and AU: data collection and analysis; NT & FU: technical customization and original article manuscript writing. CN and TH: Senior review of the project. All the authors contributed to the review and finalization of the original manuscript.

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