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Original Article

### **Intimate Partner Violence and Women's Mental Health during the COVID-19 Pandemic in Brazil**

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## **Intimate Partner Violence and Women's Mental Health during the COVID-19 Pandemic in Brazil**

*Short title: Intimate partner violence in the pandemic*

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**Availability of data and materials:** The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

**Authors' contributions:** ACB: Conceptualization, Methodology, Investigation, Formal analysis, Writing - original draft preparation, Writing - review and editing; GSO: Conceptualization, Methodology, Investigation, Writing - original draft preparation; JBF: Methodology, Formal analysis, Writing - original draft preparation; JFS: Conceptualization, Methodology, Investigation; BPG: Conceptualization; LFH: Writing - review and editing; GGM: Conceptualization, Writing - review and editing, Supervision.

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## **Intimate Partner Violence and Women's Mental Health during the COVID-19 Pandemic in Brazil**

### **Abstract**

**Background:** Intimate partner violence (IPV) increased extensively around the world during the pandemic, causing severe women's mental health damages. However, there are no studies showing these effects in Brazil. **Purpose:** To assess the perpetration of IPV and the presence of depression and suicidal ideation in women living in Brazil during the pandemic. **Methods:** Cross-sectional online survey including women living in Brazil from July 2020 to Jun 2021. Participants answered a 43-item self-applied questionnaire exploring their characteristics and life changes due to the pandemic (CoRonavIruS Health Impact Survey), IPV (World Health Organization Violence Against Women) and depressive symptoms or suicidal ideation (Patient Health Questionnaire-9). We used multiple Poisson regression analyses with robust variance to model associations between IPV and mental health outcomes, considering as covariates aspects of social vulnerability. **Results:** We found a high frequency of IPV (33.3%), depression (36.1%) and suicidal ideation (19.8%) among the participants. IPV was significantly associated with depression (PR=1.502,  $p=0.001$  for one type of IPV; PR=2.702,  $p<0.001$  for two or three types of IPV) and suicidal ideation (PR=2.264,  $p<0.001$  for one type of VPI; PR=3.272,  $p<0.001$  for two or three types of IPV). Food

insecurity, being black, lower educational levels and being in a relationship with a person of the same gender were associated with one or both mental health outcomes. **Conclusions:** We demonstrated an association of IPV with higher frequencies of depression and suicidal ideation in women living in Brazil during the COVID-19 pandemic, highlighting the urgency of strengthening strategies to protect women during adversities.

**Keywords:** Domestic Violence; Gender-Based Violence; Depression; Suicidal Ideation; Coronavirus.

## Introduction

Intimate partner violence (IPV) is a complex topic that involves issues related to the patriarchal system, responsible for the existence of power asymmetry in interpersonal relationships [1]. IPV is defined as any behavior by a partner or ex-partner that causes physical, psychological, or sexual harm, which can include both physical aggression and sexual coercion, as well as psychological abuse and controlling behaviors [2]. It is considered multifactorial, with different determinants involved such as cultural issues and gender inequalities, leading to severe consequences for women's lives [3]. In addition to the individual harm, IPV also significantly affects the whole society with economic costs and causing threat and deprivation in the offspring [1]. The World Health Organization (WHO) points out that IPV is the most common type of violence against women in the world, affecting 27% of women in their lifetime, being unequivocally a public health problem [4].

Mental health problems, emotional distress, depression, anxiety, posttraumatic stress disorder (PTSD), substance abuse and even suicidal behavior are common problems in women who are victims of violence [5–7]. The effects on women's mental health can be acute or chronic, with long-term outcomes [1].

Notably, some social markers increase vulnerability to IPV, such as race (Black women suffer more IPV), social stratum (women in poverty are most vulnerable), and age (women aged 18 to 29 are the most affected) [8–10]. These markers are also associated with more severe mental health outcomes [11, 12]. Moreover, the negative impact of IPV is enhanced by an absent social support network and difficulty in accessing protection and care networks that guarantee rights and psychosocial care [9, 13].

With the advent of the COVID-19 pandemic, **physical distancing** was the way found to ensure the

population's health, minimizing the high spread of the virus. In this context, an increase in violence was observed precisely due to forced coexistence, economic stress, and fears due to the pandemic [14–16], associated with the lack of network support. A systematic review of the effects of the pandemic on IPV showed that this type of violence against women increased extensively around the world during the outbreak [17]. In Brazil, calls reporting violence against women **increased by 17.9% in March and 37.6% in April 2020, compared to the same period in 2019** [18]. Between March and April 2020, cases of femicide in this country grew by 22.2% in 12 states, compared to the same period in the year before [19]. **This increase is very worrying, considering that the femicide rate in the country increased by 11.3% between 2017 and 2018 and by 7.3% between 2018 and 2019 [20, 21]. Interestingly, the states with the most alarming increases in femicide rates are not necessarily the same states with the highest increases in intentional violent deaths between 2019 and 2020 (e.g., Acre and Maranhão) [18, 20].**

Factors identified as intensifying or precipitating IPV during the COVID-19 pandemic are mainly related to reduced wages, unemployment, lack of resources, female economic dependence, substance use by partners and the impairment of both informal and institutional support networks [22, 23]. Women subjected to domestic violence during the lockdown were found to have more severe symptoms of depression, anxiety, and stress [24].

Despite the evidence pointing to a trend of worsening IPV during the pandemic, as well as the impacts of the IPV on victims' mental health in developed countries, there are few studies showing these effects during the pandemic in middle-income countries. This study aimed to assess the perpetration of IPV and the presence of depression and suicidal ideation in women living in Brazil during the COVID-19 pandemic, searching for associations among IPV and these mental health outcomes.

## Methods

### Study Design and Participants

This study was a cross-sectional online survey conducted among Brazilian women from July 2020 to Jun 2021. The survey was performed through validated instruments included in Google forms and all the technical functionality of the electronic questionnaire was tested by the researchers before the availability of the link. Participants were recruited through social media (including sponsored links), constituting a convenience sample. We included cisgender and transgender women residing in Brazil, over 18 years of age.

Participation was voluntary, and the electronic informed consent was available for each subject who agreed to participate after a detailed and clear description of the main purposes of the study. At the beginning and end of the form, the main Brazilian help contacts for cases of domestic violence or mental suffering were available to participants. Considering the possible participants' vulnerability, the participation was anonymous, the questionnaire was brief and most questions were not mandatory. All the data collected were treated under secrecy and confidentiality, stored in a local electronic device, and erased all records by a virtual or shared environment.

### Instruments

We included 20 questions from the CoRonavIruS Health Impact Survey (CRISIS) (<http://www.crisissurvey.org/> [25]), a self-applied questionnaire, evaluating participant characteristics and life changes due to the pandemic. **This questionnaire has already been used in studies with the Brazilian population [26, 27].**

IPV was investigated in participants who were in a current or recent relationship (during the last month), using the World Health Organization Violence Against Women (WHO-VAW) questionnaire. This is a 13-question instrument exploring physical, sexual or psychological violence perpetrated by women's intimate partners [28], validated for the Brazilian population [29].

We assessed depressive symptoms with the Patient Health Questionnaire-9 (PHQ-9), validated for the Brazilian population, using a cutoff score equal to or higher than 10 to consider the presence of important depressive symptoms [30]. Response to item 9 of this instrument regarding suicidal ideation was a strong predictor of suicide attempt and suicide death [31, 32].

The complete questionnaires in Portuguese (original) and in English are available in the supplementary material.

### Statistical analysis

Sample characteristics were described as means (standard deviations) or percentages. We estimated frequencies of IPV, depression and suicidal ideation separately for the first (July to October 2020) and the second (December 2020 to June 2021) wave of increase in cases of COVID-19 in Brazil, and for the whole period of data collection. We assessed differences between participants evaluated cross-sectionally in each of the waves and IPV victims' characteristics using Chi-square test.

We used multiple Poisson regression analyses with robust variance to model associations between IPV (one type of violence and two or three types of violence) and depression (PHQ  $\geq$  10) or suicidal ideation (answer to PHQ-9 item 9 other than "not at all"). We first calculated univariate Poisson regression, prevalence ratios (PR), and confidence intervals (95% CI) for each variable possibly associated with the outcomes. Afterward, any variable in the univariate model that was significant at  $p < 0.1$  was entered in the multiple Poisson regression analyses. Finally, variables with  $p > 0.05$  were excluded one by one for all steps of the multivariate models. We tested all independent variables for multicollinearity in the multiple linear regression and reported the results as PR and 95% CI.

All analyses were performed using Statistical Software for Social Sciences (SPSS) for Windows, version 21.0 (SPSS Inc., Chicago, IL, USA).

## Results

### Participant characteristics

A total of 660 women were included, all cisgender, average age 37.3 years (SD= 11.3). Most participants were white (79.6%), residents in urban areas (65.3%), and from the south region of Brazil (74.4%). The sample of participants surveyed in the first wave of the pandemic differed significantly from the second wave in terms of race (higher proportion of black women in the second wave) and Brazilian states (increase in populations in the North, Northeast, and Midwest in the second wave) (Table 1).

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Table 1. Demographic characteristics of participants.

<i>Variables</i>	<i>1st wave sample (n=349)</i>	<i>2nd wave sample (n=311)</i>	<i>p</i>	<i>Total sample (n=660)</i>
<b><i>Race (%)</i></b>				
Black	49 (14.1%) <sup>a</sup>	85 (27.4%) <sup>b</sup>	<b>&lt; 0.001</b>	134 (20.4%)
White	298 (85.9%) <sup>a</sup>	225 (72.6%) <sup>b</sup>		523 (79.6%)
<b><i>Age, mean (SD)</i></b>				
	38.82 (11.29)	36.73 (11.35)	0.091	37.3 (11.36)
<b><i>Region (%)</i></b>				
North	0 (0.0%) <sup>a</sup>	8 (2.6%) <sup>b</sup>	<b>&lt; 0.001</b>	8 (1.2%)
Northeast	8 (2.3%) <sup>a</sup>	38 (12.2%) <sup>b</sup>		46 (7.0%)
Midwest	1 (0.3%) <sup>a</sup>	16 (5.1%) <sup>b</sup>		17 (2.6%)
Southeast	39 (11.2%) <sup>a</sup>	58 (18.6%) <sup>b</sup>		97 (14.7%)
South	300 (86.2%) <sup>a</sup>	191 (61.4%) <sup>b</sup>		491 (74.5%)
<b><i>Place of residence (%)</i></b>				
Large city	235 (67.5%)	195 (62.7%)	0.381	430 (65.3%)
City outskirts	27 (7.8%)	31 (10.0%)		58 (8.8%)
Small city/ village/ rural area	348 (24.7%)	311 (27.3%)		171 (25.9%)
<b><i>Education</i></b>				
Elementary School	10 (2.9%)	7 (2.3%)	0.391	17 (2.6%)
High School	92 (26.4%)	87 (28.0%)		179 (27.2%)
Undergraduate	110 (31.6%)	81 (26.0%)		191 (29%)
Postgraduate	136 (39.1%)	136 (43.7%)		272 (41.3%)
<b><i>Marital status</i></b>				



Married	195 (56.2%)	177 (57.8%)		372 (57.0%)
Dating/engaged	55 (15.9%)	60 (19.6%)	0.197	115 (17.6%)
Single/ not applicable	97 (28.0%)	69 (22.5%)		166 (25.4%)
<b>Employment</b>				
Working in person	84 (24.2%)	81 (26.4%)		165 (25.2%)
Teleworking /working from home	137 (39.5%)	104 (33.9%)	0.130	241 (36.9%)
Away from work	24 (6.9%)	13 (4.2%)		37 (5.7%)
Loss of employment/ unemployment	102 (29.4%)	109 (35.5%)		211 (32.3%)
<b>Current relationship</b>				
Same gender	7 (2.6%)	12 (5.0%)	0.167	19 (3.7%)
Other gender	259 (97.4%)	230 (95.0%)		489 (96.3%)

Each subscript letter denotes a subset of categories whose column proportions do not differ significantly from each other at the 0.05 level.

Table 2 describes the characteristics of the IPV victims and the three different types of violence. We included women who suffered at least one type of violence in the last month. In sum, black women, those living on city outskirts and who have lost jobs, represent the majority of women subjected to physical and sexual violence.

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Table 2. Characteristics of women victims of intimate partner violence (IPV) during the pandemic in Brazil.

Variables	<i>Intimate Partner Violence</i>							
	<i>Psychological violence</i>	<i>p</i>	<i>Physical violence</i>	<i>p</i>	<i>Sexual violence</i>	<i>p</i>	<i>Any violence</i>	<i>p</i>
<b>Race</b>								
<i>Black</i>	37.7%	0.200	10.8%	<b>0.037</b>	12.4%	<b>0.002</b>	38.2%	0.240
<i>White</i>	30.9%		4.9%		3.9%		31.9%	
<b>Area of residence</b>								
<i>Small city/ village/ rural area</i>	33.3%	0.175	8.6%	<b>0.001</b>	9.2% <sup>†</sup>	<b>&lt;0.001</b>	34.1%	0.266
<i>City outskirts</i>	45%		18.4% <sup>†</sup>		17.5% <sup>†</sup>		44.7%	
<i>Large city</i>	30.5%		3.6% <sup>†</sup>		2.7% <sup>†</sup>		31.7%	

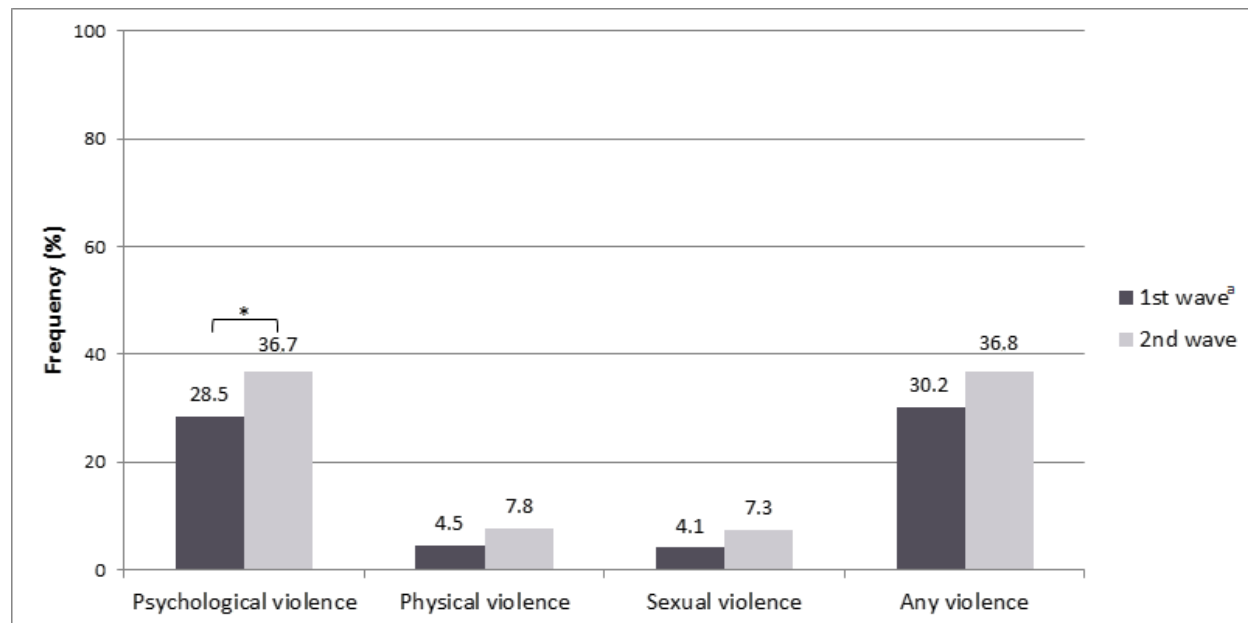
<b>Education</b>								
<i>Elementary School</i>	33.3%		22.2%		2.7%		30%	
<i>High School</i>	32.4%	0.689	8.8%	0.070	6.4% <sup>†</sup>	<b>0.046</b>	37.7%	0.506
<i>Undergraduate</i>	36.2%		5%		9.4%		34.3%	
<i>Postgraduate</i>	30.1%		4.5%		11.1% <sup>†</sup>		33.3%	
<b>Marital status</b>								
<i>Married</i>	36.1%	<b>0.003</b>	7.1%	<b>0.023</b>	5.9%	0.621	36.4%	<b>0.011</b>
<i>Dating/engaged</i>	21.7%		1.6%		4.7%		23.8%	
<b>Current relationship</b>								
<i>Same gender</i>	41.2%	0.435	11.8%	0.236	5.2%	0.604	41.2%	0.600
<i>Other gender</i>	31.9%		5.2%		5.9%		32.7%	
<b>Employment</b>								
<i>Loss of employment</i>	45.3% <sup>†</sup>		20% <sup>†</sup>		15.1% <sup>†</sup>		46% <sup>†</sup>	
<i>Away from work</i>	44.8%		7.1%		10.7%		46.4%	
<i>Teleworking /working from home</i>	31.7%	<b>0.025</b>	4.3%	<b>0.002</b>	4.2%	<b>0.009</b>	32.4%	<b>0.029</b>
<i>Working in person</i>	25.2% <sup>†</sup>		3.7%		3%		26.1% <sup>†</sup>	

† Statistically significant association by analysis of adjusted residuals at a 5% significance level.

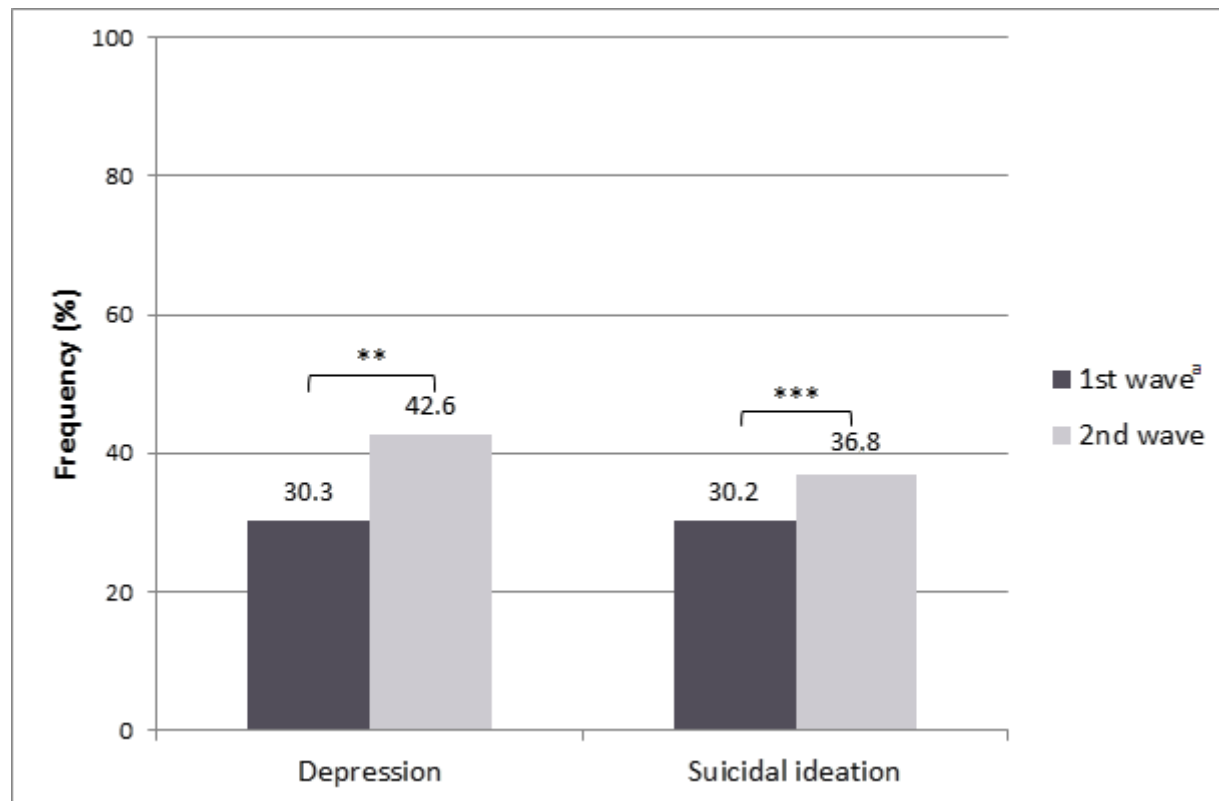
### Frequency of intimate partner violence and mental health outcomes

Five hundred and eighteen women answered the WHO-VAW questionnaire. Overall, 33.3% of those reported having experienced some type of IPV in the last month: 32.4% psychological violence, 6.1% physical violence, and 5.6% sexual violence (8.5% reported experienced physical and/or sexual violence).

To understand how the increase in the number of cases of COVID-19 and the subsequent increase in physical distancing impacted the occurrence of IPV and mental health in Brazilian women, we examined these variables separately among participants in each pandemic wave of cases. The frequency of psychological violence was higher in the second wave (36.7%) than in the first wave (28.5%,  $p = 0.047$ ) (Figure 1).



The frequency of depression and suicidal ideation among the participants (n = 660) was 36.1% and 19.8%, respectively. Both mental health outcomes were significantly higher among participants of the second wave of the pandemic (Figure 2).



### Association between IPV and mental health outcomes

In the multiple Poisson regression analysis, we can highlight that having suffered one type of IPV was associated with a 50.2% higher frequency of depression, and having experienced two or three types of violence is reflected in almost three times the frequency of depression compared to not having suffered IPV. We found four times higher rates of depression in women who attended only elementary school. Besides, our data showed 55.7% higher rates of depression in women in a same-gender relationship, and 60.4 % higher rates in those in a situation of food insecurity. On the other hand, living with children was associated with a 35.5% lower frequency of depression (Table 3).

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Table 3. Univariate and multivariate Poisson regression analysis of factors associated with the presence of depression in women during the COVID-19 pandemic in Brazil.

Independent variables	Univariate analysis		Multivariate analysis	
	Unadjusted PR (CI 95%)	p	Adjusted PR (CI 95%)	p
<i>Number of types of IPV</i>				
Two or three	2.748 (2.104 - 3.589)	< <b>0.001</b>	2.702 (1.988 - 3.673)	< <b>0.001</b>
One	1.623 (1.236 - 2.132)	<b>0.001</b>	1.502 (1.148 - 1.966)	<b>0.003</b>
None	1	.	1	.
<i>Marital status</i>				
Dating/ engaged	1.249 (0.966 - 1.617)	0.090	.	.
Married	1	.	.	.
<i>Race</i>				
Black	1.533 (1.241 - 1.893)	< <b>0.001</b>	.	.
White	1	.	.	.
<i>Current relationship</i>				
Same gender	1.947 (1.349 - 2.810)	< <b>0.001</b>	1.557 (1.053 - 2.303)	<b>0.026</b>
Other gender	1	.	1	.
<i>Area of residence</i>				
Small city/ village/ rural area	1.05 (0.826 - 1.336)	0.688	.	.
City outskirts	1.405 (1.044 - 1.891)	<b>0.025</b>	.	.
Large city	1	.	.	.
<i>Education</i>				
Elementary School	1.940 (1.066 - 3.529)	<b>0.030</b>	4.208 (2.127 - 8.325)	< <b>0.001</b>
High School	2.405 (1.853 - 3.120)	< <b>0.001</b>	2.445 (1.756 - 3.403)	< <b>0.001</b>
Undergraduate	1.657 (1.241 - 2.212)	<b>0.001</b>	1.951 (1.365 - 2.790)	< <b>0.001</b>
Postgraduate	1	.	1	.
<i>Housing insecurity</i>				
Yes	1.636 (1.322 - 2.024)	< <b>0.001</b>	.	.
No	1	.	.	.
<i>Food insecurity</i>				
Yes	1.941 (1.600 - 2.355)	< <b>0.001</b>	1.604 (1.264 - 2.036)	< <b>0.001</b>
No	1	.	1	.
<i>Previous government assistance program</i>				
Yes	1.462 (1.071 - 1.997)	<b>0.017</b>	.	.
No	1	.	.	.
<i>Employment</i>				
Loss of employment	1.802 (1.323 - 2.453)	< <b>0.001</b>	.	.
Away from work	1.459 (0.962 - 2.214)	0.075	.	.
Teleworking/ working from home	0.952 (0.706 - 1.283)	0.745	.	.
Working in person	1	.	.	.
<i>Living with children</i>				

Yes	0.700 (0.553 - 0.885)	<b>0.003</b>	0.645 (0.488 - 0.852)	<b>0.002</b>
No	1	.	1	.

PR: Prevalence ratio; IPV: Intimate Partner Violence.

Having suffered one type of IPV was associated with more than twice the frequency of suicidal ideation, and having suffered two or three types of violence was associated with more than three times the frequency of this outcome. Black women had a 55.5 %, and those in a situation of food insecurity had a 65.4 % higher frequency of suicidal ideation, whereas living with children reduced by 37.4 % the PR for suicidal ideation (Table 4).

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Table 4. Univariate and multivariate Poisson regression analysis of factors associated with the presence of suicidal ideation in women during the COVID-19 pandemic in Brazil.

Independent variables	Univariate analysis		Multivariate analysis	
	Unadjusted PR (CI 95%)	p	Adjusted PR (CI 95%)	p
<i>Number of types of IPV</i>				
Two or three	4.098 (2.686 - 6.25)	< <b>0.001</b>	3.272 (2.040 - 5.246)	< <b>0.001</b>
One	2.369 (1.596 - 3.517)	< <b>0.001</b>	2.264 (1.538 - 3.332)	< <b>0.001</b>
None	1	.	1	.
<i>Marital status</i>				
Dating/ engaged	1.326 (0.904 - 1.946)	0.148	.	.
Married	1	.	.	.
<i>Race</i>				
Black	1.925 (1.409 - 2.631)	< <b>0.001</b>	1.555 (1.082 - 2.234)	<b>0.017</b>
White	1	.	1	.
<i>Current relationship</i>				
Same gender	1.399 (0.645 - 3.035)	0.396	.	.
Other gender	1	.	.	.
<i>Area of residence</i>				
Small city/ village/ rural area	1.287 (0.914 - 1.814)	0.149	.	.
City outskirts	1.460 (0.902 - 2.362)	0.123	.	.
Large city	1	.	.	.
<i>Education</i>				
Elementary School	1.778 (0.716 - 4.414)	0.215	1.662 (0.721 - 3.831)	0.233
High School	2.292 (1.572 - 3.342)	< <b>0.001</b>	1.905 (1.233 - 2.943)	<b>0.004</b>

Undergraduate	1.424 (0.933 - 2.175)	0.102	1.399 (0.87 - 2.249)	0.166
Postgraduate	1	.	1	.
<i>Housing insecurity</i>				
Yes	1.649 (1.199 - 2.268)	<b>0.002</b>	.	.
No	1	.	.	.
<i>Food insecurity</i>				
Yes	2.299 (1.703 - 3.104)	<b>&lt; 0.001</b>	1.654 (1.145 - 2.387)	<b>0.007</b>
No	1	.	1	.
<i>Previous government assistance program</i>				
Yes	1.385 (0.831 - 2.309)	0.211	.	.
No	1	.	.	.
<i>Employment</i>				
Loss of employment	2.022 (1.290 - 3.169)	<b>0.002</b>	.	.
Away from work	0.892 (0.400 - 1.986)	0.779	.	.
Teleworking/ working from home	0.848 (0.547 - 1.315)	0.461	.	.
Working in person	1	.	.	.
<i>Living with children</i>				
Yes	0.674 (0.475 - 0.956)	<b>0.027</b>	0.626 (0.431 - 0.910)	<b>0.014</b>
No	1	.	1	.

PR: Prevalence ratio; IPV: Intimate Partner Violence.

## Discussion

In this study, we evaluated the perpetration of IPV in women living in Brazil during the COVID-19 pandemic, searching for associations among IPV and depression or suicidal ideation. IPV was associated with higher frequencies of both mental health outcomes, proportionally to the number of different types of violence suffered. In agreement with our findings, studies before the pandemic showed a higher prevalence of common mental disorders in women who reported having suffered IPV, according to the severity of violence [1, 33]. Similarly, recent studies assessing the lockdown effects during pandemic on domestic violence against women and mental health reported associations of violence with higher scores of depression, anxiety, stress, and suicidal ideation [34]. **Notably, the female population in Brazilian samples was more strongly associated with depressive symptoms [35, 36] and suicidal ideation [37] during the COVID-19 pandemic, highlighting the importance of identifying factors that might help explain these findings.**

**In our study, we observed a higher frequency of depression and suicidal ideation in the sample**

collected in the second wave of the increase in cases of COVID-19 compared with the sample collected in the first wave of the rise in cases. The frequency of psychological violence also increased when comparing these groups. It should be noted that these two samples differed in terms of black women frequency and also among the distribution across Brazilian regions, which could contribute, at least in part, to the difference reported. Interestingly, findings show a reduction in COVID -19 anxiety over time in Brazil [38]. Although anxiety and depression are internalizing disorders, they have different characteristics and manifestations. Therefore, it is important to understand the impact of stressors on each specific disorder and different symptoms in Brazilian women.

The pandemic exacerbated domestic violence rates worldwide (Bazyar et al., 2021; Vieira et al., 2020). In agreement, our study showed higher rates (33.3%) of recent IPV among participants compared to the 7.60% rates in Brazil in 2019. According to data from the Brazilian state's Public Security Secretariats, an alarming increase in cases of femicide was observed when comparing the first quarter of 2020 with the same period of 2019. Contrary to these data, reports of violence against women did not follow this increase, leading to the assumption that coexistence and isolation could neglect women's offense registration [39]. The necessary isolation to contain the pandemic, associated with an absence of effective public policies against domestic and family violence, made women more vulnerable, complicating their access to services and support networks [14, 40].

Victims of psychological violence often do not tell or report the fact because they do not believe the violence they suffered is severe enough. Further, they can fear threats or aggression against themselves and their families [41]. In our work, psychological violence was the most frequent form of IPV reported, in agreement with previous studies [24, 42–45]. Similarly, between 2014 and 2015, psychological abuse was the most frequent type of IPV reported in Brazil, corresponding to 11.7% of the victims [46, 47]. On the other hand, the physical and sexual violence rates reported here may be underestimated. Many women do not identify experiences such as slaps and shove as physical violence because it is culturally normalized, and they have a previous history of other physical violence. In addition, beliefs and social gender roles,



such as the “marital contract,” contribute to many women not perceiving acts of sexual violence as such [48].

Ten per cent of women worldwide and 3.1% in Brazil have been subjected to physical and/or sexual intimate partner violence in the past 12 months [4, 49]. In our study, 8.5% of participants reported experiencing physical and/or sexual violence in the last month. Among these, most were black women living on the city outskirts who lost their jobs. IPV is associated with social inequities, with a higher frequency among black and low-income women [50]. It is worth noting that in Brazil, the black race works as a marker of social disadvantage, behaving as a proxy for unfavorable socioeconomic situations [50]. Similarly, neighborhoods with low income and education levels and high levels of residential mobility and criminality had a higher risk of IPV [51]. Moreover, economic instability, expressed by unemployment, declining wages, lack of resources, and female economic dependence, precipitated or intensified factors of marital violence during the COVID-19 pandemic [23].

IPV is a complex phenomenon, whose risks are given by the interaction of multiple factors at individual, relational, community, and sociocultural levels [51, 52]. For this reason, we chose to perform multivariate analysis including factors that increase women's social vulnerability to better understand the effects of IPV on victims' mental health. We showed a higher frequency of depression and suicidal ideation among women that experienced IPV and those in a situation of food insecurity. Food insecurity is also associated with IPV and mental health problems like depression, anxiety, panic disorder and suicidal ideation in previous studies [53, 54][54].

Likewise, during the COVID-19 lockdown, there were marked reductions in income, increases in food insecurity and IPV, and deteriorations in mental health of mothers in Bangladesh [55]. There are some evidences that mothers may be particularly susceptible to depression while living in poverty and experiencing familial stress, including IPV [56–58]. Nevertheless, we found an inverse relationship between being living with their children and the presence of depression or suicidal ideation, suggesting a possible protective factor of motherhood in our sample.

Being black was associated with higher frequency of suicidal ideation in our study. Black women with history of severe IPV had an increased risk for mental disorders, including depressive disorders and suicidal ideation [59], while white women had 28% lower odds of experiencing IPV [60]. **Furthermore**, lower educational level was associated with higher frequency of depression in our multiple regression analyses. **Along**, parents with less than a high-school education seems to be a modifiable risk factor for IPV [60]. Lower educational levels have been associated with mental health damage during the pandemic [61], and high educational levels can reduce the risks of pandemic-related depression, anxiety and stress in pregnant women [62].

**Besides**, being in a relationship with a person of the same gender was also associated with a higher frequency of depression in our sample, in agreement with studies that show a higher risk of mental disorders and suicidal behavior for LGBTQIA+ people [63, 64]. These health disparities can be due to the negative social experiences that LGBTQIA+ people have endured due to their sexual orientation, like suffering internalized homophobia and the perception of social stigma [65, 66]. **Also**, the public policies outlined do not contemplate the specificities of lesbian and bisexual women, hampering their access to protection network [67]. In this sense, the *minority stress model* is a valuable model for understanding the internal and external conditions experienced by LGBTQIA+ individuals and the impacts on their mental health [65]. This theoretical model refers to stressors related to one's minority status, such as sexual and racial minority individuals, having a pervasive influence on the mental health of minorities [68, 69]. It proposes risk (such as abuse, violence, homophobia, and discrimination) and protective factors (such as self-acceptance and social support) related to the stress experienced by individuals whose sexual identity is stigmatized [65].

Although violence is a universal phenomenon, it produces its worst effects in the historically excluded and vulnerable population sectors, such as the black, women, and LGBTQIA+ groups. The most severe gender-based violence affects hitting black and poor women [70]. These effects are manifested in areas as justice, quality health services, psychotherapy and other network devices [71]. In this sense, *intersectionality* has been presented as a plausible approach to the study of phenomena such as IPV. This

theoretical model focuses on multiple systems of oppression (sexism, racism, classism, heterosexism, etc), co-producing adversities in the study of health disparities [72]. This approach requires public policies that address these structural causes of domestic violence [71], particularly during adversities as in a pandemic context, in which structural gender, race and income inequalities are exacerbated [73]. **In this sense, our study sought to analyze the relationship between IPV and women's mental health from an intersectional perspective, by relating violence to other vulnerability factors. We were able to demonstrate the importance of social markers such as race, education, sexual orientation, and food insecurity in Brazilian women's vulnerability to gender-based violence.**

Our study had some limitations to acknowledge. First, we used an online convenience sampling strategy, not based on a random selection, due to the pandemic context. So, a selection bias should be considered, limiting the generalizability of our results. Also, the characteristics of our sample in terms of race and education might hinder the generalizability of our findings to all women in Brazil. **Still, there were significant differences between the sample collected in the first and second waves of increase in COVID-19 cases.** Second, the cross-sectional design does not allow making causal inferences. Third, all measures were self-reported by participants, leading to the potential for systematic underreporting or overreporting. However, this format could reduce the likelihood of inaccurate reporting for sensitive issues such as victimization. Finally, we lost many answers about the age of the participants due to problems in the electronic form, leading to many missing variables that did not allow us to use this information in our models.

Nonetheless, to our knowledge, this is the first study that evaluated the associations of IPV against women with depression and suicidal ideation during the pandemic in a middle-income country that faces different socioeconomic constraints, such as higher inequality, violence, and precarious supportive network. Our findings could be useful to generate thoughts about IPV and appropriate prevention and intervention strategies, avoiding more drastic consequences on the mental health of victims, especially in a pandemic context.

## Conclusions

In this study, we demonstrated an association of IPV with higher frequencies of depression and suicidal ideation in women living in Brazil during the COVID-19 pandemic. Our findings confirm the urgency of seeking and strengthening strategies to protect women during times of crisis. The high prevalence of IPV represents a public and mental health challenge in Brazil, and points to two needs: (1) implementation of psychotherapy protocols with proven effectiveness for women with IPV history in mental health services; (2) investment in the prevention of violence in intimate relationships, through gender equity programs. It is essential that adequate public policies are developed and intensified to combat violence against women, as well as to reduce social inequalities and vulnerabilities.

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