Gender violence: a comparison of mortality from aggression against women who have and have not previously reported violence

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Abstract  Violence against women is an important public health problem in Brazil and in the world. The objective of the present study was to describe the profile of mortality due to aggression against women, and analyze whether the victims of reported violence are more likely to die from aggression than the general female population. This is a descriptive study of mortality due to aggression against women, from database linkage. The databases used for linkage were SINAN Brazil’s Notifiable Diseases Information System (reports of violence against women) (2011 – 2015), and SIM, the Mortality Information System (women dying as a result of aggression) (2011 – 2016). The risk of death due to aggression among women previously reporting violence is higher than in the general female population, thus revealing a situation of vulnerability. Black women with lower schooling are the main victims of violence and homicides. The large number of women killed by aggression and repeated violence reveal the fragility of the care and protection networks in providing comprehensive, qualified and timely care for victims.

Key words  Homicide, Violence, Violence against women, Notification of violence, Intrafamily violence
Introduction

Violence against women is a complex, long-lasting phenomenon that is hard to describe and that permeates uneven relationships between men and women. Its roots lie in social, economic, political, cultural and environmental structures, and is strongly associated with social inequality and uneven gender relations. The Belém do Pará Convention (1996) defined violence against women as “any gender-based action or reaction that leads to death, or causes physical, sexual or biological damage to the woman, either publicly or privately” (Article 1). According to this definition, violence against women includes physical, sexual and psychological damage, and may happen within the family, household or community, and perpetrated or tolerated by the State or its agents.

Violence against women is a global phenomenon affecting all social classes; for this reason, several countries have enforced prevention and control mechanisms to try and stop it. Thus, violence against women is now looked upon as a public health problem. It is also one of the most extreme and perversive forms of gender inequality, the product of differences in power, an important social phenomenon and a violation of human rights, significantly impacting the health-disease process and the outlook of these women.

According to the World Health Organization (WHO), 35% of all women in the world are the victims of physical and/or sexual violence, mostly by their partners.

Femicide, the murder of women for reasons based on uneven gender power, is the most perversive and extreme form of violence against women. It is violence by men against women in a desire to obtain power, domination or control. Estimates show that globally, 38% of women murdered are killed by their intimate partners. The goal of this study is to describe the profile of violent death among women, and check if the victims of reported violence have higher rates of violent death than the female population in general.

Methods

This is a descriptive study of death due to aggression among women, based on linkage between the SIM (Mortality Information System) and SINAN (Notifiable Diseases Information System) databases. Data on female mortality was taken from SIM, which is based on Death Certificates, while data on interpersonal and self-inflicted violence against women of all ages was taken from SISAN.

Linkage was based on data in all notices of violence against women entered into SISAN between 2011 and 2015. We chose to start in 2011, as this is the year in which violence reports were standardized across all healthcare services. For the record of female deaths, we used the period between 2011 and 2016 (preliminary through May 2016), and the following causes based on Assault - ICD X85-Y09 – according to the 10th revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10).

Cases were listed using the Bloom Filter technique. As pairing variables between databases, we used patient name, date of birth and municipality of residence. All pairs were validated by comparing the mother’s name.

Pairs with the maximum score of 10,000 were considered true pairs. All pairs with a score of less than 10,000 were analyzed by looking at patient name and date of birth. If one of the databases lacked DOB, validation was based on victim age. Pair validation yielded 2,599 true pairs.

We then prepared a description of female deaths due to aggression (2011 - 2015) in the SIM database, looking at the following variables: years of schooling, race/color, location of death, type/means of aggression and age group (children, adolescents, adult and elderly). A descriptive analysis of the validated peers was also performed by age range, victim and event characteristics, and the likely perpetrator.

To calculate the average female mortality due to aggression among women in the population in general (2011 - 2015), we used the average number of deaths due to aggression among women in this period, divided by the average female population in the same period. The populations used for these calculations were taken from the “projected population of Brazilian states by gender and age”, available on the DATASUS (Unified Health System IT Department) website. The rate was calculated per 100,000 women.

To calculate the average mortality due to aggression among women reporting physical or psychological violence, rape or negligence between 2011 and 2015, we used deaths due to aggression among women who had reported this type of violence (linkage data), divided by notifications of physical or psychological violence, rape or negligence against women in the same period.
Rates were calculated among the population in general and among those who had reported violence by age group – children (0 to 9 years of age), adolescents (10 to 19), adults (20 to 59) and elderly (60 or older).

We then calculated mortality rates using the mortality rate of victims of violence as the numerator, and mortality among the population in general in the denominator.

**Results**

According to SISAN, between 2011 and 2015 reports of violence more than doubled, from 107,530 to 242,347. Notifications of violence against women also increased similarly, from 75,033 to 162,575. In 2015, women were the victim in 67.1% of the cases of reported violence (Figure 1).

According to the SIM, between 2011 and 2015, 23,278 female deaths due to aggression were reported, 676 (2.9%) in children, 3,754 (16.1%) in adolescents, 16,889 (72.5%) in adults and 1,589 (6.8%) in elderly women (Table 1). Most of the women (adult and elderly) had 7 or fewer years of schooling (44% and 37.6% respectively). Most of the adult women (61%) were afro-descendants, while most of the elderly (50.2%) were white. Most of the deaths happened on public thoroughfares (31%), followed by the home (28%). In the case of children, most (38.2%) died in the hospital, and among the elderly most (49.5%) died at home. It should also be noted that 25% of the deaths happened in the hospital, meaning most of the deaths happened at the location where the attack took place, with no medical or hospital care, or even time to provide such care. Most (49%) of the homicides involved fire arms; among children this was the 2nd most frequent means of violence (26.2%). In the case of violence against the elderly, the most frequently used mode of violence was sharp or blunt objects (43.3%).

Based on the linkage data, the mortality profile shows that of the 567,456 women who were the victims of reported violence between 2011 and 2015, 2,599 had been the victims of aggression. Of these, 54.7% were afro-descendants, and 42.4% were white. If we break down the data by race/skin color, we find that Afro-descendants are the primary victims among all age groups except the elderly, where white women predominate (64.3%) (Table 2).

Of the total deaths among women, in 15.9% of the cases there was a history of repeated violence, especially among adult women (17.6%). Most (48.1%) of the violence occurred in the

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**Figure 1.** Number of interpersonal and self-provoked reports of violence (total and female). Brazil, 2011 - 2015.

Source: Viva/SINAN/SVS/MS.
home for all groups, followed by public thoroughfares (25.2%) (Table 2).

The most frequent type of violence reported was physical (78.4%), followed by moral/psychological (14.2%), rape (4.7%) and finally, negligence/abandonment (1.8%). These percentages vary by age group. Among children and the elderly, physical violence is followed by negligence/abandonment (Table 2).

The most likely perpetrator varies by age of the victim. Among children, the father/stepfather appeared most often (41.4%), while among adolescent and adult women it was the partner, 39.9% and 59.9% of the time respectively. Among elderly women, most (30.2%) do not know their assailant, followed by the woman’s partner (27.1%).

Mortality due to assault among women is 4.6/100,000 (not included in the table). Table 3 shows the average mortality due to assault among women in general, and mortality due to assault among the victims of reported violence, by age group.

If we compare mortality among the victims of reported violence and female mortality in general between 2011 and 2015, we find that in all cases mortality was higher among the victims of previously reported violence than among the female population in general (Table 3).

During this same period, if we compare the ratio of the rates, which expresses the risk of those exposed [to violence] compared to the reference population in general, we find that women who reported physical violence were at a higher risk of death due to assault, regardless of age. Among children who are the victims of physical violence, the risk of death due to assault was 523.7 times larger; in adolescents, it was 116.7 times larger, among adults 112.2 times and in the elderly 326.3 times larger (Table 3).

Women who are the victims of rape are also at higher risk of murder, especially elderly wom-
en, who are 215.5 times as likely. Among children this number is also high, as they are 159 times more likely to be murdered.

Psychological violence and negligence also increase the risk of death due to violence among women, in particular at the beginning and end of life. Among children, the risk of death by assault among the victims of psychological violence and negligence was 63.7 and 77.7 times higher than in the general population, while among the elderly this risk was 113.8 and 55.1 larger, respectively.

Discussion

The results show that the risk that a female victim of reported violence will die due to assault is larger than it is among the female population in general, thus revealing vulnerability. This risk varies by life cycle, although the rate ratio is also higher among the victims of physical violence and rape.

This can be explained by gender and by socially construed differences, which lead to inequality, discrimination and structural subordination.
of women\textsuperscript{10}, who tend to occupy secondary and subordinate positions\textsuperscript{11,12}. Death in the hands of partners, parents, boyfriends, acquaintances or unknown individuals has a common root in the subordination and oppression of women in the hierarchy of social roles\textsuperscript{10}. Furthermore, women subject to violence have higher rates of absenteeism and being late to work, along with lower productivity, which may interfere in their professional life, making them more vulnerable to economic dependence on their aggressor, compromising their autonomy\textsuperscript{13}. A study looking at female mortality due to assault in the state of Rio Grande do Sul showed that male and female mortality from assault are associated with an increase in violence against women in locations where the prevalence of violence against men is also high. This result corroborates the perception that structural violence and social disorganization increase female vulnerability; gender crime

### Table 3. Average mortality due to aggression among females in general and among female victims of reported violence, by age group Brazil, 2011 - 2015.

<table>
<thead>
<tr>
<th>Mortality</th>
<th>Numerator\textsuperscript{b}</th>
<th>Denominator\textsuperscript{c}</th>
<th>Rate\textsuperscript{*}</th>
<th>Rate ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Children (0 to 9)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Among the female population in general</td>
<td>676</td>
<td>76,754,864</td>
<td>0.9</td>
<td></td>
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<tr>
<td>Victims of reported violence (all types)</td>
<td>108</td>
<td>70,708</td>
<td>152.7</td>
<td>173.4</td>
</tr>
<tr>
<td>Victims of reported physical violence</td>
<td>91</td>
<td>19,730</td>
<td>461.2</td>
<td>523.7</td>
</tr>
<tr>
<td>Victims of reported rape\textsuperscript{a}</td>
<td>22</td>
<td>15,709</td>
<td>140.0</td>
<td>159.0</td>
</tr>
<tr>
<td>Victims of reported psychological violence</td>
<td>8</td>
<td>14,255</td>
<td>56.1</td>
<td>63.7</td>
</tr>
<tr>
<td>Victims of reported negligence</td>
<td>20</td>
<td>29,244</td>
<td>68.4</td>
<td>77.7</td>
</tr>
<tr>
<td><strong>Adolescents (10 to 19)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Among the adolescent female population in general</td>
<td>3,754</td>
<td>84,113,398</td>
<td>4.5</td>
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<tr>
<td>Victims of reported violence (all types)</td>
<td>460</td>
<td>142,500</td>
<td>322.8</td>
<td>72.3</td>
</tr>
<tr>
<td>Victims of reported physical violence</td>
<td>419</td>
<td>80,435</td>
<td>520.9</td>
<td>116.7</td>
</tr>
<tr>
<td>Victims of reported rape\textsuperscript{a}</td>
<td>48</td>
<td>37,314</td>
<td>128.6</td>
<td>28.8</td>
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<tr>
<td>Victims of reported psychological violence</td>
<td>74</td>
<td>39,522</td>
<td>187.2</td>
<td>42.0</td>
</tr>
<tr>
<td>Victims of reported negligence</td>
<td>13</td>
<td>12,779</td>
<td>101.7</td>
<td>22.8</td>
</tr>
<tr>
<td><strong>Adults (20 to 59)</strong></td>
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<td></td>
<td></td>
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<td>Among the adult female population in general</td>
<td>16,889</td>
<td>285,750,029</td>
<td>5.9</td>
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<tr>
<td>Victims of reported violence (all types)</td>
<td>1,891</td>
<td>348,567</td>
<td>542.5</td>
<td>91.8</td>
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<tr>
<td>Victims of reported physical violence</td>
<td>1,809</td>
<td>272,858</td>
<td>663.0</td>
<td>112.2</td>
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<tr>
<td>Victims of reported rape\textsuperscript{a}</td>
<td>72</td>
<td>19,882</td>
<td>362.1</td>
<td>61.3</td>
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<tr>
<td>Victims of reported psychological violence</td>
<td>333</td>
<td>126,575</td>
<td>263.1</td>
<td>44.5</td>
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<tr>
<td>Victims of reported negligence</td>
<td>11</td>
<td>4,148</td>
<td>265.2</td>
<td>44.9</td>
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<tr>
<td><strong>Elderly (over 60)</strong></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Among the elderly female population in general</td>
<td>1,589</td>
<td>61,723,472</td>
<td>2.6</td>
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<tr>
<td>Victims of reported violence (all types)</td>
<td>140</td>
<td>27435</td>
<td>510.3</td>
<td>198.2</td>
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<tr>
<td>Victims of reported physical violence</td>
<td>129</td>
<td>15,359</td>
<td>839.9</td>
<td>326.3</td>
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<tr>
<td>Victims of reported rape\textsuperscript{a}</td>
<td>4</td>
<td>721</td>
<td>554.8</td>
<td>215.5</td>
</tr>
<tr>
<td>Victims of reported psychological violence</td>
<td>29</td>
<td>9,901</td>
<td>292.9</td>
<td>113.8</td>
</tr>
<tr>
<td>Victims of reported negligence</td>
<td>13</td>
<td>9,166</td>
<td>141.8</td>
<td>55.1</td>
</tr>
</tbody>
</table>

Source: SIM and Violence and Accident Surveillance - VIVA/SINAN/SVS/MS.

\textsuperscript{(*)} Rates calculated per 100,000 women. \textsuperscript{(**)} Includes deaths due to aggression (ICD X85-Y09).

\textsuperscript{a} Excludes other types of sexual violence such as sexual exploration and harassment. \textsuperscript{b} Numerator: among the population in general the average of deaths due to aggression registered in the SIM system, and for the victims of violence the average of deaths due to aggression in the same system and where there were prior reports of violence. \textsuperscript{c} Denominator: for the population in general it is the average for the population, and for the victims of violence the average of the number of reports.
is frequent in territories disputed by drug traffickers, or where there is armed conflict or violation of human rights14,15.

Violence against women results in absence of health and poor quality of life, and is often associated with frequently seeking out healthcare services. Plichta reveals associations between violence with immediate effects such as injury and trauma, which result in emergency room visits, and indirect and long-term effects such as chronic pain, gastrointestinal problems, fibromyalgia, STDs, recurring UTIs, menstrual problems and sexual dysfunction, among others. This same study calls attention to the impaired mental health among these women16. Women who are victims of sexual violence are 2.3 times more likely to develop alcohol-related disorders, and 2.6 times more likely to suffer from depression or anxiety7.

The profile or mortality from aggression among female victims of violence shows a concerning situation, with a higher prevalence among women who are Afro-descendants and have few (<7) years of schooling. They are primarily the victims of physical and sexual aggression, primarily practiced by family members/acquaintances/friends, with emphasis on violence practiced by their partner in the home using fire-arms or sharp objects. Results of the National Student Health Survey (Pesquisa Nacional de Saúde do Escolar - PeNSE) of 9th grade adolescents show that 5.7% admit to having been involved in a fight that included a fire-arm, more boys (7.9%) than girls (3.7%)17. This shows that even with gun-control laws, fire-arms are available for sale and are being used by younger and younger perpetrators.

Data in the Mortality Information System does not reveal if homicide committed against women is gender-based or not. However, some researchers believe that 60 to 70% of female deaths due to aggression are femicides14,15. They claim that even though the total number of female deaths due to aggression overestimates the true femicide numbers, this potential over-estimation may offset poorly defined diagnoses, in which female homicide is classified as a different manner of death (suicide or accident)14.

Producing reliable data on femicide is a challenge all over the world16. In most countries, mortality information systems do not document the relationship between victim and aggressor, or the reasons for homicide7. About 40% of all female homicides in the world are perpetrated by their intimate partner. Furthermore, it is likely that these estimates are conservative because of the quality of the information. Nevertheless, the 66 countries participating in the data gathering effort show that the main risk of homicide among women comes from their partner19. On the other hand, women who kill their partners normally act in self-defense. In other words, they are the victim and react to situations where they are threatened or intimidated20.

After Sub-Saharan Africa, Latin America has the highest rates of violence against women, although there are significant differences between countries. Between 2001 and 2011, mortality rates due to aggression against women in Brazil, Colombia and Mexico were higher than the world (2.8 per 100,000 inhabitants) and Latin American (3.2 per 100,000 inhabitants) averages13. This situation, while serious, is just the tip of the iceberg, as incidents such as mild injuries not requiring medical attention go unreported, and other incidents remain under the radar due to cultural standards or links between the victim and her aggressor, such as in domestic violence21.

SISAN data for 2015 shows that 33.8% of the cases of violence against women that are reported were committed by the partner. If we limit ourselves to adult women, this percentage is 48.2%22. A 2011 study of reported domestic, sexual and/or other forms of violence against adult women (20 to 59 years of age) shows that the main perpetrator is the spouse (38.2%), and when we include other intimate partners this number adds up to over half the reported incidents23. A study at a school healthcare center in Butantã, São Paulo, shows that 78% of the physical aggression instances committed by partners against women were severe, defined as those producing temporary or permanent effects, or involving threat or the use of weapons, thus having a potential direct or indirect impact on the health of the women involved2. Another study in the emergency services of the city of São Paulo shows that 59% of the violence was perpetrated by the woman’s intimate partner, whether or not it was repeat violence. However, a larger number of visits to healthcare services is associated with repeated violence by an intimate partner24. A WHO study conducted in several countries, including Brazil, shows that 15 to 71% of all women in the world have been the victim of sexual or physical violence perpetrated by their intimate partner at some point in their lives. This type of violence is more prevalent among women in rural areas, compared to those living in urban areas25.

A multi-center study by the WHO shows that more than half the women of Lima and Cuzco
in Peru (51% and 68% respectively), reported physical or sexual violence by their partners. In Peru, estimates show that 8 of every 10 cases of sexual abuse are committed by a family member or acquaintance of the victim, and 6 of every 10 pregnancies among girls 11 to 14 are the result of incest or violence. In the US, femicide is the seventh largest cause of premature death among women (15 to 45), most of the time committed by partners or former partners. In a study conducted in the US, 70% of the victims had reported incidents of violence by the same perpetrator, with prior violence being the most important determinant of the risk of femicide. Thus, more attention and protection are required for women who are the victims of violence by their partners, as this group is at the highest risk of death from their partners. Healthcare agents and professionals play a fundamental role in identifying and notifying cases of women attacked by partners or former partners. It is important that investigation and counseling on intimate violence against women be part of routine OBGYN visits.

The cycle of violence must be interrupted. In 15.9% of the cases, women who died due to violence had previously reported this type of violence. In several countries, most of the murdered women had a history of being the victims of repeated violence, and had been trying to separate from their partners before being killed, especially in the three months immediately preceding the crime. Studies show that episodes of violence tend to repeat themselves and become progressively worse. They also show more intense use of ambulatory and hospital services, thus constituting a significant clientele. Furthermore, repeat violence and deaths due to violence among women previously filing reports show the frailty of the network of care and protection for women in a situation of violence.

Although reports of violence have increased in recent years in Brazil, cases that reach the healthcare units remain under-reported. Under-reporting can be explained by what is known as the "invisibility of violence", keeping violence from being recognized, especially domestic violence, often seen at primary care services. Women who seek healthcare with vague or invisible complaints suggest situations of violence, not always openly addressed, thus constituting a veiled problem.

In general, it is the more severe cases that reach the healthcare services, such as what was found in a study of violence against women in healthcare units in Belo Horizonte, conducted between 2001 and 2011, which found that most of the reports came from hospitals and services that specialize in caring for people in situations of violence. According to this author, under-reporting happens for a number of reasons, fear of retaliation on the part of the professionals, difficulty or embarrassment when completing the reporting form, an overloaded service, difficulty handling cases, and impotence in situations of violence.

The data on mortality due to aggression among women who had previously reported violence shows that these deaths were predictable, and followed a history of attacks, showing the ineffectiveness of protective measures. This shows the importance of the Networks of Care and Protection for People in Situations of Violence, and of reporting violence against women, both of which are essential to implement public policies to fight violence and promote a culture of peace. In this context, violence against women is a priority on the agenda of Sustainable Development Goals.

The network of social protection and care for victims of violence includes services in Health, the Justice System, Public Safety and Social Services. Addressing violence is an important challenge for public health due to the serious social, economic, epidemiological and organizational impact of healthcare networks. The importance of the theme is shown by including it in the agenda of the healthcare sector in Brazil, which has signed international agreements and develops a number of initiatives to promote health, prevent violence and provide comprehensive and humanized care for people in situations of violence.

In order to effectively fight violence, it is important that the services and institutions involved worked in an integrated and articulated way. In terms of care, it is essential that services act across sectors and define service flows compatible with local realities. The outlook for intersectorality is a challenge requiring a breach with the ‘traditional’ model of public management, which tends towards departmentalization, dis-articulation and sectorality of public measures and policies.

Other intersectoral measures are required to respond to this problem, such as strengthening the Networks of Care and protection for People in Situation of Violence, using as a reference the Centers for Preventing Violence and Promoting Health, the locus of intersectoral management responsible for articulating this network. We should articulate reporting violence against women via a reporting file, sent by the individu-
al to the care and healthcare network and other services comprising the care and protection network, in order to interrupt the cycle of violence. It is no use to produce data if the reality does not change or, in other words, we are unable to protect women from new episodes of violence and even death.

Awareness of the profile of reports and mortality due to violence against women is essential to design strategies to face this public health problem. We must improve the quality of the data to learn of the magnitude and characteristics of the problem, and promote health and vigilance to prevent violence using intersectoral measures. This study contributes with subsidies to implement public policies focused on preventing violence and promoting health and a culture of peace. It also helps focus attention and protection for those in a situation of violence, interrupting the cycle and preserving lives.

Collaborations

LA Barufaldi, RMCV Souto and MMS Montenegro contributed to the concept and outline of the study, and analysis and interpretation of the data. They also helped draft the article and approve the version for publication. RSB Correia and IV Pinto contributed to the concept and outline of the study, and helped draft the article and approve the version for publication. MMA Silva and CM Lima contributed to the concept and outline of the study, the critical review and approval of the version for publication.

References