

Lethal violence in the home: analysis by age group, sex and means used

Violência letal ocorrida no domicílio: análise segundo grupo etário, sexo e meio de perpetração

Violencia letal ocurrida en el hogar: análisis por grupo de edad, sexo y medios de perpetración

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ABSTRACT

Objective: to examine deaths from aggression in the home, by age group, sex, and means of violence used. **Methods:** the population of this cross-sectional study comprised deaths by aggression at home, in 2018, in Pernambuco, in both sexes and in all age groups. Data were collected from October to November 2022 and subjected to nonparametric analysis using the Mann-Whitney and Kruskal-Wallis tests. **Results:** men returned a higher median rate (0.28/100,000; p-value = 0.001), and sharp objects were the main means used to carry out the homicide (0.39/100,000; p-value = 0.006). **Conclusion:** there should be more state and municipal funding and policymaking to promote peaceful societies.

Descriptors: Violence; Gun Violence; Homicide; Health Policy.

RESUMO

Objetivo: analisar os óbitos por agressões ocorridos no domicílio segundo o grupo etário, sexo e meio de perpetração da violência. **Métodos:** estudo transversal, com população foi composta pelos óbitos por agressão no domicílio. Foram incluídos os óbitos por agressões, cujo o local da ocorrência foi o domicílio no ano de 2018 em Pernambuco em ambos os sexos e em todas as faixas etárias. O período de coleta foi realizado entre outubro e novembro de 2022. Foi aplicada a análise não paramétrica por meio dos testes Mann Whitney e Kruskal Wallis. **Resultados:** evidenciou-se que os homens tiveram maior taxa mediana (0,28/100.000; p-valor = 0,001), sendo os objetos cortantes o principal meio utilizado para realizar o homicídio (0,39/100.000; p-valor = 0,006). **Conclusão:** deve-se haver um maior financiamento por parte do Estado e dos Municípios, além da formulação de políticas públicas de enfrentamento que promovam sociedades pacíficas.

Descritores: Violência; Violência com Arma de Fogo; Homicídio; Política de Saúde.

RESUMEN

Objetivo: analizar las muertes por agresión ocurridas en el hogar según el grupo de edad, el género y el medio de perpetración de la violencia. **Métodos:** Estudio transversal junto a población compuesta por muertes por agresión en el propio hogar. Se incluyeron las muertes por agresiones, cuyo lugar de ocurrencia fue el hogar, en 2018, en Pernambuco, en ambos sexos y en todos los grupos de edad. El periodo de recolección se llevó a cabo entre octubre y noviembre de 2022. Se aplicó un análisis no paramétrico mediante las pruebas de Mann Whitney y Kruskal Wallis. **Resultados:** Se puso de manifiesto que los hombres tenían una tasa media más alta (0,28/100.000; valor p = 0,001), siendo los objetos punzantes el principal medio utilizado para matar (0,39/100.000; valor p = 0,006). **Conclusión:** Debe haber una mayor financiación por parte del Estado y los municipios, además de una formulación de políticas públicas que promuevan sociedades pacíficas.

Descritores: Violencia; Violencia con Armas; Homicidio; Política de Salud.

INTRODUCTION

Violence is a complex and multicausal phenomenon, with cultural factors marked by education through aggression¹. Understanding violence is a major challenge and there must be continuous and effective actions involving not only the authorities, but the entire civil society².

Some factors have been pointed out as determinants for the occurrence of homicides, with gender, age, marital status and socioeconomic conditions standing out among them³⁻⁵. Homicide victimization mainly affects young men between the ages of 15 and 29, single, mixed-race and with a low education level^{2,5}.

Another indicator to be analyzed is related to the place of death, which can lead to differences between genders, age groups and the means of perpetration. Despite the severity of assaults which can lead to death, those which occur on public roads at night stand out⁵, but it is important to pay attention to those that occur inside the home.

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The home is generally the space in which family members and close people live together. It is a space that must generate security for those who reside in it. However, violent contexts are highlighted in the literature in the domestic environment, such as gender violence, especially against women⁶; violence related to life cycles involving children and adolescents¹; and violence against older adults⁷.

Lethal violence highlights the most serious way in which lives are prematurely taken². The main means used to commit homicide is shooting with a firearm, used in more than 70% of these crimes in Brazil^{5,8,9}. Next, sharp or penetrating objects appear^{5,9}. Other mechanisms of death are also used, such as strangulation and suffocation, blunt instruments, such as iron or wooden objects, mistreatment through bodily force, physical force, sexual violence or negligence¹⁰.

These deaths generate a loss of life expectancy at birth and an impact on the probability of death of men and women in different magnitudes¹¹. Mortality from external causes – among them homicide – can be quite sensitive to socioeconomic changes, but it disproportionately affects the poorest regions, intensifying social inequality in the country¹². Added to this, the increased availability of weapons and low education levels increase homicide rates³.

The differences between the genders due to preventable deaths produce a series of challenges not only for healthcare policies, but also for those aimed at reducing inequalities in specific population groups¹¹, demanding joint actions between various sectors (health, education, judiciary and social service, among others)¹³.

The current scenario considering the lethality of firearm injuries⁶ is alarming. It is essential to formulate strategies to reduce the occurrence of homicides and improve the quality of life and longevity of the population, such as measuring the impact of sharp or penetrating objects on mortality statistics⁵ and updating the debate on the regulation in force in the country on the possession and carrying of weapons⁶.

Knowledge of the profile of victims killed by violence is essential to devise strategies to combat this public health problem¹⁴. Thus, this work can influence the decision-making of the competent authorities to reduce the high rates of violence in the state and the economic impact, especially on the public health system, in order to expand protection in the home environment.

In this context, this study aimed to analyze deaths from assaults which occurred at home according to age group, gender and means of perpetration of violence.

METHOD

This is an analytical cross-sectional study using aggregated secondary data from the Information System on Mortality of the Unified Health System (*Sistema de Informação sobre Mortalidade do Sistema Único de Saúde - SIM/SUS*) available in *DataSUS*, and population projections from the Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística - IBGE*).

The population consisted of deaths due to assault in the home. Deaths whose cause was characterized by the International Classification of Diseases - 10th Revision (ICD-10) X85-Y09 as assaults were included, whose place of occurrence was at the victim's home in 2018 in Pernambuco in both genders and in all age groups. The year 2018 refers to the last year with data available in the collection period, carried out between October 20 and November 11, 2022. Death certificates for which gender and age group information were ignored were excluded from the sample.

The variables were classified as: child (zero to 9 years old), adolescent (10 to 19 years old), young adult (20 to 39 years old), adults (40 to 59 years old), older adults (60 years old or older), gender (male/female), means of perpetration (firearm, sharp/penetrating/blunt object, physical force or strangulation, sexual violence, neglect, abandonment or mistreatment, other forms of assault).

The mortality rate was calculated considering the total number of deaths in the numerator divided by the population of the same gender, age group, place and period, multiplied by 100 thousand. The rate was tested against the normal distribution by the Shapiro-Wilk test ($p < 0.05$), rejecting the null hypothesis of the distribution rate normality. Thus, non-parametric analysis of the data was chosen by the Mann-Whitney and Kruskal-Wallis tests. A significance level of 5% was considered for all tests. Microsoft Office Excel and Stata 14.0 programs were used for data analysis. Considering the use of aggregated and public domain data, evaluation by the Research Ethics Committee was not necessary.

RESULTS

Data related to the mean and median rates of deaths from assault committed at home are shown in Tables 1 and 2.

TABLE 1: Distribution of the mean and median rate of deaths from domestic assault according to life cycle, gender and means of perpetration, Pernambuco, Brazil, 2018.

| Variables | Median rate | Mean rate | P-value |
|---|-------------|-----------|---------|
| Life cycle | | | |
| Child | 0.07 | 0.07 | |
| Adolescent | 0.18 | 0.82 | |
| Young adult | 0.16 | 0.96 | 0.778* |
| Adult | 0.17 | 0.73 | |
| Older adult | 0.22 | 0.58 | |
| Gender | | | |
| Female | 0.12 | 0.20 | |
| Male | 0.28 | 1.27 | 0.001† |
| Means of perpetration | | | |
| Assault by firearm shooting | 0.22 | 1.22 | |
| Assault with sharp/penetrating/blunt object | 0.39 | 0.72 | |
| Assault through physical force | 0.08 | 0.09 | 0.006* |
| Assault by unspecified means | 0.08 | 0.09 | |

* Kruskal-Wallis test; † Mann-Whitney test.

TABLE 2: Distribution of the mean and median rate of deaths from domestic assaults in each life cycle, Pernambuco, Brazil, 2018.

| | | Median | Mean | P-value |
|-----------------------|---|--------|------|---------|
| Child | | | | |
| Gender | Female | 0.14 | 0.14 | - |
| | Male | - | - | - |
| Means of perpetration | Assault by firearm shooting | - | - | - |
| | Assault with sharp/penetrating/blunt object | - | - | - |
| | Assault through physical force | 0.07 | 0.07 | |
| | Assault by unspecified means | - | - | |
| Adolescent | | | | |
| Gender | Female | 0.06 | 0.06 | 0.019* |
| | Male | 0.42 | 1.59 | |
| Means of perpetration | Assault by firearm shooting | 0.30 | 1.47 | 0.559† |
| | Assault with sharp/penetrating/blunt object | 0.18 | 0.18 | |
| | Assault through physical force | - | - | |
| | Assault by unspecified means | - | - | |
| Young adult | | | | |
| Gender | Female | 0.00 | 0.32 | 0.137* |
| | Male | 0.33 | 1.61 | |
| Means of perpetration | Assault by firearm shooting | 0.23 | 1.82 | 0.204† |
| | Assault with sharp/penetrating/blunt object | 0.51 | 0.58 | |
| | Assault through physical force | 0.04 | 0.06 | |
| | Assault by unspecified means | - | - | |
| Adult | | | | |
| Gender | Female | 0.08 | 0.20 | 0.082* |
| | Male | 0.28 | 1.27 | |
| Means of perpetration | Assault by firearm shooting | 0.18 | 1.07 | 0.175† |
| | Assault with sharp/penetrating/blunt object | 0.59 | 0.90 | |
| | Assault through physical force | 0.05 | 0.05 | |
| | Assault by unspecified means | 0.09 | 0.09 | |
| Older adult | | | | |
| Gender | Female | 0.16 | 0.19 | 0.018* |
| | Male | 0.22 | 0.97 | |
| Means of perpetration | Assault by firearm shooting | 0.22 | 0.61 | 0.259† |
| | Assault with sharp/penetrating/blunt object | 0.96 | 1.22 | |
| | Assault through physical force | 0.19 | 0.15 | |
| | Assault by unspecified means | 0.11 | 0.11 | |

* Kruskal-Wallis test; † Mann-Whitney test.

It was observed that deaths from domestic assaults in 2018 in Pernambuco had a higher median rate among men (0.28/100,000; $p=0.001$). The main means of perpetration were sharp/penetrating/blunt objects (0.39/100 thousand; $p=0.006$), followed by firearm shooting, with a median of 0.22/100 thousand ($p=0.006$). There was no significant difference in the median rate between life cycles ($p=0.778$).

When analyzing the life cycle separately according to gender, there was statistical significance in adolescents ($p=0.019$) and in older adults ($p=0.018$), with males prevailing with the highest medians. The age groups and the means of perpetration showed no significant difference ($p > 0.05$).

DISCUSSION

The current scenario in the country increases the importance of violence as a health problem and as a public health problem, especially in the Northeast Region¹⁵. Confronting violence is still a major challenge due to the serious social, economic, epidemiological and organizational impacts of the Healthcare Network¹⁴.

Death within the home may be related to the lack of time to provide care, leading to death without hospital medical care¹⁴ and indicating a greater severity in the assault committed. As evidenced in the present study, domestic violence in Pernambuco showed a difference between the genders, with men being the most affected.

When a woman is a fatal victim, she has often been a victim of other forms of violence². Women who previously reported having suffered violence are at greater risk of dying from assault when compared to the general female population, evidencing a situation of greater vulnerability¹⁴. Crimes against women are motivated by hatred, jealousy or a feeling of loss of control and ownership of women^{10,16}. In addition, femicide deaths characterize highly violent assault methods, whether physical or sexual¹⁰, and the women are mainly killed by their partner or ex-partner¹⁷.

Lethal violence in Brazil has several causal factors, especially for men, such as profound economic and social inequality, the ineffectiveness of the public security system, the presence of illicit markets and criminal factions, and the large number of firearms scattered across the country². Other reasons and circumstances are drug trafficking and futile causes, such as neighbors' fights, family fights, traffic fights, revenge, debt, jealousy, homophobia, among others¹⁸. It is also noteworthy that the male public and young adults represent a large part of the productive population of the country¹⁹.

The results found regarding the means of perpetration most used in lethal crimes are sharp/penetrating/blunt objects, which contradicts the national literature, according to which firearms predominated in committing homicide¹⁵, followed by force with sharp and blunt objects and the use of physical force through strangulation²⁰. This difference in relation to the domestic scenario analyzed may show differences in the form of perpetration, depending on the place where the violence occurs and the motivation for the crime. Oscillations in the predominance between these objects can also occur depending on the geographic region in the country¹⁹.

The current scenario is terrifying, especially considering the lethality of gunshot wounds, and their social and health consequences⁶. This instrument inside a residence can increase the violent deaths of residents, whether due to issues involving crimes of passion and femicide, or by increasing the chances of suicide or fatal accidents, including children²¹.

In addition, the high extent of the number of homicides by bladed weapons in some locations may be related to the decrease in firearm smuggling in these regions, favoring homicides by other easily accessible means¹⁹. The main body regions affected by these sharp instruments are the chest, abdomen and skull, which are body areas which contain vital organs, increasing mortality from violence²². Thus, it is essential to measure the impact of sharp or penetrating objects on mortality statistics⁵.

This analysis of domestic deaths between age groups did not show any difference between the median rates. However, when analyzed separately according to gender, adolescents and older adults were relevant, with males prevailing in these groups. Young people, especially males, continue to lose their lives prematurely². Those aged between 15 and 29 are those most at risk of being homicide victims²³.

It was not possible to perceive a significant difference regarding the means that produced death between the age groups. This scenario differs from that found in the literature when analyzed by age groups, in which the means of assault/aggression showed the use of firearms as the second most frequent cause in children, while the use of bladed weapons was the most frequent means used to commit murder in older adults¹⁴.

Violence in Brazil is a complex phenomenon that has historical roots and is fueled by great social inequalities²⁴. The containment of lethal violence requires comprehensive measures, which include individual, social, economic, cultural and situational factors²⁵.

Confronting violence needs to be based on a policy to promote life, which requires an interdisciplinary approach that involves social policies²⁴. It is essential to increasingly qualify the information to know the magnitude and characteristics of the problem to promote health and prevent violence through intersectoral actions¹⁴.

Study limitations

The limitations of this study were related to the use of secondary sources of information and the impossibility of identifying the motivations and circumstances of the homicide, in addition to not knowing the perpetrator of the crime.

CONCLUSION

According to data on domestic violence in Pernambuco, there was a predominance of men with a higher median rate of deaths, especially among adolescents and older adults, with the use of sharp/penetrating/blunt objects being the main means of perpetration, especially among the older adult population.

Intersectoral educational actions can be implemented to sensitize the population about the culture of peace, in addition to greater funding by the state and municipalities, the formulation of public policies for confrontation that which peaceful societies, the increase of public security and the hardening of criminal laws. The repercussion of non-fire arms as a means of perpetration that results in death should be measured and debates about the legislation on gun possession should be encouraged, aiming at more rigorous access to their acquisition and use as a strategy to reduce homicides, especially inside homes.

REFERENCES

1. Barrenechea LI, Ribeiro CC, Cava AM, Azevedo OP. Nurses' perception on violence against children and adolescents by their companion in pediatric ward. *Rev Bras Enferm.* 2020 [cited 2022 Aug 31]; 73:e20190495. DOI: <https://doi.org/10.1590/0034-7167-2019-0495>
2. Cerqueira D, Lima RS, Bueno S, Neme C, Ferreira H, Coelho D, et al. Atlas da Violência 2018. Rio de Janeiro: Instituto de Pesquisa Econômica Aplicada; 2018 [cited 2022 Aug 31]. Available from: <https://www.ipea.gov.br/atlasviolencia/download/9/atlas-2018>
3. Machado DB, Rodrigues LC, Rasella D, Barreto ML, Araya R. Conditional cash transfer programme: impact on homicide rates and hospitalisations from violence in Brazil. *PLoS ONE.* 2018 [cited 2022 Aug 31]; 13(12):e0208925. DOI: <https://doi.org/10.1371/journal.pone.0208925>
4. Velten AP, Cade NV, Silva GA, Oliveira ER. Profile of mortality from external causes among Seventh-day Adventists and the general populations. *Ciênc Saúde Coletiva.* 2017 [cited 2022 Aug 31]; 22(7):2375-82. DOI: <https://doi.org/10.1590/1413-81232017227.13792015>
5. Orellana JD, Cunha GM, Brito BC, Horta BL. Factors associated with homicide in Manaus, Amazonas, Brazil, 2014. *Epidemiol Serv Saúde.* 2017 [cited 2022 Aug 31]; 26(4):735-46. DOI: <https://doi.org/10.5123/S1679-49742017000400006>
6. Pinto IV, Ribeiro AP, Santos AP, Bevilacqua P, Lachim SA, Pereira VO, et al. Wounded adolescences: a portrait of firearm violence reported in Brazil. *Rev Bras Epidemiol.* 2020 [cited 2022 Aug 31]; 23:1-13. DOI: <https://doi.org/10.1590/1980-549720200002.supl.1>
7. Castro VC, Rissardo LK, Carreira L. Violence against the Brazilian elderlies: an analysis of hospitalizations. *Rev Bras Enferm.* 2018 [cited 2022 Aug 31]; 71(2):777-85. DOI: <https://doi.org/10.1590/0034-7167-2017-0139>
8. Waiselfisz JJ. Mapa da violência 2015: mortes matadas por armas de fogo. Brasília, DF: FLASCO e Unesco, 2015 [cited 2022 Aug 31]. Available from: <https://flasco.org.br/files/2020/03/mapaViolencia2015.pdf>
9. Garcia LP, Silva GD. Mortalidade de mulheres por agressões no Brasil: perfil e estimativas corrigidas (2011-2013). Brasília, DF: Instituto de Pesquisa Econômica Aplicada, 2016 [cited 2022 Aug 31]. Available from: https://www.ipea.gov.br/portal/images/stories/PDFs/TDs/td_2179.pdf
10. Caicedo-Roa M, Cordeiro RC, Martins AC, Faria PH. Femicides in the city of Campinas, São Paulo, Brazil. *Cad Saúde Pública.* 2019 [cited 2022 Aug 31]; 35(6):e00110718. DOI: <https://doi.org/10.1590/0102-311X00110718>
11. Souza LG, Siviero PC. Sex differentials in avoidable mortality and potential life expectancy gains in São Paulo, SP, Brazil: a cross-sectional study of the period 2014-2016. *Epidemiol Serv Saúde.* 2020 [cited 2022 Aug 31]; 29(3):e2018451. DOI: <https://doi.org/10.5123/S1679-49742020000300004>
12. Machado DB, Pescarini JM, Araújo LF, Barreto ML. Austerity policies in Brazil may affect violence related outcomes. *Ciênc Saúde Coletiva.* 2019 [cited 2022 Aug 31]; 24(12):4385-94. DOI: <https://doi.org/10.1590/1413-812320182412.07422019>
13. Malta DC, Saltarelli RM, Prado RR, Monteiro RA, Almeida MF. Preventable deaths within Brazil's public health system in a population from 5 to 69 years old, 2000 - 2013. *Rev Bras Epidemiol.* 2018 [cited 2022 Aug 31]; 21:180008. DOI: <https://doi.org/10.1590/1980-549720180008>

14. Barufaldi LA, Souto RM, Correia RS, Montenegro MM, Pinto IV, Silva MM, et al. Gender violence: a comparison of mortality from aggression against women who have and have not previously reported violence. *Ciênc Saúde Coletiva*. 2017 [cited 2022 Aug 31]; 22(9):2929-38. DOI: <https://doi.org/10.1590/1413-81232017229.12712017>
15. Meira KC, Costa MA, Honório AC, Simões TC, Camargo MP, Silva GW. Temporal trend of the homicide rate of Brazilian women. *Rev Rene*. 2019 [cited 2022 Aug 31]; 20:e39864. DOI: <https://doi.org/10.15253/2175-6783.20192039864>
16. Minayo MC, Mariz RS. Profile of Rio de Janeiro's violent lethality perpetrators, Brazil (2015). *Ciênc Saúde Coletiva*. 2021 [cited 2022 Aug 31]; 26:5023-32, 2021. DOI: <https://doi.org/10.1590/1413-812320212611.3.05752020>
17. Orellana JD, Cunha GM, Marrero L, Horta BL, Leite IC. Urban violence and risk factors for femicide in the Brazilian Amazon. *Cad. Saúde Pública*. 2019 [cited 2022 Aug 31]; 35(8):e00230418. DOI: <https://doi.org/10.1590/0102-311X00230418>
18. Dirk R, Moura L. As motivações nos casos de letalidade violenta da Região Metropolitana do Rio de Janeiro. *Cadernos de Segurança Pública* 2017 [cited 2022 Aug 31]; 8:1-11. Available from: <http://www.isprevista.rj.gov.br/download/Rev20170802.pdf>
19. Nogueira VD, Gomes LM, Barbosa TL. Homicide mortality in border regions in the State of Paraná, Brazil. *Ciênc. saúde coletiva*. 2020 [cited 2022 Aug 31]; 25(8):3107-18. DOI: <https://doi.org/10.1590/1413-81232020258.28522018>
20. Souza ER, Meira KC, Ribeiro AP, Santos J, Guimarães RM, Borges LF, et al. Homicides among women in the different Brazilian regions in the last 35 years: an analysis of age-period-birth cohort effects. *Ciênc Saúde Coletiva*. 2017 [cited 2022 Aug 31]; 22(9):2949-62. DOI: <https://doi.org/10.1590/1413-81232017229.12392017>
21. Cerqueira D, Bueno S, Lima RS, Neme C, Ferreira H, Coelho D, et al. Atlas da Violência 2019. Rio de Janeiro: Instituto de Pesquisa Econômica Aplicada; 2019 [citado 2022 Aug 30]. Available from: <https://www.ipea.gov.br/atlasviolencia/arquivos/downloads/6537-atlas2019.pdf>
22. Campos ME, Brasil AA, Silva EF, Fernandes FE. Mortality due to homicide based on information available at the legal medicine institute: a gender perspective. *Rev Bras Pesq Saúde*. 2019 [citado 2022 Aug 30]; 21(3):93-102. Portuguese. Available from: <https://periodicos.ufes.br/rbps/article/download/28213/19981/82705>
23. Cerqueira D, Ferreira H, Bueno S, Alves PP, Lima RS, Marques D, et al. Atlas da Violência 2019. Rio de Janeiro: Instituto de Pesquisa Econômica Aplicada; 2021 [citado 2022 Aug 30]. Available from: <https://www.ipea.gov.br/atlasviolencia/arquivos/artigos/1375-atlasdaviolencia2021completo.pdf>
24. Malta DC, Minayo MC, Soares Filho AM, Silva MM, Montenegro MM, Ladeira RM, et al. Mortality and years of life lost by interpersonal violence and self-harm: in Brazil and Brazilian states: analysis of the estimates of the Global Burden of Disease Study, 1990 and 2015. *Rev Bras Epidemiol*. 2017 [citado 2022 Aug 30]; 20(Suppl 1):142-56. DOI: <https://doi.org/10.1590/1980-5497201700050012>
25. Barros SC, Oliveira CM, Silva AP, Melo MF, Pimentel DR, Bonfim CV. Spatial analysis of female intentional homicides. *Rev Esc Enferm USP*. 2021 [citado 2022 Aug 30]; 55:303770. DOI: <https://doi.org/10.1590/S1980-220X2020037303770>