

Characteristics of intimate partner violence in Mato Grosso do Sul state, Brazil, 2009-2018

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ABSTRACT

Objective: to analyze intimate partner violence (IPV) in Mato Grosso do Sul state, Brazil, with emphasis on physical violence. **Methods:** this was a cross-sectional study applying multiple correspondence analysis (MCA) to records retrieved from the Notifiable Health Conditions Information System covering the period from 2009 to 2018. **Results:** of the 9,950 notifications registered, 91.8% were notifications of physical violence; higher rates were found in young females (189.2/100,000), who had up to incomplete high school education (139.6/100,000), had a partner (202.7/100,000), were Indigenous (488.8/100,000), and were living on the border with other countries (223.1/100,000); the aggressors were mostly current partners (76.9%) and male (95.5%); MCA revealed that physical violence was predominant at weekends, at night, with use of physical force and when the aggressor was under the influence of alcohol; most IPV did not occur at home, but was committed by current partners and was not a repeated event. **Conclusion:** IPV stood out among young victims, those who had a partner, low education, Indigenous women and occurred notably in the border region.

Keywords: Intimate Partner Violence; Violence Against Women; Health Information Systems; Notification; Cross-Sectional Studies; Multivariate Analysis.

INTRODUCTION

Violence is defined as the intentional use of force or power, threatened or actual, against oneself, another person, group or community, which may result in injury, death, mental harm, developmental changes or deprivation.¹ Its various forms include intimate partner violence (IPV), that is, behavior that occurs in the context of an intimate relationship, resulting in physical, psychological or sexual harm to those involved in the relationship.¹ The relationship between the victim of violence and its perpetrator can be current (by a current spouse, partner or boyfriend) or previous (by an ex-spouse, ex-partner or ex-boyfriend).²

Physical violence within relationships affects one in three women at some time in their lives worldwide,^{3,4} often culminating in the death of the victim. In Brazil, more than 100,000 women were homicide victims between 1980 and 2014, and the Midwest region had the highest mortality coefficients for this cause.⁵ Despite this statistic including deaths resulting from urban violence and other types of violence, women who have been subject to IPV are more susceptible to death from aggression than those without a history of intrafamily violence.⁶

Femicide estimates for the period from 2003 to 2007 indicated that the state of Mato Grosso do Sul had one of the highest female homicide coefficients in Brazil.⁷ Mato Grosso do Sul has an extensive border area with Bolivia and Paraguay, and a large Indigenous population, which gives it singular cultural characteristics, capable of having an impact on its indicators of violence, as these events are strongly associated with the ways of life of each society.⁸ Indigenous women are disproportionately marginalized worldwide, making them more exposed to gender-based violence.⁹ Similarly, women living in border regions are also more vulnerable.¹⁰

The objective of this article was to analyze the characteristics of IPV against females aged 20-59, in the state of Mato Grosso do Sul, Brazil, between 2009 and 2018.

Study contributions	
Main results	Intimate partner violence was predominant among victims who were young, had a partner, with low schooling, Indigenous, as well as its occurrence being predominant in border regions, at weekends, at night, with use of physical force and the aggressor under the influence of alcohol.
Implications for services	Care for victims of intimate partner violence is an everyday part of health services, whereby it is essential to draw the attention of health professionals to the importance of identifying and adequately addressing this complaint.
Perspectives	Given the limitations of secondary source studies, we highlight the need for population surveys to characterize this event in the population, with the aim of guiding the development of health policies to minimize the problem.

METHODS

This was a cross-sectional study of IPV against females aged 20 to 59 years, based on the analysis of all cases reported on the Notifiable Health Conditions Information System (*Sistema de Informação de Agravos de Notificação – SINAN*), in Mato Grosso do Sul between 2009 and 2018.

Mato Grosso do Sul has approximately 2.5 million inhabitants and has the second largest Indigenous population in Brazil, comprising more than 72,000 individuals from eight ethnic groups, distributed among 75 villages located in 29 municipalities.¹¹ Furthermore, 73% of the

state's territorial area is located on the border strip, accounting for 45 of its 79 municipalities. In this study, especially, we considered border municipalities to be only those with city limits bordering with other countries. These account for 11 municipalities, of which five are "twin cities", i.e., with greater potential for economic and cultural integration between them.¹²

Participants

The study population comprised all notifications of IPV against females aged 20 to 59 years in the state, recorded on the SINAN system.

Each notification was taken to be a unit of analysis because, due to the characteristics of the database, it was not possible to identify the victims of violence. Thus, there may be just one record or more than one record for the same person in the period assessed.

Cases of IPV were taken to be all notifications with an affirmative answer to at least one of the fields referring to the type of relationship between the aggressor and the victim (spouse; ex-spouse; boyfriend/girlfriend; ex-boyfriend/girlfriend), regardless of the sex of the aggressor (male; female; both sexes; unknown).

Notifications were excluded from the analysis when the place of residence of the victim or the place of occurrence was not within the state of Mato Grosso do Sul, or when it was not possible to identify the place of residence or the place of occurrence.

When calculating the IPV notification rate, the numerator was taken to be the total number of notifications of IPV against females aged 20-59 recorded in the state of Mato Grosso do Sul between 2009 and 2018, while the denominator was the female population living in the state in the same age group (population at risk), as per data from the 2010 Demographic Census, respecting the distribution of each of the categories of the variables analyzed: age group; race/skin color; marital status; schooling; and municipality of residence. The quotient obtained was divided by

the total number of years covered by the study (ten years), in order to obtain the average annual notification rate. The results were presented per 100,000 (multiplication factor).

Data sources

The notification data were extracted directly from the SINAN database, made available by the Brazilian National Health System Department of Information Technology (*Departamento de Informática do Sistema Único de Saúde – DATASUS*), in June 2020. Population data were retrieved from the database of the Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística – IBGE*). All the data used in the study are public domain free access data.

Study variables

The outcome of interest in this study were IPV events in which aggression was recorded. To delimit this variable, we considered all IPV notifications with affirmative responses for physical violence, in the field related to the type of violence, whether they were isolated or concomitant with other types of violence (psychological/emotional; neglect/abandonment; sexual; human trafficking; child labor; torture; property; other). The comparison group consisted of all IPV notifications for which there was no record of physical violence, but which had an affirmative response for one or more other types of violence.

The independent variables were those related to the characteristics of the victims, the aggressors and the violent events:

- a) Variables related to the characteristics of the victim
 - age group (in years: 20-29; 30-39; 40-49; 50-59);
 - race/skin color (White; Black; Asian; mixed race; Indigenous);
 - marital status (single; married/living together; widowed; separated);

- schooling (no schooling or incomplete elementary education; complete elementary education or incomplete high school education; complete high school education or incomplete higher education; complete higher education); and
 - region in which the municipality of residence was located (border with other country; interior region of the state).
- b) Variables related to the characteristics of the aggressor
- sex (male; female; both sexes);
 - number of aggressors (one; two or more); and
 - type of relationship with the victim (spouse; ex-spouse; boyfriend; ex-boyfriend).
- c) Variables related to the characteristics of the events
- region in which the municipality where the event occurred was located (border with other country; interior region of the state);
 - place of occurrence (residence; shared housing; public thoroughfare; work environment; school; child daycare center; health establishment; socio-educational institution; long-stay institution; prison institution; vacant lot; bar or similar; other; unknown);
 - day of the week when event occurred (Sunday; Monday; Tuesday; Wednesday; Thursday; Friday; Saturday);
 - time of day when event occurred (morning, 6:00 a.m. to 11:59 a.m.; afternoon, 12:00 p.m. to 17:59 p.m.; evening, 18:00 p.m. to 23:59 p.m.; night/early morning, 00:00 a.m. to 05:59h a.m.);
 - type of violence (physical; psychological/emotional; sexual; other);
 - means used (physical force/beating; threat; sharp object; hanging; blunt object; firearm; hot substance/object; poisoning; other);
 - repeated event (yes; no); and

- aggressor under the effect of alcohol (yes; no).

Unknown data were taken to be variables filled in as unknown, or variables with no option filled in (missing).

Statistical methods

Initially, we calculated the notification rates according to the characteristics of the victims. In order to compare the coefficients obtained, we calculated the prevalence ratios (PR) and respective confidence intervals (95%CI) using Poisson regression with robust variance adjustment.

We then performed bivariate analysis of the characteristics of the victim, the aggressor and the circumstances of the event in relation to the type of violence (physical violence; other violence). The differences in the proportions of violent events in relation to the explanatory variables were analyzed using Pearson's chi-square test. Fisher's exact test was used in cases where the number of observations was less than five. The chi-square test for linear trend was used to analyze the "age group" variable, since it is an ordinal categorical variable. A 5% significance level was adopted for all tests.

Variables with a p-value < 0.05 underwent multiple correspondence analysis (MCA). MCA is a statistical method that seeks to analyze the existence of distribution patterns of categorical variables¹³ based on analysis of dependence between rows and columns of contingency tables, seeking to synthesize the variability structure of the data (also called inertia) in a limited number of dimensions (axes). The greater the inertia, the greater the association between row and column.¹⁴

This technique makes no assumptions about data distribution. It is non-parametric, which makes it possible to observe various patterns of association, including non-linear patterns. However, the method does not allow inferences for other samples, given its descriptive aspect and the absence of assumptions.

The graph formed by the coordinates of each category, in each dimension or axis, is used to interpret the data. Based on the graph, the existence of clusters and the proximity of categories of variables are assessed to identify patterns of relationships between these characteristics:¹⁵ The closer two variables are in the graph, the more frequently they occur together. The graph generates four quadrants, represented by two axes or dimensions. These factors, together, distinguish the characteristics that are allocated to the different quadrants, characterizing groups with opposite profiles. In order to interpret the results, we analyzed the geometric distance between the covariate categories and the presence or absence of physical violence.

The statistical analyses were performed using R software, version 3.6.3.

Ethical aspects

The data that formed the basis of this study come exclusively from a public domain free access database with no identification of the people in question. For this reason, the research project was exempted from analysis by a Research Ethics Committee, but followed the National Health Council Resolution No. 466, dated December 12, 2012.

RESULTS

Between 2009 and 2018, 64,110 notifications of violence were recorded in Mato Grosso do Sul; 41,986 (65.5%) victims were female. We excluded events that did not occur in Mato Grosso do Sul ($n = 93$), events the victims of which did not live in Mato Grosso do Sul ($n = 13$), as well as records that did not allow identification of the state in which the event occurred ($n = 590$). With regard to the records that remained ($n = 22,022$), 53.3% of the victims were between 20 and 59 years old, and of these, 9,950 (45.2%) were cases of IPV.

Among the 9,950 notifications analyzed, the percentages of unknown data for the variables studied were: 35.9% for the level of schooling of the

victims; 9.7% for the race/skin color of the victims; 8.2% for the marital status of the victims; 1.0% for the sex of the aggressor; 0.1% for the number of aggressors; 23.0% for the time of day at which the event occurred; 16.6% for aggressor under the influence of alcohol; 14.9% for repeated event; and 3.9% for the place the event occurred. Distribution of the percentage of unknown information was similar between victims of physical violence and victims of other types of violence.

Analysis of the notification rate in relation to victims' characteristics is shown in Table 1. The notification rate decreased as the women's age increased. IPV was most evident among Indigenous women (488.8/100,000 women/year), this being 5.41 (95%CI 4.98;5.88) times higher than the IPV notification rate among women of White race/skin color.

IPV notification rates were higher for women who had partners (married or living together) and who were separated, i.e. 3.00 (95%CI 2.86;3.15) and 2.59 (95%CI 2.40;2.79) times the rates found for single women (reference), respectively. The highest IPV notification rates were found for women with complete elementary education or incomplete high school education, followed by women with no schooling or incomplete elementary education. IPV notification rates for women living in border municipalities were 1.65 (95%CI 1.56;1.73) time higher than the IPV notification rate for those living in other municipalities in the state.

Among the 9,950 IPV notifications, 9,131 (91.8%) recorded physical violence. The proportional distribution of IPV events according to the characteristics of victims and aggressors regarding physical aggression is shown in Table 2.

The 20-39 age group accounted for the majority of notifications of IPV ($n = 7,506$; 75.4%) and physical violence ($n = 6,978$; 76.4%). The highest proportions of both IPV ($n = 3,220$; 32.4%) and physical violence ($n = 2,967$; 32.5%) occurred among women with lower schooling and who had a partner (IPV, $n = 5,909$; 59.4%; physical violence, $n = 5,481$; 60.0%). The IPV notification rate was higher in the border municipalities.

Table 1 – Notifications of intimate partner violence against females aged 20-59, according to victim characteristics, Mato Grosso do Sul, Brazil, 2009-2018

Variables	Notifications	Population	Mean annual notification rate (per 100,000 ^a)	PR ^b (95%CI ^c)
Age group (in years)				
20-29	4,122	217,847	189.2	1.00
30-39	3,384	193,512	174.9	0.92 (0.88;0.97)
40-49	1,763	164,890	106.9	0.57 (0.53;0.60)
50-59	681	117,203	58.1	0.31 (0.28;0.33)
Race/skin color				
White	3,016	333,946	90.3	1.00
Black	694	34,759	199.7	2.21 (2.03;2.40)
Asian	138	9,206	149.9	1.66 (1.39;1.96)
Mixed race	4,447	301,433	147.5	1.63 (1.56;1.71)
Indigenous	689	14,096	488.8	5.41 (4.98;5.88)
Marital status				
Single	2,152	318,767	67.5	1.00
Married/living together	5,909	291,526	202.7	3.00 (2.86;3.15)
Widowed	51	24,453	20.9	0.31 (0.23;0.40)
Separated	1,026	58,706	174.8	2.59 (2.40;2.79)
Schooling				
No schooling or incomplete elementary education	3,220	271,420	118.6	1.00
Complete elementary education or incomplete high school education	1,577	112,966	139.6	1.18 (1.11;1.25)
Complete high school education or incomplete higher education	1,368	207,469	65.9	0.56 (0.52;0.59)
Complete higher education	218	100,189	21.8	0.18 (0.16;0.21)
Municipality of residence				
Interior region of the state	8,238	616,698	133.6	1.00
Border with other country	1,712	76,754	223.1	1.65 (1.56;1.73)
Total	9,950	693,452	143.5	

a) In order to calculate the notification rate, we took the female population aged 20-59, taking the 201 Demographic Census as our reference; b) PR: Prevalence ratio; c) 95%CI: 95% confidence interval.

Table 2 – Characteristics of intimate partner violence victims and aggressors, by type of violence, Mato Grosso do Sul, Brazil, 2009-2018

Variables	Physical violence (n = 9,131)		Other forms of violence (n = 819)		Total (n = 9,950)		p-value
	n	%	n	%	n	%	
Age group (in years)							
20-29	3,869	42.4	253	30.9	4,122	41.4	< 0.001 ^a
30-39	3,109	34.1	275	33.5	3,384	34.0	
40-49	1,574	17.2	189	23.1	1,763	17.8	
50-59	579	6.3	102	12.5	681	6.8	
Race/skin color							
White	2,784	30.5	232	28.3	3,016	30.3	< 0.001 ^b
Black	624	6.8	70	8.5	694	7.0	
Asian	133	1.5	5	0.6	138	1.4	
Mixed race	4,037	44.2	410	50.1	4,447	44.7	
Indigenous	681	7.5	8	1.0	689	6.9	
Unknown	872	9.5	94	11.5	966	9.7	
Marital status							
Single	1,915	21.0	237	28.9	2,152	21.6	< 0.001 ^b
Married/living together	5,481	60.0	428	52.3	5,909	59.4	
Widowed	47	0.5	4	0.5	51	0.5	
Separated	925	10.1	101	12.3	1,026	10.3	
Unknown	763	8.4	49	6.0	812	8.2	
Schooling							
No schooling or incomplete elementary education	2,967	32.5	253	30.9	3,220	32.4	< 0.001 ^b
Complete elementary education or incomplete high school education	1,469	16.1	108	13.2	1,577	15.8	
Complete high school education or incomplete higher education	1,212	13.3	156	19.0	1,368	13.7	
Complete higher education	178	1.9	40	4.9	218	2.2	
Unknown	3,305	36.2	262	32.0	3,567	35.9	
Municipality of residence							
Border with other country	1,313	14.4	399	48.7	1,712	17.2	< 0.001 ^b
Interior region of the state	7,818	85.6	420	51.3	8,238	82.8	

To be continue

Continuation

Table 2 – Characteristics of intimate partner violence victims and aggressors, by type of violence, Mato Grosso do Sul, Brazil, 2009-2018

Variables	Physical violence (n = 9,131)		Other forms of violence (n = 819)		Total (n = 9,950)		p-value
	n	%	n	%	n	%	
Sex of the aggressor							
Male	8,719	95.5	692	84.5	9,411	94.6	< 0.001 ^b
Female	187	2.0	45	5.5	232	2.3	
Both sexes	136	1.5	70	8.5	206	2.1	
Unknown	89	1.0	12	1.5	101	1.0	
Number of aggressors							
One	7,799	85.4	687	83.9	8,486	85.3	0.220 ^b
Two or more	1,232	13.5	123	15.0	1,355	13.6	
Unknown	100	1.1	9	1.1	109	1.1	
Type of relationship with the victim^c							
Spouse	6,453	70.7	502	61.3	6,955	69.9	< 0.001 ^b
Ex-spouse	1,825	20.0	268	32.7	2,093	21.0	
Boyfriend	568	6.2	15	1.8	583	5.9	0.034 ^b
Ex-boyfriend	313	3.4	39	4.8	352	3.5	

a) Chi-square linear trend test; b) Pearson's chi-square test; c) Multiple answers were possible for this variable, resulting in percentages above 100%.

In turn, the proportion of physical violence was higher in municipalities in the interior region of the state (n = 7,818; 85.6%). Analysis of the notifications showed that the aggressors were mostly male (n = 9,411; 94.6%), spouses (n = 6,955; 69.9%) or ex-spouses (n = 2,093; 21.0%) of the victim, and that they acted alone (n = 8,486; 85.3%).

Table 3 shows the proportional distribution of notified IPV events, according to their characteristics and according to the presence or absence of physical violence. Physical violence was the predominant type of violence found in the notifications, even though it occurred simultaneously with other forms of violence in 42.8% of cases. There was predominance of physical violence in the municipalities in the interior region of the state when compared to municipalities located in border regions. Most of all the recorded events occurred at the victims'

homes; however, physical violence was higher in events that occurred on public thoroughfares, in bars or similar environments. The events occurred mainly at the weekend (Saturdays and Sundays) and at night, both for IPV events and for events in which physical violence occurred. The means most often used was physical force. Repeated events and the use of alcohol by the aggressor stood out.

Figure 1 shows the MCA according to the characteristics of those involved in IPV events and the type of violence. The MCA explained 67.4% of the data variability. In relation to the type of violence, we found that the point related to physical violence was close to the points related to victims belonging to younger age groups (20 to 49 years), of non-Indigenous race/skin color, with lower schooling (ranging from illiterate to those with incomplete elementary education),

Table 3 – Characteristics of intimate partner violence events, by type of violence, Mato Grosso do Sul, Brazil, 2009-2018

Variables	Physical violence (n = 9,131)		Other forms of violence (n = 819)		Total (n = 9,950)		p-value ^a
	n	%	n	%	n	%	
Municipality where violence occurred							
Interior region of the state	7,818	85.6	420	51.3	8,238	82.8	< 0.001 ^a
Border with other country	1,313	14.4	399	48.7	1,712	17.2	
Place where violence occurred							
Home	7,367	80.7	681	83.2	8,048	80.9	< 0.001 ^a
Public thoroughfare	792	8.7	49	6.0	841	8.5	
Bar or similar place	207	2.3	5	0.6	212	2.1	
Other	404	4.4	61	7.4	465	4.7	
Unknown	361	3.9	23	2.8	384	3.8	
Day of the week							
Monday	1,249	13.7	121	14.8	1,370	13.8	< 0.001 ^a
Tuesday	996	10.9	151	18.4	1,147	11.5	
Wednesday	979	10.7	121	14.8	1,100	11.1	
Thursday	1,015	11.1	158	19.3	1,173	11.8	
Friday	1,049	11.5	119	14.5	1,168	11.7	
Saturday	1,689	18.5	72	8.8	1,761	17.7	
Sunday	2,154	23.6	77	9.4	2,231	22.4	
Time of day							
Morning – 6:00 a.m. to 11:59 a.m.	1,002	11.0	168	20.5	1,170	11.8	< 0.001 ^a
Afternoon – 12:00 p.m. to 17:59 p.m.	1,585	17.4	139	17.0	1,724	17.3	
Evening – 18:00 p.m. to 23:59 p.m.	3,346	36.6	211	25.8	3,557	35.8	
Night/early morning – 00:00 a.m. to 05:59 a.m.	1,152	12.6	56	6.8	1,208	12.1	
Unknown	2,046	22.4	245	29.9	2,291	23.0	
Type of violence^b							
Physical	9,131	100.0	–	–	9,131	91.8	< 0.001 ^c
Psychological/emotional	3,196	35.0	625	76.3	3,821	38.4	
Sexual	117	1.3	59	7.2	176	1.8	
Other	596	6.5	207	25.3	803	8.1	

To be continue

Continuation

Table 3 – Characteristics of intimate partner violence events, by type of violence, Mato Grosso do Sul, Brazil, 2009-2018

Variables	Physical violence (n = 9,131)		Other forms of violence (n = 819)		Total (n = 9,950)		p-value ^a
	n	%	n	%	n	%	
Means used^c							
Physical force/beating	7,810	85.5	52	6.4	7,862	79.0	
Threats	1,543	16.9	388	47.4	1,931	19.4	
Sharp object	1,107	12.1	13	1.6	1,120	11.7	< 0.001 ^c
Hanging	818	9.0	8	1.0	826	8.3	
Blunt object	672	7.4	2	0.2	674	6.8	
Firearm	95	1.0	11	1.3	106	1.1	0.420 ^c
Hot substance/object	56	0.6	5	0.6	61	0.6	0.990 ^c
Poisoning	25	0.3	18	2.2	43	0.4	< 0.001 ^c
Other	335	3.7	117	14.3	452	4.5	
Repeated event							
Yes	5,124	56.1	567	69.2	5,691	57.2	
No	2,654	29.1	118	14.4	2,772	27.9	< 0.001 ^a
Unknown	1,353	14.8	134	16.4	1,487	14.9	
Aggressor under the effect of alcohol							
Yes	5,424	59.4	289	35.3	5,713	57.4	
No	2,219	24.3	370	45.2	2,589	26.0	< 0.001 ^a
Unknown	1,488	16.3	160	19.5	1,648	16.6	

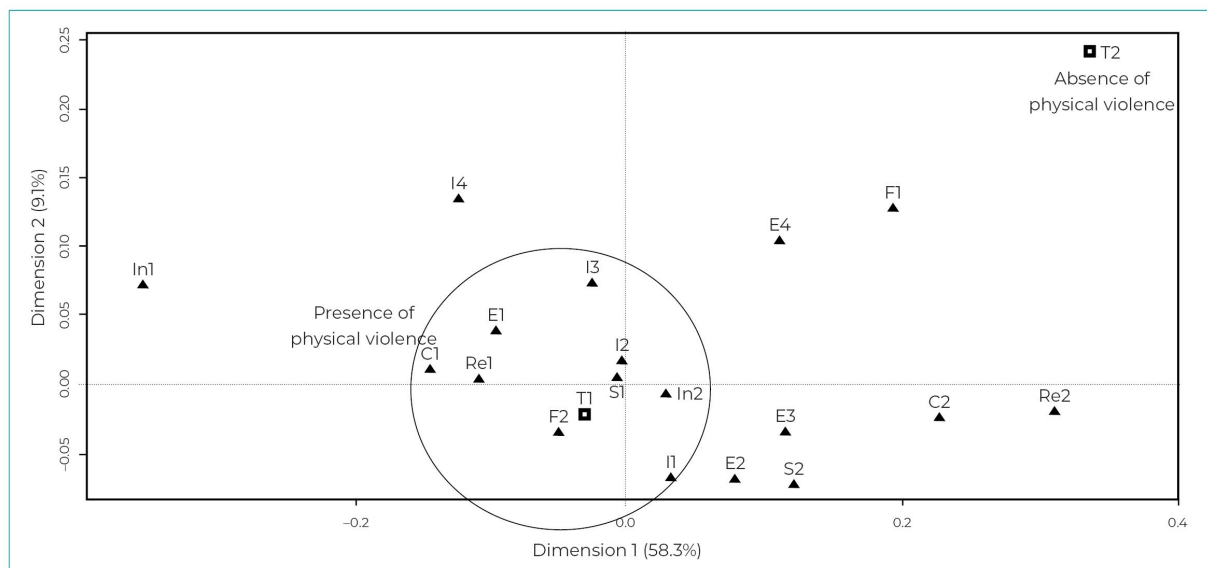
a) Pearson's chi-square test; b) Multiple answers were possible for this variable, resulting in percentages above 100%; c) Fisher's exact test.

victims who had a partner, and those living in the interior region of the state. With regard to the aggressor, association was found between the point related to physical violence and the points related to the current (male) partner.

No distribution pattern was found for the variables in relation to the other types of violence. This distribution pattern on the two-dimensional plane confirms the pattern found in the bivariate analysis, with the exception of the race/skin color variable, which, in the bivariate distribution, highlighted the Indigenous population with regard to physical violence. On the two-dimensional plane, the MCA did not show a well-defined

profile based on the variables analyzed, since the point related to this variable was not close to any of the categories analyzed in relation to type of violence (physical; other form of violence). As such the MCA did not enable a pattern of association between Indigenous race/skin color and type of violence to be established.

The results of the MCA according to the characteristics of the circumstances of the IPV events are shown in Figure 2. On the two-dimensional plane, we found that physical violence occurred at the weekend, at night, away from the victim's home, in events occurring for the first time, with use of physical force, perpetrated



Legend:

<p>Age group:</p> <ul style="list-style-type: none"> I1 – 20 to 29 years I2 – 30 to 39 years I3 – 40 to 49 years I4 – 50 to 59 years <p>Schooling:</p> <ul style="list-style-type: none"> E1 – No schooling to incomplete elementary E2 – Complete elementary to incomplete high school E3 – Complete high school to incomplete higher education E4 – Complete higher education <p>Race/color:</p> <ul style="list-style-type: none"> In1 – Indigenous In2 – Non-indigenous 	<p>Municipality of residence:</p> <ul style="list-style-type: none"> F1 – Border with other country F2 – Interior region of the state <p>Marital status:</p> <ul style="list-style-type: none"> C1 – Has partner C2 – No partner <p>Aggressor/victim relationship:</p> <ul style="list-style-type: none"> Re1 – Current partner Re2 – Former partner <p>Aggressor's sex:</p> <ul style="list-style-type: none"> S1 – Male S2 – Female/both <p>Type of violence:</p> <ul style="list-style-type: none"> T1 – Physical violence T2 – Other forms of violence
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Note: Proximity between two categories of variables can be interpreted as proximity between groups of individuals, so that the closer the points are to each other, the greater the similarity of the patterns of occurrence between the individuals; conversely, the more distant they are, the greater the dissimilarity between them.

Figure 1 – Perceptual map of victim and aggressor characteristics for the first two dimensions in relation to the “type of violence” outcome, Mato Grosso do Sul, Brazil, 2009-2018

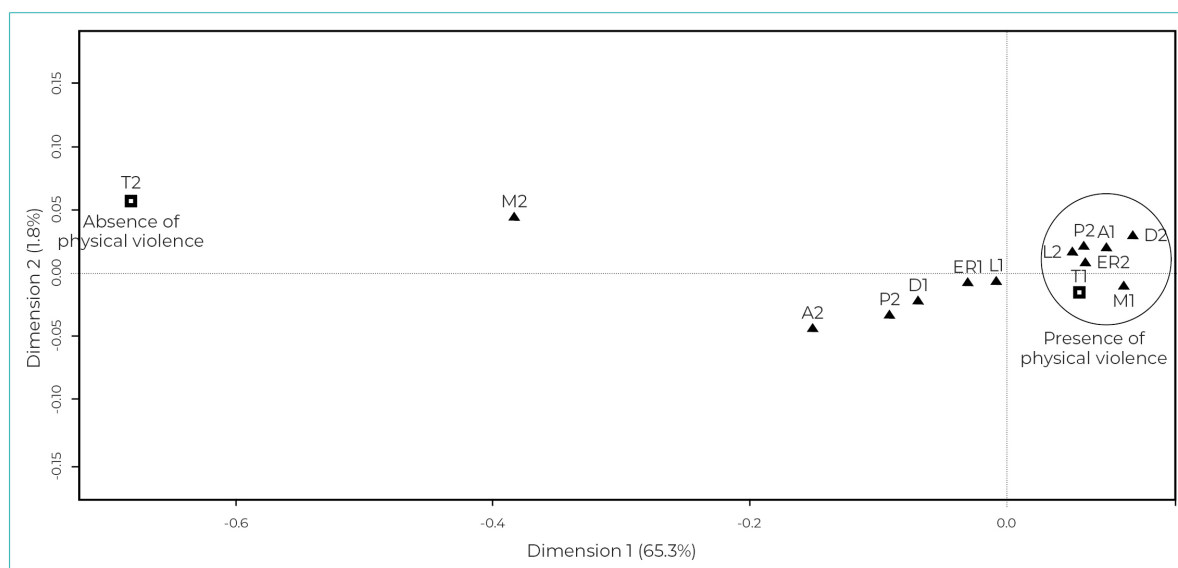
by intimate partners under the influence of alcohol. Based on the variables we analyzed, it was not possible to find a typical pattern that could characterize the other forms of violence. Only the point related to the use of physical force as a means of aggression came close. The MCA regarding IPV circumstances and characteristics showed similarity with the bivariate analysis of the same variables, resulting in an inertia value of 67.3%.

DISCUSSION

The analysis showed that IPV was associated with women’s age, being between 20 and 29

years old, having lower levels of schooling, having a partner, being of Indigenous race/skin color and living in a border municipality. The aggressors were mostly current partners of the victims and male. The events occurred primarily at the home of the victims, at the weekend, at night, with the use of physical force and under the influence of alcohol, and mainly in the interior region of the state. These characteristics revealed regional peculiarities of IPV, especially regarding specific groups, such as Indigenous women.

Of the total notifications of violence against adult women, 45.2% corresponded to IPV. This percentage was lower than that recorded in Brazil¹⁶

**Legend:**

Day of occurrence: D1 – Weekday
D2 – Weekend

Time of day: P1 – Daytime (6:00 a.m to 17:59 p.m)
P2 – Night-time (18:00 a.m to 5:59 p.m)

Place of occurrence: L1 – Home
L2 – Not at home

Means of aggression: M1 – Physical force
M2 – Other means

Reoccurrence: ER1 – Repeated event
ER2 – First occurrence of event

Influence of alcohol: A1 – Aggressor under the influence of alcohol
A2 – Aggressor not under the influence of alcohol

Type of violence: T1 – Physical violence
T2 – Other forms of violence

Note: Proximity between two categories of variables can be interpreted as proximity between groups of individuals, so that the closer the points are to each other, the greater the similarity of the patterns of occurrence between the individuals; conversely, the more distant they are, the greater the dissimilarity between them.

Figure 2 – Perceptual map of event characteristics for the first two dimensions in relation to the “type of violence” outcome, Mato Grosso do Sul, Brazil, 2009-2018

as a whole between 2011 and 2017 (62.4%), and in the state of Rio Grande do Sul¹⁷ between 2010 and 2014 (52.2%). This finding is believed to be the result of the frequent invisibility of violence committed in the domestic environment by men against women,¹⁸ rooted in the machista culture, which is more evident in Mato Grosso do Sul, a state where it is still dominant, compared to the rest of the country,¹⁹ which leads many women not to report their partner as being responsible for the violence they suffer.

Our analysis of the notifications revealed a profile of IPV victims coinciding with that described in the literature, with emphasis on

young women,²⁰⁻²³ with a partner²¹ and reporting low levels of schooling.^{21,22}

Contrary to what has been reported in previous studies, which showed a higher frequency of violence against Black^{20,22} and White²⁴ women, our analysis showed a higher frequency of notifications of violence and a higher proportion of physical violence against women of Indigenous race/skin color. Indigenous women account for some 2.0% of the female population of Mato Grosso do Sul, in the 20-59 age group, according to the 2010 Census; however, these women accounted for 6.9% of IPV notifications and 7.5% of physical violence notifications. A previous study also

indicated that Indigenous women are among the most victimized by gender-based violence.²⁵ These findings, therefore, highlight a characteristic peculiar to Mato Grosso do Sul, where there is a notable presence of Indigenous people.

Violence among Indigenous people is strongly associated with the process of loss of their lands and their consequent confinement to reservations, forcing them to change their ways of life and making it necessary for men and women to seek their sustenance outside their villages.²⁵ In Mato Grosso do Sul, gender relations between the Indigenous have been influenced by contact with non-Indigenous people, the reduction of rituals and shamanistic practices, the introduction of alcoholic beverages and drugs, resulting in their changing and often becoming conflictive and violent.²⁵ In addition, as in other parts of the world, Indigenous peoples are subjected to various deprivations, even more so among women, resulting in marginalization, discrimination and lack of access to resources, which makes them more vulnerable to gender-based violence when compared to women of other races/skin colors.⁹

The IPV notification rate was higher in municipalities bordering Paraguay and Bolivia, reiterating the problem of violence against women in border areas indicated by a previous study.¹⁰ The proportion of physical violence, however, was higher in the interior region of the state than in the border municipalities. This finding may be associated with underestimation of IPV events in border municipalities, usually resulting from situations in which there are no reports or evidence of physical violence.

The characteristics of the aggressors were also similar to those reported in the literature, whereby males^{17,20} and the victims' current partners^{16,23} were predominant. On the other hand, a study carried out with data from the Pará State Court of Justice indicated the victim's ex-partner as having committed violence in 56.7% of cases.²⁶ It is assumed, however, that this difference is

related to protective measures being ordered in the cases that reach the judicial system.

The characteristics of the events reported were similar to those found in the literature, occurring predominantly at the victims' homes,^{16,20,22,26} at weekends and at night,²⁶ both in relation to all types of intimate partner violence and also in relation to physical violence.

Population-based surveys have shown that the most common type of IPV is psychological violence, followed by physical and sexual violence.²¹⁶ Studies that investigate notifications, however, are based on care provided in health services, usually in response to physical and/or sexual violence, in which cases of physical violence prevail.^{16,17}

The aggressions against women occurred concomitantly with psychological violence, sexual violence and other types of violence, demonstrating the frequent overlapping of the various types of violence, as already described in the literature.² Similar to other studies, the most commonly used means was physical force,^{20,24,26} and repeated events were identified in the majority of the records.²⁶ In our study, physical violence was more evident in events that occurred for the first time, and may be related to the worsening of previous situations, leading to the victim reporting it.

Alcohol is one of the main triggers of intimate partner violence.^{23,27} Alcohol consumption by the aggressor was reported by most of the IPV victims and accounted for a higher proportion among the events in which there was physical violence, compared to cases in which the victim stated that the aggressor had not drunk alcohol. There is consensus in the literature that alcohol intake by men, present in most cases of IPV, is associated with aggressive situations, in greater or lesser proportions, acting as a trigger for violent events or worsening them.²⁷

Despite the fact that most of the characteristics analyzed by us, regarding the victim, the aggressor and the event, have already been well described in the literature, our study contributes to highlighting, through bivariate analysis, violence against

Indigenous women in Mato Grosso do Sul, bolstering the indicators that Indigenous women are more subject to violence than the rest of the population.⁹

Analyzing notifications of cases of IPV, based on data from the SINAN, proved to be a useful tool for studying the epidemiological characteristics of these events in the population, even in the face of the data input errors found in this study.

The increasing number of events recorded may represent not only an increase in the number of occurrences in the population, but also greater awareness on the part of health professionals as to the need to record them, giving them greater visibility and requiring greater emphasis on addressing them.

It is known that notifications represent only a portion of the total of violent events occurring in the population, since they arise from use of health services²⁸ and their being recorded depends on the sensitivity of health professionals.² Furthermore, added to the difficulties women have in externalizing the violence they experience,²⁹ identification of cases by health professionals is limited.³⁰

Moreover, the limitations of this study are due especially to the fact that the events we

analyzed are based on secondary data from various health services, and it is not possible to guarantee standardization of form filling, nor to correct shortcomings in data recording. It is known that notifications account for just part of total occurrences, so that the characteristics we found may differ from those existing in events as a whole in the population. Furthermore, as notifications are secondary data, it is not possible to extrapolate the findings of this study, given the possibility of selection bias and in view of the possibility of variations in the frequency of events of violence being reported in certain groups and places.

As a conclusion, we point to the need to sensitize health professionals responsible for providing care to women, at all levels of health care, in order for public health services to be more prepared to identify signs of intimate partner violence, preferably before they culminate in physical violence. Finally, it is the responsibility of those in charge of health services to provide continuing training, especially for the adequate and complete recording of violent events, thus enabling generation of reliable evidence to support epidemiological studies and the formulation of effective public policies.

AUTHOR CONTRIBUTIONS

Santos J. contributed to the study concept and design, data acquisition, analysis and interpretation, preparing, critically reviewing and drafting the preliminary versions of the article. Carmo CN contributed to the study concept and design, data analysis and interpretation and critically reviewing relevant intellectual content. Both authors have approved the final version and declare that they are responsible for all aspects thereof, in the sense of guaranteeing that any issues related to the precision and integrity of any part of this work will be duly investigated and resolved.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

ASSOCIATED ACADEMIC WORK

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REFERENCES

1. Krug EG, Mercy JA, Dahlberg LL, Zwi AB. The world report on violence and health. *Lancet*. 2002;360(9339):1083-8. doi: 10.1016/S0140-6736(02)11133-0
2. Schraiber LB, D'Oliveira AFPL, Couto MT, Hanada H, Kiss LB, Durand JG, et al. Violência contra mulheres entre usuárias de serviços públicos de saúde da Grande São Paulo. *Rev Saude Publica*. 2007;41(3):359-67. doi:10.1590/S0034-89102007000300006
3. Heise L, Ellsberg M, Gottemoeller M. Ending violence against women. *Popul Rep L*. 1999;27(4):1-44. Available from: https://www.researchgate.net/publication/287170875_Population_reports_Ending_violence_against_women
4. World Health Organization. Global status report on violence prevention 2014 [Internet]. Geneva: World Health Organization; 2022 [acesso em 17 out 2021]. 292 p. Available from: <https://apps.who.int/iris/handle/10665/145086>
5. Souza ER, Meira KC, Ribeiro AP, Santos Jd, Guimarães RM, Borges LF, et al. Homicídios de mulheres nas distintas regiões brasileiras nos últimos 35 anos: análise do efeito da idade-período e coorte de nascimento. *Cien Saude colet*. 2017;22(9):2949-62. doi: 10.1590/1413-81232017229.12392017

6. Pinto IV, Bernal RTI, Souza MFM, Malta DC. Fatores associados ao óbito de mulheres com notificação de violência por parceiro íntimo no Brasil. *Cien Saude Colet*. 2021;26(3):975-85. doi:10.1590/1413-81232021263.00132021
7. Meneghel SN, Hirakata VN. Femicides: female homicide in Brazil. *Rev Saude Publica*. 2011;45(3):564-74. doi:10.1590/S0034-89102011000300015
8. Lucena KDT, Silva ATMC, Moraes RM, Silva CC, Bezerra IMP. Análise espacial da violência doméstica contra a mulher entre os anos de 2002 e 2005 em João Pessoa, Paraíba, Brasil. *Cad Saude Publica*. 2012;28(6):1111-21. doi:10.1590/S0102-311X2012000600010
9. United Nations Children's Fund. United Nations Population Fund. Breaking the silence on violence against indigenous girls, adolescents and young women [Internet]. New York: United Nations Children's Fund.; 2013 [acesso em 13 jun 2022]. 75 p. Available from: <https://www.unwomen.org/breaking-the-silence-on-violence-against-indigenous-girls>
10. Monteiro LCR, Amaral PAT. A rede de enfrentamento à violência contra a mulher na faixa de fronteira: em busca da visibilidade. *Perspectiva Geográfica*. 2016;11(15):143-51. Disponível em: <http://e-revista.unioeste.br/index.php/pgeografica/article/view/16594>
11. Silva OLO, Lindemann IL, Prado SG, Freitas KC, Souza AS. Vigilância alimentar e nutricional de crianças indígenas menores de cinco anos em Mato Grosso do Sul, 2002-2011. *Epidemiol. Serv Saude*. 2014;23(3):541-6. doi:10.5123/S1679-49742014000300017
12. Borba V. Fronteiras e faixa de fronteira: expansionismo, limites e defesa. 2013;4(2):59-78. Disponível em: <https://periodicos.furg.br/hist/article/view/4131>
13. Infantsi AFC, Costa JCGD, Almeida RMVR. Análise de correspondência: bases teóricas na interpretação de dados categóricos em Ciências da Saúde. *Cad Saude Publica*. 2014;30(3):473-86. doi:10.1590/0102-311X00128513
14. Mingoti SA. Análise de dados através de métodos estatísticos multivariados. Uma abordagem aplicada. Belo Horizonte: Universidade Federal de Minas Gerais; 2005. 295 p.
15. Souza AC, Bastos RR, Vieira MT. Análise de correspondência simples e múltipla para dados amostrais complexos [Internet]. 2010 [acesso em 04 dez 2020]. 6p. In: 19º SINAPE - Simpósio Nacional de Probabilidade e Estatística. Disponível em: <http://www.ime.unicamp.br/sinape/node>
16. Mascarenhas MDM, Tomaz GR, Meneses GMS, Rodrigues MTP, Pereira VOM, Corassa RB, et al. Análise das notificações de violência por parceiro íntimo contra mulheres, Brasil, 2011-2017. *Rev Bras Epidemiol*. 2020;23(Supl 01): e200007.SUPL.1. doi:10.1590/1980-549720200007.supl.1
17. Lawrenz P, Macedo DM, Hohendorff JV, Freitas CPP, Foschiera LN, Habigzang LF, et al. Violence against women: notifications of health professionals in Rio Grande do Sul. *Psic: Teor e Pesq*. 2018;34:e34428. doi:10.1590/0102.3772e34428
18. Dantas-Berger SM, Giffin K. A violência nas relações de conjugalidade: invisibilidade e banalização da violência sexual? *Cad Saude Publica*. 2005;21(2):417-25. doi:10.1590/S0102-311X2005000200008
19. Sena ALS. Gênero, raça e ação afirmativa no Mato Grosso do Sul: uma experiência brasileira [dissertação]. São Paulo: Pontifícia Universidade Católica de São Paulo, Ciências Sociais; 2011. 174 p.
20. Garcia LP, Silva GDM. Violência por parceiro íntimo: perfil dos atendimentos em serviços de urgência e emergência nas capitais dos estados brasileiros, 2014. *Cad Saude Publica*. 2018;34(4):e00062317. doi:10.1590/0102-311X00062317
21. Griebler CN, Borges JL. Violência contra a mulher: perfil dos envolvidos em Boletins de Ocorrência da Lei Maria da Penha. *Psico*. 2013;44(2):215-25. Disponível em: <https://pesquisa.bvsalud.org/resource/psi-61385>

22. Rodrigues CS, Malta DC, Godinho T, Mascarenhas MDM, Silva MMA, Silva RE, et al. Acidentes e violências entre mulheres atendidas em serviços de emergência sentinela - Brasil, 2009. *Cien Saude Colet.* 2012;17(9):2319-29. doi:10.1590/S1413-81232012000900013
23. Holanda ER, Holanda VR, Vasconcelos MS, Souza VP, Galvão MTC. Fatores associados à violência contra as mulheres na atenção primária de saúde. *Rev Bras Promoç Saude.* 2018;31(1):1-9. doi: 10.5020/18061230.2018.6580
24. Moroskoski M, Brito FAM, Queiroz RO, Higarashi IH, Oliveira RR. Aumento da violência física contra a mulher perpetrada pelo parceiro íntimo: uma análise de tendência. *Cien Saude Colet.* 2021;26(supl 3):4993-5002. doi:10.1590/1413-812320212611.3.02602020
25. Zimmerman TR, Viana AEA. Apontamentos sobre gênero e violência contra mulheres indígenas em Amambai-MS (2007-2014). *Tellus.* 2014;27:117-28. doi: 10.20435/tellus.v0i27.311
26. Moraes MSB, Cavalcante LIC, Pantoja ZC, Costa LP. Violência por parceiro íntimo: características dos envolvidos e da agressão. *Psi Unisc.* 2018;2(2):78-96. doi:10.17058/psiunisc.v2i2.11901
27. Adeodato VG, Carvalho RR, Siqueira VR, Souza FGM. Qualidade de vida e depressão em mulheres vítimas de seus parceiros. *Rev Saude Publica.* 2005;39(1):108-13. doi:10.1590/S0034-89102005000100014
28. Miranda MPDM, Paula CSD, Bordin IA. Violência conjugal física contra a mulher na vida: prevalência e impacto imediato na saúde, trabalho e família. *Rev Panam Salud Publica.* 2010;27(4):300-8. doi:10.1590/S1020-49892010000400009
29. Silva EP, Ludermir AB, Araújo TVB, Valongueiro SA. Frequência e padrão da violência por parceiro íntimo, antes, durante e depois da gravidez. *Rev Saude Publica.* 2011;45(6):1044-53. doi: 10.1590/S0034-89102011005000074
30. Moreira SNT, Galvão LLLF, Melo COM, Azevedo GD. Violência física contra a mulher na perspectiva de profissionais de saúde. *Rev Saude Publica.* 2008;42(6):1053-9. doi: 10.1590/S0034-89102008005000058