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The prevalence of mental disorders among intimate partner violence exposed and non-exposed Rwandans: Findings from a national cross-sectional survey

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ABSTRACT

Despite mounting evidence indicating an increased risk of long-term mental disorders in Rwanda's general population, little is still known about the national prevalence of mental disorders among victims of intimate partner violence (IPV) in a post-conflict setting. The aim of this study was to compare the prevalence of mental disorders among IPV exposed and non-exposed individuals in Rwanda. This was a cross-sectional study based on secondary data from the 2018 Rwanda Mental Health Survey. The sample consisted 20,381 participants selected nationwide, from 7,124 households (age range: 14–65 years), of which 3,759 Rwandans were exposed to IPV (18.4%) and 16,622 were non-exposed to IPV (81.6%). Participants were screened for IPV exposure and common mental disorders, and data was analyzed using the SPSS version 25 software. The results showed that the rate of any mental disorder was substantially higher in the group exposed to IPV than the non-exposed, at 32.4% and 11.7% respectively. These results highlight that among Rwandans diagnosed with severe mental disorders, participants with a history of IPV exposure present with increased odds of mental disorders prevalence and severity. Therefore, people seeking mental health care should also be screened for their IPV exposure and offered appropriate interventions.

1. Introduction

Intimate partner violence (IPV) is a significant public health problem. The Centers for Disease Control and Prevention (CDC) defines IPV as physical, emotional, or sexual violence that occurs between two people in an intimate relationship (Breiding et al., 2015). Compared to physical and sexual violence, psychological violence is reported to be the most common and damaging subtype of IPV (Dokkedahl et al., 2019). IPV is reported to cause severe physical and mental health problems given the magnitude of the physical and psychological violence imposed to the victim. Several authors have highlighted that beyond physical injuries and death, individuals exposed to IPV are more likely to report a range of negative mental health outcomes that are both acute and chronic in nature (Black et al., 2011; Breiding et al., 2008). IPV is associated with substance abuse, post-traumatic stress disorder (PTSD), panic disorders, depression, and suicidality (Devries et al., 2013; Hall et al., 2014; Tsai et al., 2016; Yu et al., 2019) and endorses other unhealthy behaviors.

Despite the substantial studies indicating that IPV is associated with significant mental disorders in victims, the direction and magnitude of the association remain uncertain. Exposure to IPV could lead to subsequent poor mental and physical health outcomes, or different mental and physical health conditions could increase the risk of subsequent IPV. There could also be a bidirectional relationship. In a systematic review, Bacchus et al. (2018) revealed a bidirectional association between 'ever' exposure to IPV and depressive symptoms and alcohol use. As such, IPV was associated with incident depressive symptoms (OR=1.97, 95% CI 1.56 to 2.48), as well as an association in the reverse direction between

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depressive symptoms and incident IPV (OR=1.93, 95% CI1.51 to 2.48), (Devries et al., 2013). In another systematic review, the authors found increased odds of alcohol use following IPV (OR=1.25, 95% CI 1.02 to 1.52) and increased odds of IPV following alcohol use (OR=1.27, 95% CI 1.07 to 1.52), (Devries et al., 2014). Based on the dilemma existing in the literature, significant efforts are still needed to explore the association between IPV and mental illness. Therefore, the current study was intended to examine the prevalence of mental disorders (MDs) among IPV-exposed as compared to non-exposed individuals in post-genocide Rwanda, where there would be a likelihood of increased MDs and IPV associated with the post-conflict contexts.

While national data on prevalence is crucial to establishing or strengthening policies and action plans for addressing mental disorders especially in victims of IPV, studies assessing the prevalence and association between MDs and IPV in sub-Saharan African countries are scarce, particularly in Rwanda. Worryingly, authors have found that the lifetime prevalence of reported IPV and/or non-partner sexual violence is highest in the African region (Abrahams et al., 2014; WHO, 2013). Similarly, the Rwanda Demographic Health Survey in 2015 and 2020 (National Institute of Statistics et al., 2021) showed that the prevalence of any spousal violence among ever-married women increased from 40% in 2014–15 to 46% in 2019–20. Inversely, violence among men was reported to have declined slightly from 20% to 18% over the same period. The same results demonstrated that among women aged 15–49, 37% reported having experienced lifetime physical violence since age 15 and 23% have ever experienced sexual violence. Equally, men reported experience of physical and sexual violence, 30% and 6% respectively (NISR, 2021).

To the best of our knowledge, no attempt has been made so far to investigate the prevalence of mental disorders (MDs) in individuals exposed to IPV compared to non-exposed individuals in post-genocide Rwanda. Studies conducted in Rwanda on IPV and mental disorders are limited by their small sample size, which limits the generalizability of their findings (Ntaganira et al., 2009; Rurangirwa et al., 2018; Umubyeyi et al., 2014; Verduin et al., 2013). The authors have explored the prevalence and determinants of IPV against pregnant women (Ntaganira et al., 2009; Rurangirwa et al., 2018), the association of IPV with MDs and suicidal ideations (Verduin et al., 2012) but none specifically for MDs prevalence among victims and non-victims of IPV. Therefore, the aim of the current study is to compare the prevalence of mental disorders between individuals exposed to IPV and those non-exposed in a cross-sectional national-based study. We postulated that the prevalence of MDs would be higher in the group exposed to IPV when compared to the non-exposed group.

2. Methods

2.1. Study design

This secondary data analysis comprises a cross-sectional design comparing the prevalence of mental disorders between a group of Rwandans exposed and non-exposed to IPV.

2.2. Study setting and population

The 2018 Rwanda Mental Health Survey (RMHS 2018), a parent study of the current analysis was conducted countrywide. Geographically, Rwanda is divided into five provinces, 30 districts, 416 sectors, 2148 cellules, and 14,837 villages with a total population of 12.5 million at the time of survey. The sample of the study was computed at the district level and utilized the sampling frame for the 2012 Rwanda Population and Housing Census (RPHC) whose primary sampling unit is enumeration area (EA).

2.3. Data source, sampling and procedure

Secondary data from the 2018 Rwanda Mental Health Survey (2018 RMHS) was used in this sample. The RMHS was conducted by the Rwanda Biomedical centre (RBC) - Rwanda Ministry of Health and its partners from the 1st to the 31st of August 2018. The survey involved a representative sample of the population aged between 14 and 65 years old residing in Rwanda at the time of the study. That age category was chosen because almost half of all lifetime mental disorders were found to start by the mid-teens (Kessler et al., 2007; WHO, 2018). The RMHS calculated the sample size using a 95% confidence interval together with a 5% margin of error. Thus, a total of 20,381 individuals from 7124 households participated in this survey.

Ethical approval of the survey was obtained from the Rwanda National Ethics Committee (RNEC) before commencement (Ref: 0061/RNEC/2018 dated February 15, 2018). Additionally, all participants signed a consent form prior to their participation.

2.4. Survey's data collection tools

2.4.1. Socio-demographic characteristics

Socio-demographic characteristics were collected and included sex, age, marital status, education, residence, religion and employment status [Table 1].

2.4.2. Common mental disorders screening

The Mini-International Neuropsychiatric Interview (MINI), version 7.0.2 (Sheehan et al., 1998), was used to assess common mental disorders prevalence. The MINI is a widely used psychiatric structured diagnostic interview instrument, with a "yes" or "no" answer format. The locally translated version in Kinyarwanda (participants' native language) was utilized in previous studies in Rwanda and demonstrated acceptable psychometric indices (Eytan et al., 2015).

2.4.3. History of intimate partner violence exposure assessment

The history of intimate partner violence (IPV) exposure was assessed using a single binary question: "In the last 6 months, did you experience any type of domestic violence/IPV?" with Yes or No Answer.

2.5. Statistical analysis

For the current study, all analyses were conducted on primary data using the Statistical Package for Social Sciences (SPSS) version 25 software. We performed descriptive statistics with cross-tabulation to estimate the prevalence of mental disorders among intimate partner violence (IPV) exposed individuals and non-exposed. The same was done to estimate the prevalence of common mental disorders among males and females exposed to IPV. Moreover, Pearson Chi-square was performed to examine the associations between variables. All statistical tests were reported at a 5% level of significance ($p<0.05$).

3. Results

3.1. Socio-demographic characteristics

As presented in Table 1, a total of 20,381 individuals from 7124 households completed the survey questionnaire and were included in the analysis. Survey participants were predominantly female (59.8%) and most of the survey participants were from rural areas (85.9%). The mean age of participants was 34.1 years (SD = 0.2) and most of them were aged 26–35 (23.7%), followed by 36–45 years (18.2%) and 19–25 years (16.5%), the least were aged 56–65 years (10.0%). More than a half (56.3%) of the participants attained primary education while more than a quarter (25.8%) had no formal education or did not finish primary school. In terms of employment, self-employed was the highest with 47.9%, and the least were salaried employees (3.5%). Almost all

Table 1
Sociodemographic characteristics and lifetime exposure to IPV.

	Frequency N (%)	Lifetime prevalence of IPV exposure (%)	P value
Age category			p< 0.001
14–18	2825(13.9)	16.3%	
19–25	3358 (16.5)	17.4%	
26–35	4830 (23.7)	25.5%	
36–45	3711 (18.2)	32.1%	
46–55	2354 (11.5)	35.0%	
56–65	2032 (10.0)	38.4%	
Gender			p< 0.001
Male	8199 (40.2)	14.7%	
Female	12,182 (59.8)	20.9%	
Residence	$P = 0.009$		
Urban	2669 (14.1)	17.6%	
Rural	16,311 (85.9)	15.6%	
Education			p<0.001
Illiterate, and not completed Primary	5268 (25.8)	19.2%	
Primary school	11,466 (56.3)	18.9%	
Secondary/TVET	3158 (15.5)	15.6%	
University	489 (2.4)	17.0%	
Marital Status			p< 0.001
Never married	6282 (30.8)	13.3%	
Married	8375 (41.1)	19.0%	
Cohabitating	3447 (16.9)	18.4%	
Divorced	776 (3.8)	40.1%	
Widowed	1501 (7.4)	25.5%	
Employment status			p< 0.001
Salaried employee	710 (3.5)	24.5%	
Self-employed	9769 (47.9)	20.8%	
Unemployed	4749 (23.3)	22.7%	
Under age of labor force	5153 (25.3)	9.3%	
Religion			p< 0.001
Christian	19,494 (95.6)	18.0%	
Muslim	436 (2.1)	22.7%	
Other	273 (1.3)	37.0%	
None	178 (0.9)	25.8%	

respondents were Christians (95.6%), followed by Muslims (2.1%) and others (1.3%) while 0.9% of the participants did not belong to any religion.

3.2. Intimate partner violence exposure

Of all participants, 18.4% reported having been exposed to at least one type of intimate partner violence (IPV) in their lifetime. Based on marital status, the lifetime prevalence of IPV exposure was elevated in those who were divorced (40.1%), followed by widowed (25.5%), married (19%), cohabitating (18.4%), and the least exposed to IPV were those never married (13.3%), (Table 1). It was observed that as participant moves from a lower to a higher age category (from 16.3% for 14–16 years to 38.4% for 56–65 years age category), the violence increases (Table 1). Females might have a higher risk of experiencing IPV than males (20.9% versus 14.7%). The prevalence of IPV exposure in those who had attained no education or had not completed primary was (19.2%), primary (18.9%), secondary/TVET (15.6%), and university was 17.0%. Almost the same was found in those who live in urban and rural areas (17.6% versus 15.6%). Moreover, Pearson Chi-square indicated significant associations of age category (p< 0.001), gender (p< 0.001), residence ($p = 0.009$), education (p< 0.001), marital status (p< 0.001), employment status (p< 0.001) and religion (p< 0.001) with IPV experience (Table 1).

3.3. Prevalence of mental health disorders by violence status

The results in Table 2 showed that the prevalence of all types of mental disorders was significantly higher in participants exposed to intimate partner violence (IPV) than in non-exposed ($p \leq 0.001$). Compared to IPV non-exposed group, the group exposed to IPV reported a high rate of any mental disorder, i.e. major depression, PTSD, panic disorder, psychotic disorder, obsessive compulsive disorder, social anxiety disorder, and suicide behavior disorder. Also, the rate of alcohol use disorder, substance use disorder, anti-social personality and bipolar disorder was also elevated in individuals exposed to IPV compared to non-exposed ($p \leq 0.001$), (Table 2).

3.4. Comparison of mental disorders' prevalence between female and male exposed to intimate partner violence

Compared to males, the results indicated that females had high rate of any mental disorder, i.e. major depression, PTSD, panic disorder, psychotic disorder, obsessive compulsive disorder, social anxiety disorders, suicide behavior disorder, substance use disorder and anti-social personality (Table 3). However, the prevalence of alcohol use disorder and bipolar disorder was higher in males than females. These results indicated a significant difference between males and females who were exposed to intimate partner violence in the development of several mental disorders.

Table 2
Prevalence of mental disorders by violence status.

		Experience of any type of Violence		P value
		No [n (%)]	Yes [n (%)]	
1. Major Depressive Episode	No	15,067 (90.6)	2661 (70.8)	p< 0.001
	Yes	1555 (9.4)	1098 (29.2)	
2. Suicidal Behavior Disorder	No	16,563 (99.6)	3696 (98.3)	p< 0.001
	Yes	59 (0.4)	63 (1.7)	
3. Panic Disorder	No	15,623 (94.0)	2974 (79.1)	p< 0.001
	Yes	999 (6.0)	785 (20.9)	
4. Social Phobia	No	16,445 (98.9)	3626 (96.5)	p< 0.001
	Yes	177 (1.1)	133 (3.5)	
5. Obsessive Compulsive Disorder	No	16,218 (97.6)	3478 (92.5)	p< 0.001
	Yes	404 (2.4)	281 (7.5)	
6. Posttraumatic Stress Disorder	No	16,227 (97.6)	3049 (81.1)	p< 0.001
	Yes	395 (2.4)	710 (18.9)	
7. Alcohol Use Disorder	No	16,377 (98.5)	3652 (97.2)	p< 0.001
	Yes	245 (1.5)	107 (2.8)	
8. Substance Use Disorder	No	16,576 (99.7)	3727 (99.1)	p< 0.001
	Yes	46 (0.3)	32 (0.9)	
9. Bipolar Disorder	No	16,598 (99.9)	3740 (99.5)	p< 0.001
	Yes	24 (0.1)	19 (0.5)	
10. Anti-Social Personality	No	16,512 (99.3)	3699 (98.4)	p< 0.001
	Yes	110 (0.7)	60 (1.6)	
11.Psychotic Disorder	No	16,473 (99.1)	3604 (95.9)	p< 0.001
	Yes	149 (0.9)	155 (4.1)	
12. Any Mental Disorder	No	13,872 (83.5)	2065 (54.9)	p< 0.001
	Yes	2750 (16.5)	1694 (45.1)	

Table 3
Comparison of mental disorders between female ($n = 2552$) and Male ($n = 1207$) exposed to IPV only.

		Gender		Total	P value
		Male [n (%)]	Female [n (%)]		
1. Major Depressive Episode	No	941 (35.4)	1720 (64.6)	2661 (100)	p<0.001
	Yes	266 (24.2)	832 (75.8)	1098 (100)	
2. Suicidal Behavior Disorder	No	1194 (32.3)	2502 (67.7)	3696 (100)	$p = 0.04$
	Yes	13 (20.6)	50 (79.4)	63 (100)	
3. Panic Disorder	No	1042 (35)	1932 (65)	2974 (100)	$p = 0.001$
	Yes	165 (21)	620 (79)	785 (100)	
4. Social Phobia	No	1182 (32.6)	2444 (67.4)	3626 (100)	$p = 0.001$
	Yes	25 (18.8)	108 (81.2)	133 (100)	
5. Obsessive Compulsive Disorder	No	1116 (32.1)	2362 (67.9)	3478 (100)	$p = 0.91$
	Yes	91 (32.4)	190 (67.6)	281 (100)	
6. Posttraumatic Stress Disorder	No	1024 (33.6)	2025 (66.4)	3049 (100)	p<0.001
	Yes	183 (25.8)	527 (74.2)	710 (100)	
7. Alcohol Use Disorder	No	1124 (30.8)	2528 (69.2)	3652 (100)	p<0.001
	Yes	83 (77.6)	24 (22.4)	107 (100)	
8. Substance Use Disorder	No	1194 (32)	2533 (68)	3727 (100)	$p = 0.30$
	Yes	13 (40.6)	19 (59.4)	32 (100)	
9. Bipolar Disorder	No	1198 (32)	2542 (68)	3740 (100)	$p = 0.153$
	Yes	9 (47.4)	10 (52.6)	19 (100)	
10. Anti-Social Personality	No	1162 (31.4)	2537 (68.6)	3699 (100)	p<0.001
	Yes	45 (75)	15 (25)	60 (100)	
11.Psychotic Disorder	No	1158 (32.1)	2446 (67.9)	3604 (100)	$p = 0.89$
	Yes	49 (31.6)	106 (68.4)	155 (100)	
12. Any Mental Disorder	No	745 (36.1)	1320 (63.9)	2065 (100)	p<0.001
	Yes	462 (27.3)	1232 (72.7)	1694 (100)	p<0.001

4. Discussion

The primary goal of this study was to estimate and compare the prevalence of mental disorders among Rwandans exposed and non-exposed to intimate partner violence (IPV). As predicted, the results indicate that the prevalence of any mental disorder, major depression, PTSD, panic disorder, and suicide attempt was elevated in those who were exposed to IPV compared to those who had never been. The same was found for the rate of delusion symptoms, substance use and alcohol use and social anxiety disorders. The prevalence of mental disorders reported in this study was significantly higher in those exposed to IPV and lower in non-exposed individuals than those reported in prior studies in Rwanda. Though it explored few mental disorders, a study done in 2012 showed that the prevalence of PTSD, depression and drug abuse were 26.1%, 54.0% and 10.0% respectively, in adults (Munyandamutsa et al., 2012). Also in the general population, authors have found that the prevalence rate of PTSD, depression, suicidality, and generalised anxiety disorder are 14%, 20%, 16% and 37% respectively (Rugema et al., 2015).

In congruence with our findings, different studies have found that exposure to IPV increases the risks of developing mental disorders such as major depression (Ahmadabadi et al., 2020; Devries et al., 2013; Ellsberg et al., 2008; Tsai et al., 2016), PTSD (Ahmadabadi et al., 2020; Sparrow et al., 2017), panic disorder (Sparrow et al., 2017), and suicide attempt (García-Moreno et al., 2013; Sparrow et al., 2017). It also increases the risks of developing substance use and alcohol use (García--Moreno et al., 2013; Sparrow et al., 2017), as well as social anxiety disorders (Ahmadabadi et al., 2020). However, in the existing literature, most of the authors overemphasized the analyses of the association of IPV exposure and the risk of developing mental illness in addition to being conducted in developed countries (Sonego et al., 2018; Sparrow et al., 2017). Furthermore, a pool of literature yielded consistent evidence that interpersonal trauma and PTSD affect 31–84.4% of women exposed to IPV, but a little was still known about other comorbid symptoms such as depression, anxiety, suicidality, substance abuse and sleep disturbances (Devries et al., 2013; Golding, 1999) particularly in Low- and Middle -Income Countries (LMICs), including Rwanda. The current study filled a gap in the literature by examining the prevalence of a variety of mental disorders in both IPV-exposed and non-exposed Rwandans.

The findings of this study also showed that female participants were more likely to developing mental disorders when exposed to IPV than male participants. This may be explained by elevated exposures to trauma by women in sub-Saharan Africa and the post-conflict context of this study (Schaal et al., 2012). In 2019, 20 countries in SSA were classified as hosting fragile and conflict-affected situations, which represents more than half of the fragile and conflict-affected countries globally (The World Bank, 2019). The legacy of violence, loss, and historical trauma inflicted on the people of SSA through colonization may contribute to high rates of mental disorders and women are more affected (Ng et al., 2020). The genocide against Tutsi in Rwanda in 1994, as well as the post-genocide fragile social fabric, may be a risk factor for the elevated prevalence of both IPV and mental disorders. According to Schaal et al. (2012) women do not have an elevated vulnerability to mental disorders in general, but more frequently experience sexual abuse, rape, and other traumatic events that have been found to be associated with high rates of mental disorders. Consistently, different studies carried out in Rwanda post-genocide revealed that individuals reporting numerous traumatic events experienced were found to develop higher levels of mental disorders' symptoms than those who reported fewer trauma experiences (Neugebauer et al., 2009; Schaal & Elbert, 2006; Schaal et al., 2012). As the primary goal of the genocide was the complete extermination of men, the majority of survivors in Rwanda are women and as more men have committed serious offenses during the genocide, there are more men than women imprisoned (Schaal et al., 2012). As such, women form particular risk groups in Rwanda since most of them are victims of genocidal physical and sexual violence whereas others are struggling to care for their families alone while having their husbands incarcerated. Similarly, prior studies with samples of trauma survivors have indicated that women are more

vulnerable to developing mental disorders compared to men (Kinyanda et al., 2016; Umubyeyi et al., 2014; Winter et al., 2020; Schaal et al., 2012).

author (list the authors' initials followed by their surnames, e.g., Y.L. Chang) to the submitted manuscript. A check mark (÷) must appear against the name of each author at least once in each of the three categories below.

Author name	Category 1 Conception and design of study	Acquisition of data (laboratory or clinical)	Category 2 Data analysis and/or interpretation	Category 3 Drafting of manuscript and/or critical revision	Approval of final version of manuscript
Josias Izabayo	x		x	x	x
Naome Nyirahabimana			x	x	
Gilbert Rukundo			x	x	
Japhet Niyonsenga	x		x	x	x
Bahati Claire	x	x	x	x	x
Vincent Sezibera	x	x	x	x	x

4.1. Strengths and limitations

The strengths of this study include its being conducted in a post-conflict country, Rwanda, where mental disorders and intimate partner violence (IPV) are highly prevalent and intertwined. This study is unique considering its design and sample size. Given that this study is population based with a nationally representative sample, the findings presented here should be generalizable across other similar samples. However, this study had some limitations. First, this study was limited to its cross-sectional study design. Secondly, the authors were not able to collect data on IPV exposure and the mental health of children under 14 years old. It is established that parental IPV will affect offspring directly or indirectly. Last but not least, this study did not look into the types of intimate partner violence that the participants had been through and how they had an effect on their mental health.

5. Conclusion

The present study provides further evidence for the heightened prevalence rate of mental disorders among victims of intimate partner violence (IPV) compared to non-victims of IPV. These results highlight that among Rwandans diagnosed with severe mental disorders, there is a high risk of IPV exposure. Therefore, people seeking mental health care should also be screened for IPV and offered the appropriate interventions. Mental health professionals and stakeholders should notice that exposure to IPV and mental disorders commonly co-occur, and to target one of these problems implies managing both. Rwanda like other sub-Saharan African countries requires this research to improve mental health services provision for IPV victims. There is a need to facilitate access to mental health services at different levels of the health system and increase psycho-education at the community level.

6. Authorship

All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated sufficiently in the work to take public responsibility for the content, including participation in the concept, design, analysis, writing, or revision of the manuscript. Furthermore, each author certifies that this material or similar material has not been and will not be submitted to or published in any other publication.

In the table below, indicate the specific contributions made by each

Disclosure statement

All authors declare no conflict of interest.

Declaration of Competing Interest

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Section I

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Section II

The authors whose names are listed immediately below report the following details of affiliation or in-volvement in an organization or entity with a financial or non-financial interest in the subject matter or materials discussed in this manuscript. Please specify the nature of the conflict on a separate sheet of paper if the space below is inadequate.

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