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RESEARCH ARTICLE

Predictors of intimate partner violence among women of reproductive age group from Rwanda [version 1; peer review: awaiting peer review]

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Abstract
Background
Intimate partner violence (IPV) against women is an important global health and human rights concern, with significant prevalence in Rwanda. This study aimed to identify predictors of IPV among women of reproductive age in Rwanda, providing essential insights for targeted interventions.

Methods
Data from the Rwanda Demographic Health and Survey 2019-20, a nationally representative survey, were analyzed. The study included 14,634 women aged 15-49. Descriptive statistics, chi-square analysis to check the experiences of IPV by background characteristics of the women and logistic regression were used to explore associations between background characteristics and IPV.

Results
The study revealed that women's educational status, wealth index, witnessing parental violence, husband or partner's drinking habit, and fear of husbands or partners were significantly associated with IPV. Women with higher education and those from wealthier households were less likely to experience IPV. In contrast, women whose partners consumed alcohol and those who feared their partners faced higher risks of IPV.

Conclusion
This study highlights the importance of addressing social determinants such as education, economic status, and alcohol consumption patterns in efforts to reduce IPV in Rwanda. The findings show up the urgency of comprehensive interventions and policies

aimed at promoting gender equality and preventing intimate partner violence.

Keywords
Rwanda, Intimate Partner Violence, Women, Reproductive age

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Introduction

A major health and human rights concern, violence against women affects millions of women worldwide, regardless of their ethnicity, culture, social status, or level of education. Intimate partner violence, also known as physical aggression, sexual coercion, psychological abuse, and controlling attitude, is any behaviour in an intimate relationship that harms physically, sexually, or psychologically. This term covers violence committed by spouses and partners, both present and past[1]. According to estimates on the prevalence of violence against women, at least once in their lifetime, 26% of women have been victims of physical or sexual abuse by a current or previous male intimate partner[2].

In Southeast Asia and Africa, intimate partner violence was more prevalent than in other regions such as America and Europe. Lifetime IPV prevalence ranges from 20% in the Western Pacific region to roughly 22% in high-income nations and Europe, 25% in the Americas, 33% in Africa, 31% in the Eastern Mediterranean, and 33% in Southeast Asia[3].

In Rwanda, the prevalence of IPV among women increased from 40% in 2015 to 46% in 2020[4]. Nonetheless, despite the Rwandan government's focus and commitment to IPV prevention, it remains a challenging issue. Rwanda remains one of the countries with the highest rates of intimate partner violence against women globally. Rwanda is among the sixteen countries with the second highest IPV prevalence range, with 35–39% of ever married/partners aged 15–49 years experiencing physical or sexual violence[3]. There are several hypotheses regarding the background and effects of IPV against women, particularly in Africa. According to the socio-ecological model, risk factors for IPV can be categorised as coming from an individual, a relationship, a group, or society[5]. These include being young, having little education, being unemployed, abusing alcohol, having multiple partners, witnessing parental violence, relationship quality, being poor, having post-traumatic stress disorder, and social norms[5–8].

Due to the low social support[9], burdened mental health issues[10], gender inequality, and cultural and economic barriers[11,12] that are characteristic of these settings, it has been found that IPV prevalence and its effects are worsened in post-conflict and resource-limited settings like Rwanda. Rwanda is a patriarchal country, and despite gender-based violence being generally acknowledged as a punishable offence under Rwandan law, IPV may be seen as a private family issue and accepted to maintain the unity of the family. The lack of ability of Rwandan society to properly handle the IPV problem is a result of the stigma and discrimination that accompanies victims of violence.

Intimate partner (physical, sexual, and psychological) violence, as well as sexual violence, causes substantial short- and long-term physical, mental, sexual, and reproductive health issues in women. They also have an impact on their children's health and well-being. IPV has significant social and economic consequences for women, their families, and societies. Intimate partner violence in pregnancy increases the risk of miscarriage, stillbirth, pre-term delivery, and low birth weight babies[2]. In Tajikistan, 34% of married women who had suffered physical violence had their pregnancy terminated[13]. All these forms of violence can result in depression, post-traumatic stress disorder and other anxiety disorders, sleep problems, eating disorders, and suicidal ideation[2].

There are studies in Rwanda on IPV and its association with antenatal care services[14] and HIV/other STIs among married women[15] (Dude, 2011); sexual violence and its associated factors among women of reproductive age[16]; trends and correlates of IPV victimisations[4], but not any on the predictors of intimate partner violence among women of reproductive age in Rwanda. Therefore, this study aimed at assessing the predictors of intimate partner violence among women of reproductive age group from Rwanda. To the best of authors knowledge, this is the first study to explore the predictors of intimate partner violence among women of reproductive age group from Rwanda. Identifying predictors allows for more targeted and effective interventions and in turn help develop programs and policies aimed at addressing specific risk factors, which may help reduce the prevalence of IPV.

Methods

Data source and sampling process

This is a secondary data analysis and the study uses data collected in Rwanda Demographic Health and Survey 2019–20, a national representative survey organised by the National Institute of Statistics of Rwanda (NISR) in collaboration with the Ministry of Health (MOH). Details of the survey questionnaire, sample process and data collection procedure are given elsewhere[17]. A two-stage sample design was used. In the first stage, 500 clusters (sample point) were selected; 112 were from urban areas, and the remaining 388 were from rural areas. In the second stage, systematic sampling was used to determine the households at each sample point. A total of 12,951 households were interviewed, and the survey resulted in 14,634 interviews of women aged 15–49. All women aged between 15 to 49 years who were either permanent residents of the selected households or visitors who stayed in the households the night before the survey were included. For this research, 14,634 women were considered for analysis.

Data collection instrument

Rwanda Demographic Health and Survey data 2019–20 used five questionnaires- the Household questionnaire, the woman's questionnaire, the man's questionnaire, the biomarker questionnaire and the fieldworker questionnaire. These questionnaires were developed following the DHS Program's standard Demographic and Health Survey questionnaires[17]. For this research, the background characteristics of the women such as – place of residence, age, educational status, wealth index, region, employment status along with husband or partner drinking habits, whether respondent's father ever beat mother, was afraid of husband/partner and violence related questions were used.

Variables and statistical analysis

Dependent variable. The dependent variable for this research is the experience of IPV. The Rwanda Demographic and Health Survey Woman's questionnaire used a series of questions to assess sexual, emotional and physical violence. The variable emotional violence was formed from the question "Have you ever experienced emotional violence?" and the options were binary, such as 'No' was considered when the respondent answered 'did not experience emotional violence' and option 'Yes' was considered 'experienced emotional violence'.

The variable sexual violence was created from the question "Have you ever experienced sexual violence?" and the options were binary such as 'No' was considered when the respondent answered 'did not experience sexual violence' and option when the respondent answered 'Yes' was considered 'experienced sexual violence'. The variable 'physical violence' was formed using the following questions:

- Ever been pushed, shook or had something thrown by husband/partner

- Ever been slapped by husband/partner

- Ever been punched or hit by something by husband/partner

- Ever been kicked or dragged by husband/partner

- Ever been strangled or burnt by husband/partner

The response options were 'Yes' and 'No'; the respondents who answered 'Yes' were categorized as 'experienced physical violence' and those who answered 'No' were categorized as 'didn't experience physical violence'.

In this research, the variable IPV was formed by adding sexual violence, emotional violence and physical violence and the categories of IPV were 'Yes' and 'No'. In our analysis, 'Yes' stands for 'experienced IPV' and 'No' stands for 'did not experience IPV.

Independent variables. The major independent variables in this study are explained in Table 1:

Data analysis

Descriptive statistics of the study reproductive age group women sample were presented and a Chi-square analysis test was used to check the experiences of IPV by background characteristics of the women sample. The statistical significance level was considered at 5% level (two-tailed). In the bivariate analysis, all independent variables were taken into consideration. A binary logistic regression analysis was performed to investigate the relationship between women's background characteristics and experience of IPV. Strengths of associations were assessed with Odds Ratios (ORs) and 95% confidence intervals (CIs) used to test significance. All the statistical analyses are conducted using IBM SPSS v 29.

Results

Descriptive characteristics

About 78.8% of women (n=2198) are from rural areas, and the average age of women in this research is 30.29 years with a standard deviation of 9.26 years, and approximately 30.2% of women (n=843) are from the age group between 15 to 25 years. Only 11.4 % of women (n=317) are from the Kigali region, and 26.9% are from the South area of Rwanda. About 61% of women (n=1702) have completed primary education, and 18.4% of women (n=512) represent middle-income households. During the time survey, approximately 70.4% of women (n=1964) were working. Only 35.1% of women shared that their father had beaten their mother and 9.3% of women (n=181) were afraid of their husband or partner most of the time as shown in Table 2.

Table 1. List of independent variables, their categories and definitions.

Variables	Category/measurement/definition
Place of residence	Place of residence categorized as urban and rural
Region	Region categorised as Kigali, South, West, North & East
Educational status	Education categorised as No education, Primary, Secondary & Higher
Employment status	Current employment status of the woman classified as unemployed or employed
Age (years)	The age of the women categorised as 15 to 25 years, 26 years to 35 years and 36 to 45 years
Wealth index	Categorised as Poorest, Poorer, Middle, Richer & Richest
Respondent's father ever beat mother	Categories are – Yes or No
Husband/partner drinking habit	Categories are – Yes or No
Afraid of husband/partner	Categories are -Never, Sometimes, Most of the times

Table 2. Prevalence of IPV among the reproductive age group women by their background characteristics.

Characteristics	Total (%)	Experience of IPV	
Place of residence			*p-value*
Urban	590(21.2)	133(36%)	
Rural	2198(78.8)	601(38.1%)	0.47
Region			
Kigali	317(11.4)	87(41%)	
South	693(24.9)	188(39.4%)	
West	650(23.3)	163(35.7%)	
North	449(16.1)	115(36.3%)	
East	679(24.4)	181(37.3%)	0.62
Educational status			
No education	284(10.2)	121(46%)	
Primary	1702(61)	507(39.7%)	
Secondary	687(24.6)	96(29.4%)	
Higher	115(4.1)	10(12.5%)	<0.001
Wealth index			
Poorest	595(21.3)	212(46.4%)	
Poorer	560(20.1)	170(41.9%)	
Middle	512(18.4)	126(35.2%)	
Richer	581(20.8)	129(32.9%)	
Richest	540(19.4)	97(29%)	<0.001
Employment status			
No	824(29.6)	148(34.6%)	
Yes	1964(70.4)	586(38.6%)	0.13
Age group			
15–25	843(30.2)	79(36.1%)	
26–35	987(35.4)	305(36.6%)	
36–45	958(34.4)	350(39.1%)	0.47
Mean ± SD	30.29 ± 9.26		
Respondent's father ever beat her mother			
No	1706(64.9)	372(32.9%)	
Yes	921(35.1)	301(43%)	<0.001
Husband/partner drinking habit			
No	717(36.8)	143(19.9%)	
Yes	1230(63.2)	591(48%)	<0.001
Afraid of husband/partner			
Never	1246(64)	271(21.7%)	
Most of the time	181(9.3)	159(87.8%)	
Sometimes	520(26.7)	304(58.5%)	<0.001

Bivariate association with background characteristics of women

The proportion of women who experienced IPV from rural areas is 38.1%, and 41% of women from Kigali experienced IPV. Apart from, place of residence, region and employment status, all the selected variables were significantly associated with experience of IPV. The proportion of experiencing IPV among the age group of 36 to 45 years of women is higher compared to others. Of the women from the poorest wealth index families, 46.4% of them were likely to experience IPV and only 29% women from the richest households were likely to experience IPV. Likewise, about 46% of women with no education were likely to experience IPV, and 12.5% of women who completed higher education were likely to suffer from IPV as shown in Table 2.

Of the participants who revealed that their fathers ever beat their mothers, about 43% of them experienced IPV. Approximately 87.8% who were afraid of husbands or partners were likely to experience IPV, and this variable is also statistically significant.

Figure 1 reveals that about 37.7% women experienced IPV, only 15.3% women suffered sexual violence, 34.3% and 16.8% women experienced emotional and physical violence respectively.

Results of logistic regression analysis

Logistic regression analyses were performed to explore the effects of background characteristics on IPV. In Table 3, In the unadjusted model, women's educational status, wealth index, whether the respondent's father ever beat her mother, the husband or partner's drinking habits, and whether the respondent was afraid of their husband or partner were significantly associated with the experience of IPV. In the adjusted model, region, educational status, wealth index, whether the respondent's father ever beat her mother, the husband or partner's drinking habits, and whether the respondent was afraid of their husband or partner were significantly associated with the experience of IPV.

The women who completed higher education were around 80% (OR=0.21; 95%CI 0.09-0.48) less likely to experience IPV compared to women with no education. The women from the richest wealth index were around 37% (OR= 0.63; 95%CI 0.41-0.98) less likely to experience IPV compared to women from the poorer wealth index. The husbands or partners of women with drinking habits were 3.24 times more likely to be abused by their husbands or partners compared to the women's husbands or partners who do not drink alcohol. Women who were afraid of their husbands or partners were 22.20 times more likely to experience IPV than those who were not afraid of their husbands or partners.

Discussion and conclusion

The study demonstrated that some of the background characteristics of women of reproductive age are the risk factors for experiencing IPV in Rwanda. The proportion of women who experienced emotional violence is 34.3% and the proportion
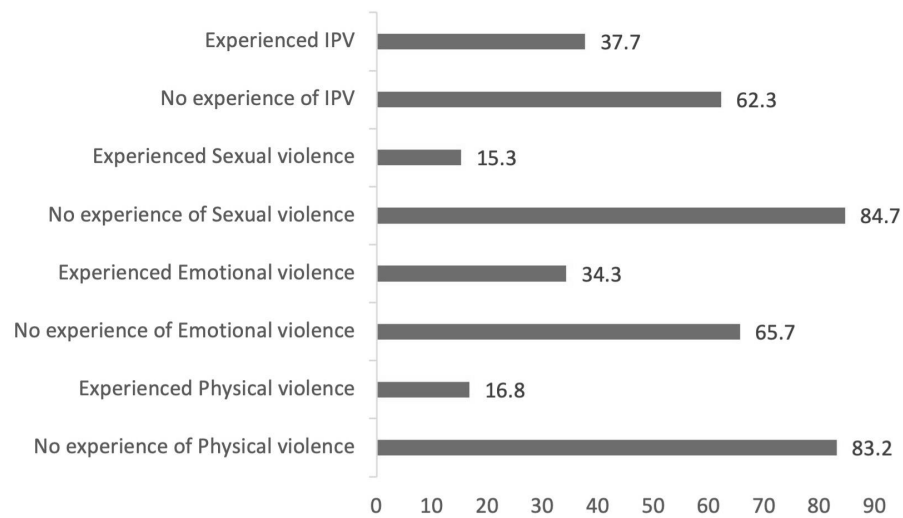
Figure 1. Distribution of respondents by experience of different types of violence.

Table 3. Unadjusted and adjusted models of factors responsible for experiencing IPV among women of reproductive age.

Variables	Experienced IPV			
	Unadjusted OR (95%CI)	***p*-value**	**Adjusted OR (95%CI)**	***p*-value**
Place of residence				
Urban	1		1	
Rural	1.09(0.86-1.38)	0.46	0.88(0.62-1.24)	0.46
Region				
Kigali	1		1	
South	0.93(0.67-1.30)	0.68	0.53(0.34-0.83)	0.005
West	0.79(0.57-1.11)	0.19	0.52(0.34-0.82)	0.004
North	0.81(0.57-1.16)	0.27	0.61(0.38-0.96)	0.03
East	0.85(0.61-1.19)	0.35	0.55(0.36-0.86)	0.008
Educational Status				
No education	1		1	
Primary	0.77(0.59-1.01)	0.06	0.87(0.63-1.21)	0.41
Secondary	0.48(0.35-0.68)	<0.001	0.56(0.36-0.88)	0.01
Higher	0.17(0.83-0.34)	<0.001	0.21(0.09-0.48)	<0.001
Wealth Index				
Poorer	1		1	
Poorest	0.83(0.64-1.09)	0.18	0.91(0.66-12.5)	0.56
Middle	0.63(0.47-0.83)	.001	0.72(0.51-1.01)	0.06
Richer	0.57(0.43-0.75)	<0.001	0.62(0.44-0.88)	0.07
Richest	0.47(0.35-0.64)	<0.001	0.63(0.41-0.98)	0.04

Variables	Experienced IPV			
	Unadjusted OR (95%CI)	*p*-value	Adjusted OR (95%CI)	*p*-value
Employment status				
No	1		1	
Yes	1.18(0.95-1.48)	0.13	1.01(0.77-1.31)	0.97
Age group				
15–25 years	1		1	
26–35 years	1.02(0.75-1.39)	0.89	1.09(0.76-1.56)	0.63
36–45 years	1.14(0.84-1.55)	0.40	1.09(0.74-1.58)	0.650
Respondent's father ever beat her mother				
No	1		1	
Yes	1.53(1.26-1.87)	<0.001	1.54(1.23-1.94)	<0.001
Husband/partner drinking habit				
No	1		1	
Yes	3.71(2.99-4.60)	<0.001	3.24(2.54-4.13)	<0.001
Afraid of husband/ partner				
Never	1		1	
Most of the time	26.00(16.32-41.42)	<0.001	22.20(13.39-36.83)	<0.001
Sometime	5.06(4.06-6.31)	<0.001	4.86(3.81-6.20)	<0.001

with IPV was around 37%. Of all the study variables, educational status, wealth index, whether the respondent's father had ever beaten her mother, the husband or partner's drinking habits and whether the respondents were afraid of their husbands or partners were significantly associated with the women's IPV experience.

Previous studies from Rwanda and elsewhere also reported that the husband's alcohol drinking habits are an important predictor of intimate partner violence[4,18–21]. This study revealed that women without education were more likely to be abused by their husbands or partners. Still, a study from Rwanda found no positive association between experience of IPV and educational status[18]. Another study from Rwanda reported that women with low education were positively associated with IPV in their lifetime[18]. Thompson *et al.* (2015) found that respondents witnessing their mother beaten by their father is also statistically associated with IPV among women from Rwanda[21] and similar results were reported elsewhere[22,23]. This study did not find any association between women's age and experience of violence, this is congruent with another study conducted in

Tanzania[24] and in Rwanda[4,18] but research conducted in Myanmar reported that women aged 25 to 30 years old are more likely to experience violence by their husbands or partners[25].

The women from poorer economic backgrounds in this study are more likely to experience any form of IPV. This is in line with other studies conducted in Rwanda[4,21,26], Armenia and Tanzania[22,26].

According to a recent report, one of the highest self-reported rates of intimate partner violence against women is in Rwanda, where the same women often claim many instances of violence in the past or present[21]. It is a major human rights issue for women in Rwanda, especially at their childbearing age. Due to cultural norms, women remain silent when they are physically, sexually and emotionally abused by their husbands or partners year after year. They are afraid to seek help or support from any individual or institute. They think it is deep-rooted in the cultural beliefs of masculinity cultivated through decades, and if they go against their husbands or partners, society will not accept them.

This study has several strengths and limitations. First of all, the study has used nationally representative household survey data that covered both urban and rural areas of Rwanda; hence the study findings possibly represent the women of Rwanda, and there is less chance of bias. Secondly, there needs to be more publications from Rwanda on women's issues; the findings of this study will serve as important literature to the research community. There are some limitations of the study. Due to the data's cross-sectional nature, it was impossible to establish the causal relationship between predictor variables and experience of IPV. Additionally, information bias on self-reported data from the women is possible.

In conclusion, intimate partner violence (IPV) against women is not only a global health and human rights concern but also a pressing issue within the context of Rwanda with implications for the physical and mental health of women and society as a whole. Identifying predictors of IPV is essential for designing effective interventions. By addressing factors such as education, economic empowerment, and alcohol consumption,

Rwanda can take significant steps toward reducing the prevalence of IPV and promoting a safer environment for women of reproductive age. The findings of this study shed light on several critical aspects of IPV among women of reproductive age in Rwanda and offer valuable insights for policymakers, healthcare professionals, and advocates working to combat this pervasive problem. Further research and sustained efforts are needed to reduce this form of violence.

Data availability
Underlying data
Data used in this study are from the DHS-VII dataset of the Rwanda 2019–20 Standard DHS, available from the Demographic and Health Survey (DHS) website https://dhsprogram.com/methodology/survey/survey-display-554.cfm Access to the dataset requires registration and is granted only for legitimate research purposes. A guide for how to apply for dataset access is available at: https://dhsprogram.com/data/Access-Instructions.cfm.

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