# Physical violence against women by an intimate partner: analysis of VIVA Survey 2017

Nádia Machado de Vasconcelos (https://orcid.org/0000-0002-2323-3064) [1]
Fabiana Martins Dias de Andrade (https://orcid.org/0000-0001-8277-6061) [1]
Crizian Saar Gomes (https://orcid.org/0000-0001-6586-4561) [1]
Regina Tomie Ivata Bernal (https://orcid.org/0000-0002-7917-3857) [2]
Deborah Carvalho Malta (https://orcid.org/0000-0002-8214-5734) [3]

[1] Programa de Pós-Graduação em Saúde Pública, Faculdade de Medicina, Universidade Federal de Minas Gerais (UFMG). Av. Prof. Alfredo Balena 190, Santa Efigênia. 30130-100 Belo Horizonte MG Brasil. nadiamv87@yahoo.com.br
[2] Programa de Pós-Graduação em Enfermagem, Escola de Enfermagem, UFMG. Belo Horizonte MG Brasil.
[3] Departamento de Enfermagem Materno Infantil e Saúde Pública, Escola de Enfermagem, UFMG. Belo Horizonte MG Brasil.

**Abstract** *This article aims to characterize physical violence by an intimate partner suffered by adult women treated in public urgency and emergency services in Brazil. This is a cross-sectional study using data from the VIVA Survey 2017. The proportions and 95% confidence intervals of the characteristics of the victim, violence, and perpetrator were calculated. The associations of characteristics were identified through Simple Correspondence Analysis (SCA). More than half of the assisted women self-declared their race/skin color to be black (70.2%) and were the victim of a male perpetrator (96.3%). Most violence occurred at home (71.1%) through physical force (74.1%). In the SCA, an association was found among the variables of age group, between 40 and 59 years; level of education, up to 08 years of study; alcohol consumption by the victim; and violence by weapons (Profile 2). An association was also found among the variables of age group, between 18 and 24 years; black race/skin color; lack of paid work; aggression on public places; and more serious injuries (Profile 4). There are different intimate partner violence (IPV) profiles for women in different contexts. Confronting IPV requires Public Policies that consider these differences in the construction of actions that focus on women and perpetrators of violence.*

**Key words** *Intimate partner violence, Health status disparities, Health surveys*

## Introduction

Intimate partner violence (IPV) against women can be considered an attack against human rights, since it threatens the woman's life and physical integrity[1]. It is an extremely serious Public Health problem, which incurs a heavy burden upon society, health systems, and victims[1].

One study, conducted by Mascarenhas *et al.*[2], illustrated that 62.4% of the 454,984 notifications of violence against women between 2011 and 2017 were IPV, which can be interpreted as four notifications per hour of this type of violence during the seven analyzed years[2]. In addition, the Institute of Applied Economic Research (IPEA, in Portuguese) calculated that, in 2019, the cost of violence in Brazil represented 5.9% of the Gross Domestic Product (GDP), including expenses with health systems, public security, and prison systems, among others[3]. The IPV includes a number of subtypes, but physical violence is the most common type treated in public urgency and emergency services due to its acute character and fatal potential[4,5].

The unequal distribution of IPV in relation to the sociodemographic characteristics shows that this grievance is also related to inequalities in health[6]. The Social Determinants of Health (SDH), understood as "social, economic, cultural, ethnic/racial, psychological, and behavioral factors that influence the occurrence of health problems and their risk factors in a given population", have a direct impact on the distribution of violent acts that occur in Brazilian society[7], and a recent systemic review showed that the inequalities in access to health, education, and income increase the homicide rates in major cities[8].

In this sense, health surveillance, understood as systematic data collection to analyze events related to health, play an important role in the country to determine the distribution of grievances and to sustain the planning and implementation of public policies geared toward the Brazilian population, with specific attention given to the vulnerabilities that they present[9]. The Inquiry on Violence and Accidents in Urgency and Emergency Services (VIVA Survey), implemented in 2006, plays a crucial role in monitoring grievances due to external causes in Brazil, given that they obtain information from public health services by means of a structured form that characterizes not only the victim, but also the aggression and the possible perpetrator[10].

In this sense, the present study aimed to characterize the physical violence by an intimate partner suffered by adult women treated in Brazilian public urgency and emergency services.

This study used a methodology that is rarely used in the field of health, proposing an exploratory approach, which associates the sociodemographic characteristics of the victims and perpetrators with the characteristics of violence, constructing IPV profiles, given that this grievance is multifactorial and is expressed in different ways in our society[11].

## Methods

### Design and data source

This is a cross-sectional study using data from the VIVA Survey 2017. The study is the sentinel surveillance component of the VIVA System, which is carried out in urgency and emergency services linked to the Brazilian Unified Health System (SUS, in Portuguese). In 2017, 90 establishments from 23 capital cities participated in this study (Florianópolis, Macapá, and Porto Alegre did not participate), together with 131 establishments from 13 Brazilian municipalities, including: Ananindeua (Pará), Araguaína (Tocantins), Arapiraca (Alagoas), Guarulhos (São Paulo), Jaboatão dos Guararapes (Pernambuco), Montes Claros (Minas Gerais), Olinda (Pernambuco), Santo André (São Paulo), São José do Rio Preto (São Paulo), São José dos Campos (São Paulo), Serra (Espírito Santo), Sobral (Ceará), and Vila Velha (Espírito Santo).

This study used a conglomerate sample in a single selection stage, considering the primary unit of compound sampling through 12-hour shifts. To select the shifts, a period of 30 continuous days was considered, divided into two shifts (day and night), totaling 60 shifts for the full data collection. All of the medical treatments for external causes of the selected shifts were included in the sample[10].

The size of the minimum sample was of 1,500 and 2,000 medical treatments in the municipalities and capital cities, respectively, and was defined by contemplating a coefficient of variance of <30.0% and a standard error of <3. Data were collected between September and December 2017, through interviews and medical records, performed by trained staff with a standardized form. The population of the VIVA Survey consisted of victims of violence and accidents who sought out treatment in the participating urgency and emergency care services, totaling 48,532 participants.

The present study included all women, aged 18 and 59 years, who were treated in the participating establishments due to physical aggression by an intimate partner. When considering the sex of the perpetrator, any use of "both sexes" was excluded from the sample, considering that, conceptually, the IPV is related to only one perpetrator (n=276).

**Variables**

The selected variables were divided into 03 categories:

• Characteristics of the victim: age range (18 to 24 years, 25 to 39 years, and 40 to 59 years); level of education (up to eight years of study and nine or more years of study); race/skin color (while; black [black or blown]; and others [yellow and indigenous]); paid work (yes or no); alcohol consumption up to six hours before the aggression (yes or no);

• Characteristics of the aggression: location of the event (residence [residence or collective housing], public space, and others [place to practice sports, bar or similars, business/services, and others]); means of aggression (physical force; weapons (melee weapon or firearm], blunt object, and others); part of the body struck (head, trunk, upper limbs, lower limbs, and multiple organs); type of lesion (no lesion, contusion, cut, trauma, and others [burn and other]); and severity of the lesion (defined through the evolution of the case: mild [if released or escaped from the hospital], severe [if hospitalized or sent to another hospital], and ignored);

• Characteristics of the perpetrator: sex (male or female) and suspected of alcohol consumption (yes or no).

**Data analysis**

First, the descriptive analysis of the data was performed by means of the weighted frequency and the respective 95% confidence intervals (95%CI). The "missing" data were included in the "ignored" category for each variable. To identify the associations between the studied characteristics, the Simple Correspondence Analysis (SCA) was applied.

The SCA is an exploratory multivariate statistics technique that is appropriate for the analysis of multiple categorical variables and useful in becoming acquainted with the profiles of the studied object and, later, in constructing the hypotheses concerning this object[12]. The SCA is applied in contingency tables to verify the dependence between the lines and columns, and to synthesize the structure of variability of the data in terms of dimensions, in which the number of dimensions is less that the number of variables. The "dimension" can be understood as a set of categories that proved to be associated, and each of these categories has a "contribution", which measures its importance in the association[13]. The results are presented in a graph, and the proximity of the points represent the relationships between the variables: the shorter the distance between the two points, the stronger the associations between them, while the greater distances represent a decoupling between them[14].

For the SCA of this study, all the described variables were selected. The technique was executed, based on the structure of a contingency table, where the line profile presented the characteristics of the victim, of the aggression, and of the perpetrator, and the column presented the sociodemographic variables of the victim. First, all the categories with a mass $\leq 0.010$ (1,0%) were excluded. Second, those with similar contributions (up to 1.0% of difference) for the dimensions of each analysis and with a mass $\leq 0.020$ (2.0%) were also excluded. The results were presented by means of tables and graphs. In each quadrant, the characteristics with smaller distances between each other were grouped together by an ellipsis, called "Profile".

The data analysis was performed using the Stata software, version 14. To consider the complex sample plane, the survey model was used, obtaining expanded contingency tables, that is, they considered the sample weights in the calculation of the proportions and, based on these, in the construction of the correspondence graph.

**Ethical aspects**

All the participants of the VIVA Survey gave their consent to participate in this study and the VIVA Survey project was approved by the National Research Ethics Committee form the Ministry of Health, logged under protocol number 2.234.509, on August 23, 2017. The present study used data from a secondary database of public domain, and for this reason, the approval from the Research Ethics Committee was discarded, according to resolution number 466/2012 from the National Health Council.

## Results

The VIVA Survey 2017 registered 48,532 treatments provided due to accidents and violence, of which 3,454 were interpersonal physical aggressions and 902 were perpetrated by women. In the age range of 18 to 59 years, 713 women were treated, of whom 276 (38.9%) were IPVs (data not shown).

Of these women, more than half were between 25 and 39 years of age (50.4%; 95%CI: 43.0-57.8), self-declared a black race/skin color (70.2%; 95%CI: 62.6-76.8), and had not consumed any alcoholic beverage in the six hours preceding the aggression (66.1%; 95%CI: 60.2-71.6). Regarding the perpetrator, 96.3% (95%CI: 93.0-98.1) were male, while in 65.3% (95%CI: 58.7-71.5) of the cases, there was the suspicion of alcohol consumption (Table 1).

Regarding the IPV, most occurred in residences (71.1%; 95%CI: 63.8-77.5), were perpetrated by physical force (74.1%; 95%CI: 67.9-79.5), hit the head of the victim (50.0%; 95%CI: 41.7-58.2), and had a mild severity (85.1%; 95%CI: 80.0-89.2) (Table 2).

In the SCA, the following categories were excluded from the final analysis within each variable: race/skin color (other); means of the lesion (other means); part of the body affected (trunk, upper limbs, and lower limbs); type of lesion (no lesion and other lesion); sex of the perpetrator (female). Two of the dimensions explained 86.8% of the structure of the data variability, given that dimension 1 contributed with 67.5% and dimension 2 contributed with 19.3% ($\chi2$=334.12; p-value<0.00) (Table 3).

The variable with greater contributions to explain dimension 1 were means of aggression by a blunt object (38.0%), white race/skin color (30.1%), and level of education, up to 08 years of study with 23.3% and 09 or more years with 26.1%. By contrast, dimension 2 presented a greater contribution in the age range of 18 to 24 years (54.5%) and 40 to 59 years (31.8%), in addition to alcohol consumption by the victim (29.7%) (Table 4).

Through the proximity of the points in the graph representation, 04 profiles were identified. Profile 1 associated the variables of age range, from 25 to 39 years; white race/skin color; paid work; and contusion. Profile 2 showed an association among age range, 40 to 59 years; the level of education of up to eight years of study; alcohol consumption by victim; and violence using weapons. Profile 3 consisted of women with nine or more years of study, who suffered aggression by means of physical force and trauma. By contrast, Profile 4 corresponded to the women in the age range of 18 to 24 years, black race/skin color, who do not have a paid job, who suffered aggression in a public space, with cuts and mild severity (Graph 1).

## Discussion

The present study, with data from the VIVA Survey 2017, analyzed 276 medical treatments provided to adult women, victims of IPV - physical aggression. The SCA showed an association of the younger age range with black race/skin color, the absence of paid work, and more severe aggressions (Profile 4). An association of the older age range, a lower level of education, consumption of alcohol by the victim, and the use of weapons as a means of violence was found in Profile 2. There was also an association of white race/skin color and paid work found in Profile 1, as well as an association among the level of education, violence through physical force, and trauma (Profile 3).

The overall findings of this study show that most of the women who were treated for IPV in the urgency and emergency services were of black race/skin color, had suffered aggression at home, by physical force, with the head being the more commonly affected part of the body, and having been attacked by an intimate male partner who was under the suspicion of having consumed alcohol. This finding is in agreement with a previous study that analyzed treatments due to IPV in the capital cities through the data from the VIVA Survey de 2014[5] and show a high proportion of IPV among black women (70.0%) with an age between 20 and 39 years (66.0%), and that had not consumed alcohol (78.1%). The study of the VIVA Survey 2014 also found a majority of IPV against women occurring at home (69.6%), through physical force (70.9%), being attacked by a male perpetrator (97.6%). It is important to highlight that this study analyzed treatments of people as of 12 years of age, although the definition used by the World Health Organization (WHO) considers IPV only for people as of 15 years of age[15]. Another study[4], using data from the VIVA Survey 2011, analyzed the domestic and family violence and, once again, found the home to be main location of the events (63.6%), as well as physical force being the main means of aggression (60.7%).

The IPV can be considered a means of male domination, and the violent behaviors of men are the reflection of socially and culturally learned

**Table 1.** Characteristics of adult women. victims of physical violence by an intimate partner. treated at the urgency and emergency services. and the probable perpetrator (n=276). VIVA Survey 2017.

| Variables | Weighted frequency | 95%CI | |
|---|---|---|---|
| | % | Lower limit | Upper limit |
| Characteristics of the victim | | | |
| Age range | | | |
| 18 to 24 years | 24.6 | 18.7 | 31.7 |
| 25 to 39 years | 50.4 | 43.0 | 57.8 |
| 40 to 59 years | 25.0 | 19.1 | 32.0 |
| Level of education | | | |
| Up to 08 years | 46.4 | 40.3 | 52.6 |
| 09 years or more | 47.1 | 41.1 | 53.3 |
| Ignored | 6.5 | 4.2 | 9.9 |
| Race/skin color | | | |
| White | 24.6 | 18.9 | 31.3 |
| Black (black/brown) | 70.2 | 62.6 | 76.8 |
| Other (yellow/indigenous) | 2.3 | 0.9 | 6.2 |
| Ignored | 2.9 | 1.3 | 6.5 |
| Alcohol consumption by the victim | | | |
| Yes | 31.9 | 26.5 | 37.8 |
| No | 66.1 | 60.2 | 71.6 |
| Ignored | 2.0 | 0.7 | 6.0 |
| Paid work | | | |
| Yes | 48.6 | 41.2 | 56.0 |
| No | 48.6 | 41.5 | 55.7 |
| Ignored | 2.8 | 1.4 | 5.6 |
| Characteristics of the probable perpetrator | | | |
| Sex | | | |
| Male | 96.3 | 93.0 | 98.1 |
| Female | 3.7 | 1.9 | 7.0 |
| Alcohol consumption by the perpetrator | | | |
| Yes | 65.3 | 58.7 | 71.5 |
| No | 26.9 | 21.7 | 32.7 |
| Ignored | 7.8 | 5.2 | 11.7 |

Source: Authors.

values[16]. The fact that the violence occurs commonly within the home is proof of this chauvinistic structure, in which the partner considers himself to be the owner of the women and with the right to demand obedience from her, oppressing her through violent acts[17]. The use of physical force also dialogues with this idea of domination, since the supposed physical superiority of the man is often used as a justification for the naturalization of the male as the dominator[18], and the aggressions aimed primarily at the face of the woman show a type of humiliation and power[19]. Also in this discussion, the consumption of alcohol by the perpetrator appears as a predisposing factor to IPV, acting in a process of physiological disinhibition, but also as a socially acceptable excuse to present violent behavior[2].

In this light, the present study showed Profile 3, consisting of highly educated women, who suffer violence through physical force and trauma. The higher level of education is directly related to the better financial autonomy[20], which, despite being a facilitator for the woman to be able to free themselves from violent relationships, also raises the risk of more severe victimization[2], represented here by traumas. Financial autonomy is often interpreted as the transgression of traditional gender standards and an insult to the patriarchal structure of society, which would generate punishment through IPV[21].

The patriarchy is understood as a socioeconomic structure based on paternal power, in which the woman is not only dominated by men, but also exploited by him[22]. Thus, while the men

**Table 2.** Characteristics of physical violence by intimate partners against adult women, treated in the urgency and emergency services (n=276). VIVA Survey 2017.

| Variables | Weighted frequency | 95%CI | |
|---|---|---|---|
| | % | Lower limit | Upper limit |
| Location of event | | | |
| Home | 71.1 | 63.8 | 77.5 |
| Public space | 18.5 | 13.5 | 24.8 |
| Others | 8.8 | 5.7 | 13.2 |
| Ignored | 1.6 | 0.7 | 3.6 |
| Means of aggression | | | |
| Physical force | 74.1 | 67.9 | 79.5 |
| Weapons (melee weapon/firearm) | 13.8 | 10.1 | 18.6 |
| Blunt object | 10.0 | 6.6 | 15.0 |
| Others | 2.1 | 0.9 | 4.6 |
| Part of the body affected | | | |
| Head | 50.0 | 41.7 | 58.2 |
| Trunk | 7.8 | 4.9 | 12.3 |
| Upper limbs | 13.9 | 9.5 | 20.0 |
| Lower limbs | 10.5 | 6.9 | 15.6 |
| Multiple organs | 11.4 | 7.5 | 16.8 |
| Others | 6.4 | 3.2 | 12.5 |
| Type of lesion | | | |
| No lesion | 6.4 | 3.2 | 12.5 |
| Contusion | 41.2 | 34.6 | 48.1 |
| Cut | 32.9 | 26.6 | 39.8 |
| Trauma | 15.6 | 11.9 | 20.3 |
| Others | 3.3 | 1.8 | 5.9 |
| Ignored | 0.6 | 0.1 | 2.6 |
| Severity of lesion | | | |
| Mild | 85.1 | 80.0 | 89.2 |
| Severe | 13.6 | 9.7 | 18.6 |
| Ignored | 1.3 | 0.6 | 2.8 |

Source: Authors.

**Table 3.** Dimensions and proportion of the explained variance in the Correspondence Analysis. VIVA Survey 2017.

| Dimension | Singular value | Main inertia | $\chi^{2a}$ | Explained variance (relative %)[b] | Explained variance (acum %)[c] |
|---|---|---|---|---|---|
| Dimension 1 | 0.1096727 | 0.0120281 | 225.37 | 67.45 | 67.45 |
| Dimension 2 | 0.0587028 | 0.0034460 | 64.57 | 19.32 | 86.78 |
| Dimension 3 | 0.0393937 | 0.0015519 | 29.08 | 8.70 | 95.48 |
| Dimension 4 | 0.0271364 | 0.0007364 | 13.80 | 4.13 | 99.61 |
| Dimension 5 | 0.0069975 | 0.0000490 | 0.92 | 0.27 | 99.88 |
| Dimension 6 | 0.0045717 | 0.0000209 | 0.39 | 0.12 | 100.00 |
| Total | | 0.0178322 | 334.12 | 100.00 | |

Note: p-value<0,00 (result not shown in the table). [a] Result of Pearson χ2 test; [b] Relative percentage; [c] Accumulated percentage.

Source: Authors.

reserve the role of breadwinner and of the decision-making potential in the public/private participation of society, the woman takes on the role circumscribed in the private sphere, and must fulfill the needs of the man and their children, in such a way as to dehumanize the woman[18]. From

**Table 4.** Masses and contributions of the sociodemographic characteristics of the victim and perpetrator. VIVA Survey 2017.

| Variables | | Total | Contribution | |
|---|---|---|---|---|
| **Column** | **Categories** | **Mass** | **Dimension 1** | **Dimension 2** |
| Age range | 18 to 24 years | 0.082 | 0.082 | 0.545 |
| | 25 to 39 years | 0.177 | 0.035 | 0.016 |
| | 40 to 59 years | 0.087 | 0.008 | 0.318 |
| Level of education | Up to 08 years | 0.165 | 0.233 | 0.068 |
| | 09 or more years | 0.160 | 0.261 | 0.044 |
| Race/skin color | White | 0.085 | 0.301 | 0.002 |
| | Black/Brown | 0.242 | 0.080 | 0.008 |
| **Line** | | | | |
| Alcohol consumption by the victim | Yes | 0.042 | 0.009 | 0.297 |
| Paid work | Yes | 0.067 | 0.110 | 0.056 |
| | No | 0.065 | 0.100 | 0.099 |
| Location of the aggression | Home | 0.097 | 0.002 | 0.000 |
| | Public space | 0.025 | 0.001 | 0.082 |
| | Other | 0.012 | 0.000 | 0.026 |
| Means of aggression | Physical force | 0.101 | 0.108 | 0.050 |
| | Weapons (melee weapons/firearms) | 0.018 | 0.053 | 0.008 |
| | Blunt object | 0.013 | 0.380 | 0.045 |
| Part of the body affected | Head | 0.068 | 0.004 | 0.000 |
| | Multiple organs | 0.016 | 0.002 | 0.120 |
| Type of lesion | Contusion | 0.057 | 0.061 | 0.006 |
| | Cut | 0.044 | 0.162 | 0.025 |
| | Trauma | 0.021 | 0.001 | 0.007 |
| Severity of the lesion | Mild | 0.116 | 0.001 | 0.001 |
| | Severe | 0.018 | 0.001 | 0.048 |
| Sex of the perpetrator | Male | 0.131 | 0.002 | 0.002 |
| Suspicion of alcohol consumption by the perpetrator | Yes | 0.089 | 0.002 | 0.127 |

Source: Authors.

this perspective, male supremacy allows the men the control sexuality, the body, and the autonomy of the women, and violence is a means through which to maintain this power[23].

Much like the patriarchy, other forms of oppression also shape the way the IPV occurs and is perceived by society. The present study found, in Profile 4, an association among younger women, black race/skin color, the absence of paid work, and more serious lesions. By contrast, Profile 1 associated white race/skin color with the presence of paid work. Although violence has taken place in a broad manner and affected women from many different contexts, it is clear that the IPV is distributed unequally in our society and that the social vulnerabilities also play an important role in this grievance[24]. It is well-known that in Brazil race/skin color works as a marker of social disadvantage[25] and that black people

have a lower level of health, education, and income[26]. Thus, the race/skin color and income are social determinants and markers of inequality in health, and these vulnerabilities may well be associated with the greater risk of exposure to violence and even episodes of more severe violence[7]. In this light, one ecological study that used the average standardized coefficient of female mortality by aggression as a marker for feminicide in the three-year periods of 2007-2009 and 2011-2013 concluded that the IPV is associated with the regions of highest rates of male homicides and that black women are twice as prone to die for this reason, when compared to white women[27]. Moreover, the inequality of access to protection networks places these women on a new path of violence, in which the lack of social support makes it difficult to break the cycle of violence with which they live[1].
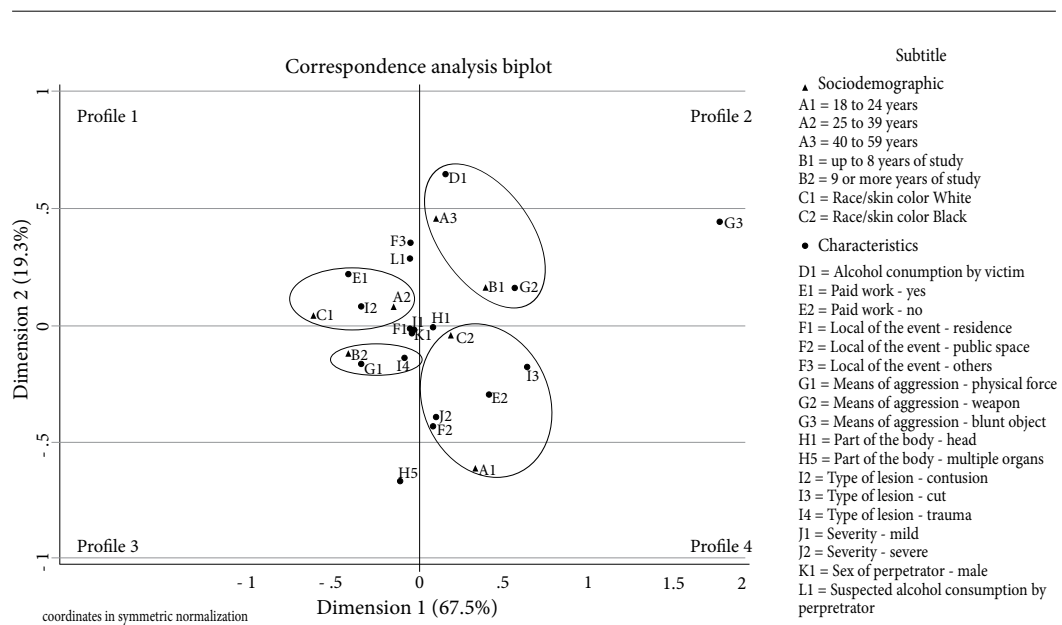
**Graph 1.** Correspondence Analysis Biplot with the profiles of physical violence by an intimate partner against women, registered in the VIVA Survey 2017.

Source: Authors.

Also contemplating the association of violence with the social inequalities, in Profile 2, the present study found an association among an older age range, a low level of education, alcohol consumption, and aggression using weapons. Since older women have a better condition to avoid abusive relationships[2], it is understandable that those who remain present factors of vulnerability and even characteristics that can associate them with more violent relationships, such as a low level of education. Furthermore, the SDH also interfere in this relation, since individual behaviors, such as a greater consumption of alcohol and their continuance in violent relationships are also influenced by the cultural environment, pressure by their partners, and the possibility of access to information and income[7].

The present study is highly innovative, as it uses a methodology that is rarely applied in the field of health[12]. The SCA makes it possible to insert a wide range of variables and visually represent the associations among the data[12]. Hence, it has proven to be a powerful tool when studying IPV, as it analyzes the association of diverse categorical variables, creating profiles with characteristics that should be analyzed together to make a list of hypotheses for future study.

This information can help in the construction of specific public policies, such as those geared toward the reduction of alcohol consumption and civil disarmament. One study conducted in Sacramento, California, showed that an increase of 01 bar per square mile in a region can raise the probability of the need for medical treatment due to IPV by 3% in emergency units[28] and that the increase of 01 establishment with the sale of alcoholic drinks generated an increase of 4% in police calls related to IPV[29]. Also in the USA, one study on the impact of laws on the use of weapons in feminicides by an intimate partner demonstrated that states with more restrictive laws consistently presented lower rates of this crime[30]. Running counter to actions that can prevent violence, the current government has been advocating civil armament in Brazil, with a growth of 100.6% in the total number of registrations of people with guns between 2017 and 2020, which can increase the risk of women who live with violence becoming victims of feminicide by their intimate partner[31]. In this scenario, it is important for systematic studies to be carried out in order to monitor the indicators related to IPV and support debates on the issue that can lead to actions to face and prevent this type of violence.

Among the limitations of this study, what stands out is that the population of the study refers to women treated at urgency and emergency services of SUS from 23 capital cities and some municipalities around the country. Thus, the sample is representative of the population treated in these services and cannot be considered as a population-based survey. Moreover, although SUS treats 70-80% of the population of the country, this study does not contemplate people treated in private services. The findings of the present work, therefore, lack external validity and should not be overgeneralized regarding the Brazilian population, thus not allowing one to estimate the indicators of the occurrence these types of events. Another limitation is the fact that the information was reported by the patients or their family members and are subject to measurement errors. In the case of IPV, the data can be underestimated or poorly classified as accidents due to the risk of the of patients hiding the true nature of their treatment due to the stigma of such an event[32].

In conclusion, this method showed that adult women who are victims of IPV are mostly black, and that the event mainly occurs at home, with a high proportion of alcohol consumed by the aggressor. Different IPV profiles for women of different sociodemographic contexts were also identified, since women of different age ranges, race/skin color, and distinct levels of education are associated with different factors. Moreover, this study points out that the severe lesions were more common among black women with a lower income; therefore, IPVs using weapons were more frequent among women with a lower level of education. Confronting violence must pass through various sectors, such as Health, Education, Public Security, and Social Assistance. Moreover, it is necessary for Public Policies to be developed in an integrative and articulated manner since the social cohesion and the creation of support networks play an important role in the search for equality in health care. Furthermore, it is important to consider the sociodemographic factors in the construction of these policies and strategies to prevent IPV in Brazil, focusing on both women and the perpetrators of violence.

## Collaborations

All of the authors participated in the creation and design of the study, in the analysis and interpretation of the data, in the writing of the article and its critical review, and approved the final version for publication.

## Acknowledgements

## Funding

## References

1. Brasil. Presidência da República. Secretaria de Políticas para as Mulheres. Secretaria Nacional de Enfrentamento à Violência contra as Mulheres. *Política Nacional de Enfrentamento à Violência Contra as Mulheres.* Brasília: Secretaria de Políticas para as Mulheres; 2011.

2. Mascarenhas MDM, Tomaz GR, Meneses GMS, Rodrigues MTP, Pereira VOM, Corassa RB. Análise das notificações de violência por parceiro íntimo contra mulheres, Brasil, 2011-2017. *Rev Bras Epidemiol* 2020; 23(Supl. 1):E200007.

3. Instituto de Pesquisa Econômica Aplicada (Ipea). Fórum Brasileiro de Segurança Pública. *Atlas de violência 2019*. Brasília, Rio de Janeiro, São Paulo: Ipea, FBSP; 2019.

4. Garcia LP, Duarte EC, Freitas LRS, Silva GDM. Violência doméstica e familiar contra a mulher: estudo de casos e controles com vítimas atendidas em serviços de urgência e emergência. *Cad Saude Publica* 2016; 32(4):e00011415.

5. 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.

6. Coll CVN, Ewerling F, García-Moreno C, Hellwig F, Barros AJD. Intimate partner violence in 46 low-income and middle-income countries: An appraisal of the most vulnerable groups of women using national health surveys. *BMJ Glob Health* 2020; 5(1):1-10.

7. Buss PM, Pellegrini Filho A. A saúde e seus determinantes sociais. *Physis* 2007; 17(1):77-93.

8. Wanzinack C, Signorelli MC, Reis C. Homicides and socio-environmental determinants of health in Brazil: a systematic literature review. *Cad Saude Publica* 2018; 34(12):e00012818.

9. Teixeira MG, Costa MCN, Carmo EH, Oliveira WK, Penna GO. Vigilância em Saúde no SUS - construção, efeitos e perspectivas. *Cien Saude Colet* 2018; 23(6):1811-1818.

10. Brasil. Ministério da Saúde (MS). *Viva Inquérito 2017: Vigilância de violências e acidentes em serviços sentinelas de urgência e emergência - capitais e municípios.* Brasília: MS; 2019.

11. Minayo MCS, Franco S. *Violence and Health.* Oxford: Oxford Research Encyclopedia of Global Public Health; 2018.

12. Infantosi 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):473-486.

13. Malta DC, Bernal RTI, Lima CM, Cardoso LSM, Andrade FMD, Marcatto JO, Gawryszewski VP. Perfil dos casos de queimadura atendidos em serviços hospitalares de urgência e emergência nas capitais brasileiras em 2017. *Rev Bras Epidemiol* 2020; 23(Supl. 1):E200005.

14. Gonçalves MT, Santos SR. Aplicação da Análise de Correspondência à Avaliação Institucional da FECILCAM. In: *IV Encontro Produção Científica e Tecnológica.* Campo Mourão: FECILCAM/NUPEM; 2009; 20-23 out.

15. World Health Organization (WHO). *Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non-partner sexual violence.* Geneva: WHO; 2013.

16. Gomes RN, Balestero GS, Rosa LCF. Teorias da dominação masculina : uma análise crítica da violência de gênero para uma construção emancipatória. *Lib Rev Pesqui Direito* 2016; 2(1):11-34.

17. Minayo MCS. Laços perigosos entre machismo e violência. *Cien Saude Colet* 2005; 10(1):18-34.

18. Santos RG, Moreira JG, Fonseca ALG, Gomes Filho ADS, Ifadireó MM. Violência contra a mulher à partir das teorias de gênero. *IDline Rev Psicol* 2019; 13(44):97-117.

19. Dourado SM, Noronha CV. Marcas visíveis e invisíveis: Danos ao rosto feminino em episódios de violência conjugal. *Cien Saude Colet* 2015; 20(9):2911-2920.

20. Gomes NP, Diniz NMF, Camargo CL, Silva MP. Homens e mulheres em vivência de violência conjugal: características socioeconômicas. *Rev Gaucha Enferm* 2012; 33(2):109-116.

21. D'Oliveira AFPL, Schraiber LB, França-Junior I, Ludermir AB, Portella AP, Diniz CS, Couto MT, Valença O. Fatores associados à violência por parceiro íntimo em mulheres brasileiras. *Rev Saude Publica* 2009; 43(2):299-311.

22. Saffioti HIB. Contribuições feministas para o estudo da violência de gênero. *Cad Pagu* 2001; (16):115-136.

23. Balbinotti I. A violência contra a mulher como expressão do patriarcado e do machismo. *Rev ESMESC* 2018; 25(31):239-264.

24. Sokoloff NJ, Dupont I. Domestic Violence at the Intersections of Race, Class, and Gender. *Violence Against Women* 2005; 11(1):38-64.

25. Araújo EM, Costa MCN, Hogan VK, Araújo TM, Dias AB, Oliveira LOA. A utilização da variável raça/cor em Saúde Pública: possibilidades e limites. *Interface (Botucatu)* 2009; 13(31):383-394.

26. Instituto Brasileiro de Geografia e Estatística (IBGE). *Desigualdades sociais por cor ou raça no Brasil.* Brasília: IBGE; 2019.

27. Meneghel SN, Rosa BAR, Ceccon RF, Hirakata VN, Danilevicz IM. Feminicídios: estudo em capitais e municípios brasileiros de grande porte populacional. *Cien Saude Colet* 2017; 22(9):2963-2970.

28. Cunradi CB, Mair C, Ponicki W, Remer L. Alcohol Outlet Density and Intimate Partner Violence-Related Emergency Department Visits. *Alcohol Clin Exp Res* 2012; 36(5):847-853.

29. Cunradi CB, Mair C, Ponicki W, Remer L. Alcohol outlets, neighborhood characteristics, and intimate partner violence: Ecological analysis of a California City. *J Urban Health* 2011; 88(2):191-200.

30. Gollub EL, Gardner M. Firearm legislation and firearm use in female intimate partner homicide using National Violent Death Reporting System data. *Prev Med (Baltim)* 2019; 118:216-219.

31. Bueno S, Bohnenberger M, Sobral I. A violência contra meninas e mulheres no ano pandêmico. In: *Anuário Brasileiro de Segurança Pública.* São Paulo: Fórum Brasileiro de Segurança Pública; 2021.

32. Ellsberg M, Heise L, Pena R, Agurto S, Winkvist A. Researching Domestic Violence Against Women: Methodological and Ethical Considerations. *Stud Fam Plann* 2001; 32(1):1-16.