

Intentional homicides of women with prior notification of violence

Homicídios intencionais de mulheres com notificação prévia de violência

Homicidios intencionales de mujeres con notificación previa de violencia

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Homicide; Violence against women; Health information systems; Vital statistics; Mortality registries

Descritores

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Abstract

Objective: To describe the profile of women victims of intentional homicides and with prior notification of violence.

Methods: This is a cross-sectional study carried out in the state of Pernambuco from 2012 to 2016. Probabilistic relationship was used between all notifications of violence against women registered in the Information System for Notifiable Diseases, and the homicides of women, registered in the Mortality Information System.

Results: 121 homicides were identified with previous reports of violence. Women were single (88.9%), black (91.7%) and had less than seven years of study (80.9%). Physical aggression was the most reported type of violence (65.8%), occurring at home (66.7%) and committed by a partner/ex-intimate partner (51.9%). Firearm firing was the main method used (44.6%) and death occurred in a health facility (41.3%). Women with prior notification of violence had a 65.9 times higher risk of homicide when compared to the general population of women.

Conclusion: Describing the profile of women victims of homicides, with prior notification of violence, can contribute for formulating public policies for the protection and prevention of violence against women.

Resumo

Objetivo: Descrever o perfil das mulheres vítimas de homicídios intencionais e com notificação prévia de violência.

Métodos: Trata-se de um estudo transversal, realizado no estado de Pernambuco, no período de 2012 a 2016. Foi empregado o relacionamento probabilístico entre todas as notificações de violência contra mulher, registradas no Sistema de Informação de Agravos de Notificação, e os homicídios de mulheres, registrados no Sistema de Informações sobre Mortalidade.

Resultados: Identificou-se 121 homicídios que tinham notificações prévias de violência. As mulheres eram solteiras (88,9%), negras (91,7%) e com menos de sete anos de estudo (80,9%). A agressão física foi o tipo de violência mais notificado (65,8%), ocorrida na residência (66,7%) e cometida por parceiro/ex-parceiro íntimo (51,9%). O disparo de arma de fogo foi o principal meio utilizado (44,6%) e o óbito ocorreu em estabelecimento de saúde (41,3%). Mulheres com notificação prévia de violência tiveram risco 65,9 vezes maior de homicídio, quando comparadas com a população geral de mulheres.

Conclusão: Descrever o perfil das mulheres vítimas de homicídios, com notificação de violência prévia, pode contribuir para a formulação de políticas públicas de proteção e prevenção da violência contra mulher.

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Resumen

Objetivo: Describir el perfil de mujeres víctimas de homicidios intencionales con notificación previa de violencia.

Métodos: Se trata de un estudio transversal, realizado en el estado de Pernambuco, en el período de 2012 a 2016. Se empleó la relación probabilística entre todas las notificaciones de violencia contra la mujer registradas en el Sistema de Información de Agravios de Notificación y los homicidios de mujeres registrados en el Sistema de Información sobre Mortalidad.

Resultados: Se identificaron 121 homicidios que tenían notificaciones previas de violencia. Las mujeres eran solteras (88,9 %), negras (91,7 %) y con menos de siete años de estudios (80,9 %). La agresión física fue el tipo de violencia más notificado (65,8 %), ocurrida en la residencia (66,7 %) y cometida por la pareja/expareja íntima (51,9 %). El disparo de arma de fuego fue el principal medio utilizado (44,6 %) y la muerte ocurrió en un establecimiento de salud (41,3 %). Mujeres con notificación previa de violencia tuvieron un riesgo de homicidio 65,9 veces mayor, en comparación con la población general de mujeres.

Conclusión: Describir el perfil de mujeres víctimas de homicidios con notificación de violencia previa puede contribuir a la formulación de políticas públicas de protección y prevención de la violencia contra la mujer.

Introduction

Mortality is conditioned by biological, political and social factors, as well as culturally defined behaviors and attitudes.⁽¹⁾ Violence against women is the most widespread, but the least recognized violation of human rights in the world. It is a profound health problem, and homicide or femicide is often the tragic end of this violence.^(1,2)

Intimate partner violence affects between 15% and 71% of women throughout their lives. Features include physical and sexual abuse as well as psychological abuse and reproductive coercion or persecution.⁽³⁾ It is estimated that 40% to 45% of victims are killed by an intimate partner.⁽²⁾

Health services play an important role in identifying and responding to various situations of violence, as they are often the first places where victims seek care.^(4,5) In Brazil, from 2009 to 2017, 1,091,264 women victims of various types of violence were notified in health services.⁽⁶⁾ Regarding homicides, from 2007 to 2017, there was an increase in the number, from 3,778 to 4,936 (30.7%). In the same period, the national homicide rate went from 3.9 to 4.7 women murdered per 100 thousand women, representing an increase of 20.7%. It should be noted that there was also an increase in the mortality rate in 17 units of the federation.⁽⁷⁾

Record linkage is the process used to gather information, from different sources, about the same individual or group of individuals.⁽⁸⁾ Due to the increasing availability of population-based health databases, articulation has become an efficient and important research tool.⁽⁹⁾

There are two main approaches to linking bases: deterministic and probabilistic. Deterministic linking is performed using a unique identifier, present in the files wanted to link.⁽¹⁰⁾ Probabilistic is useful when there is no unique identifier. This type of linkage combines evidence through a number of identifiers, representing the likelihood that two records belong to the same person.^(8,9)

One area of research for which data linking is particularly important is that of violence against women. In the United States, the linkage was used to analyze the relationship between violent deaths and previous admissions, in the emergency services, for injuries resulting from external causes.⁽¹¹⁾ It was also important to locate maternal deaths that were associated with violent deaths.⁽¹²⁾ In Brazil, the databases of Mortality Information System (*Sistema de Informações sobre Mortalidade*) and Live Birth Information System (*Sistema de Informação sobre Nascidos Vivos*) were linked to analyze sexual violence and its subsequent repercussions on pregnancy and childbirth.⁽¹³⁾

Knowing events prior to the intentional homicides of women provides a better understanding of the circumstances and causes of death. The information obtained by linking the databases of Mortality Information System and the Notifiable Diseases Information System (*Sistema de Informação de Agravos de Notificação*) can be used for planning actions of the intersectoral network, which works to fight violence against women. In this perspective, the research problem is: what is the profile of women victims of intentional homicides and who had previous notification of violence? This study aims to describe the profile of

women victims of intentional homicides and with prior notification of violence.

Methods

This is a cross-sectional study carried out in the state of Pernambuco, which has 184 municipalities and one district - the Fernando de Noronha archipelago. According to the population estimate of the Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística*), the total population is 9,410,336 inhabitants. Women are the majority, 4,873,140, equivalent to 52% of the total population.⁽¹⁴⁾

The study population consisted of women (including female children and adolescents from 10 years old), victims of intentional homicides, between 2012 and 2016, living in Pernambuco. The choice of the analysis period, starting in 2012, was due to the fact that in 2011 there was a change in content of the death certificate, with greater detail of the information collected. The year 2016 corresponded to the last year with finalized data (not provisional), available in the Mortality Information System at the time of the study.

Deaths classified in the Mortality Information System are included in Chapter XX (External causes of morbidity and mortality) of the International Statistical Classification of Diseases and Related Health Problems (ICD-10), with codes X85 to Y09 (assaults), and who had notifications of some type of violence in the Notifiable Diseases Information System, between the years 2011 and 2016. Population projections were used to calculate the homicide mortality rate from 2012 to 2016.⁽¹⁵⁾

For the relationship of the databases, considering that the systems used do not have a unique identifier field, the probabilistic method was applied. In the Mortality Information System's database, in addition to homicides, we also chose to include, in the relationship, deaths classified in Chapter XX with codes Y10 to Y34 (events/facts whose intention is undetermined), aiming to refine the data search. Cases in which the variables "name" and "mother's name" were not filled in, as it made it impossible to

identify the pairs, notified in the Notifiable Diseases Information System involving self-inflicted violence, and where the reported aggression refers to homicide (notification of homicide) were excluded. "Name", "mother's name" and "date of birth" pairing variables were considered. The RecLink III program was used to apply the linkage, performed in steps that started by cleaning the databases, followed by the calculation of scores, which is the procedure for defining thresholds for the classification of the pairs of records, listed in true pairs, non-pairs and doubtful pairs.⁽¹⁶⁾

In the next stage, the variables were standardized: name, age, date of birth, address, neighborhood and municipality of residence, followed by subdivision of the fields and creation of the phonetic fields. Next step was the blocking of records, which subdivides the files according to indexing key, formed from the matching variables. The comparisons of records are restricted to the agreement of the keys value. True and doubtful pairs were manually reviewed. After being linked, it was possible to identify, among homicides, those who had previous records of violence.

Mortality rates due to aggression were calculated for women with previous records of violence and for the general population. The following formulas were used: mortality rate due to aggression in the population of women in general = average deaths of women due to aggression/average population of women x 100,000 women; mortality rate due to aggression in women with previous records of violence = deaths of women from aggression with notification of previous violence/notifications of violence by women x 100,000 women; ratio of mortality rates due to aggression = mortality rate due to homicides in women with previous records of violence/mortality rate due to aggression in the population of women in general.⁽¹⁶⁾

This study was approved by the Research Ethics Committee involving human beings from *Universidade Federal de Pernambuco* (CAAE (*Certificado de Apresentação para Apreciação Ética* - Certificate of Presentation for Ethical Consideration) 91858618.9.0000.5208), Opinion 2,986,711.

Results

Thus, 32,308 notifications of violence were registered in the Notifiable Diseases Information System and 1,162 homicides and 901 deaths from external causes of undetermined intent in the Mortality Information System. After being linked, 200 pairs were listed, of which 79 were excluded because they were identified in the Notifiable Diseases Information System as self-inflicted violence or because they were the notification of the homicide itself. There were 121 deaths with previous reports of violence, 101 of which were homicide pairs and 20 pairs with deaths from external causes of undetermined intent (Figure 1).

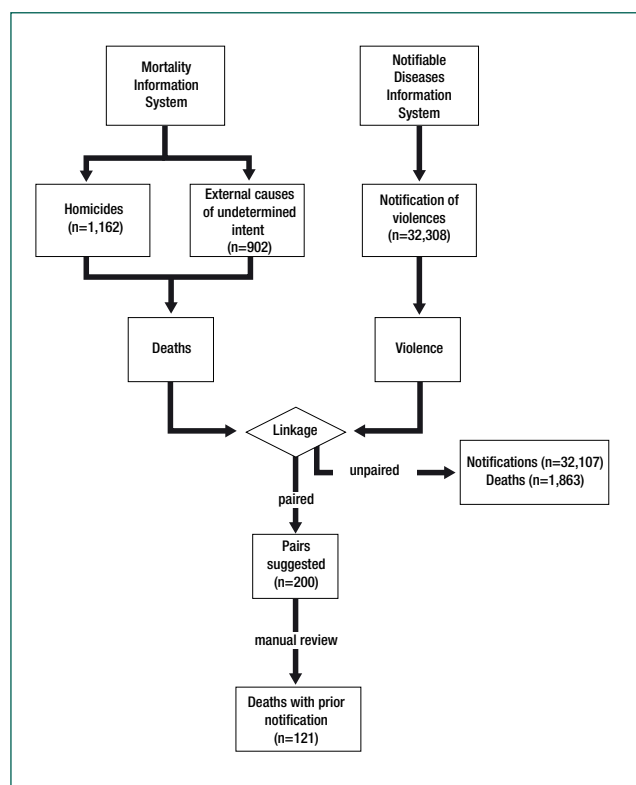


Figure 1. Flowchart of the linkage between the Mortality Information System and the Notifiable Diseases Information System

Homicides with prior notification of violence accounted for 8.7% of cases. The time between notification and homicide was, on average, 17 months (standard deviation of 19.4), with the shortest interval found being three days and the longest being

five years. For the general female population, the homicide rate was 5.7 per 100,000 women. For victims who had prior notification of violence, the rate was 374.5 per 100,000 women. Through a ratio of all rates, it was observed that women who had prior notification of violence had a 65.9 times higher risk of homicide than the population of women in general (Table 1).

Table 1. Homicide rate in the general female population, homicide rate in women with prior notification of violence and reason for the rates

Population	Rate
General population of women	5.7
Women with prior notification of violence	374.5
Reason for rates	65.9

Table 2 presents the characteristics of deaths with prior notification of violence. Most of victims were over 20 years old (82.6%), single (88.9%), black (91.7%) and with less than seven years of study (80.9%). Regarding prior notification, it was observed that the highest frequency was physical violence (65.8%), through body strength (42.2%), committed by a partner/ex-intimate partner (51.9%) and without a record of recurrence (63.6%). Deaths occurred at the hospital or other health services (41.3%). The main cause of death was by firing a firearm (44.6%), followed by sharps (25.6%).

Discussion

The results of this study identified black, single women who suffered physical aggressions perpetrated by an intimate partner, current or former, with the use of a firearm. The risk of homicide for women who had previously reported violence was higher than that of women in the general population.

Women who had previously reported violence had a 65.9 times greater risk of homicide than the population of women in general. A survey carried out in Brazil revealed that women exposed to violence had an estimated mortality risk 8.3 times greater than that of the general population of women and about 100 women died, weekly, as a direct

Table 2. Characteristics of homicides with previous records of violence after linkage

Variables	n(%)
Age group	
10 to 20 years old	21(17.4)
Older than 20 years old	100(82.6)
Marital Status*	
Single	104(88.9)
Married	8(6.8)
Divorced/widowed	5(4.3)
Race/color	
Non-Black	10(8.3)
Black	111(91.7)
Education*	
Less than 7 years of study	85(80.9)
7 years or more of study	20(19.0)
Type of previous violence **	
Individual	100(65.8)
Sexual	8(5.3)
Psychological	33(21.7)
Other	11(7.2)
Means of aggression from previous violence**	
Body strength	54(42.2)
Firearm	20(15.6)
Sharps	27(21.1)
Threat	20(15.6)
Others	7(5.5)
Perpetrator/victim relationship **	
Partner/ex-intimate partner	40(51.9)
Son	3(3.9)
Brother	3(3.9)
Unknown	9(11.7)
Others	22(28.6)
Recurrence of violence	
Yes	44(36.4)
No	77(63.6)
Place of death	
Hospital/other health services	50(41.3)
Home	23(19.0)
Public	39(32.2)
Others	9(7.4)
Cause of death	
Firearm firing	54(44.6)
Sharps	31(25.6)
Blunt object	15(12.4)
Hanging, strangulation, and suffocation	3(2.5)
Aggression by other means	18(14.9)

*Number/percentage of ignored: Marital status 4/3.3%; Education 16/13.2%; **A notification of violence can have more than one type of violence, more than one means of aggression and more than one aggressor

or indirect consequence of exposure to violence.⁽¹⁷⁾ Another survey revealed that the risk of death was at least 42 times higher for women with records of violence compared to the female population in general.⁽¹⁶⁾ Adult women, with notification of physical violence, had a 112.2 times greater risk of death from aggression than the general population.⁽¹⁶⁾

Also, 121 homicides were identified that had previous reports of violence, of which 20 were reg-

istered in the Mortality Information System as external causes of undetermined intent. These results may demonstrate underreporting of homicides of women. It was found that almost 9% of homicide victims had prior notification of violence in the Notifiable Diseases Information System.

It is likely that the ratio of women who are victims of violence is underreported and the data from the Notifiable Diseases Information System do not allow portraying violence against women in isolation, but provide important indicators for preventive actions. The overview of violence against women in Brazil highlights, among its results, the underreporting in the register of the main indicators, with varying intensity among the Federation Units.⁽¹⁸⁾ Often women who are victims of violence are silent about the fact and the main factors for this may be of a microsystemic nature (self-blame, concern for the family or children) or macrosystemic (expectations of society, normalization violence, and religious values).

The Notifiable Diseases Information System contained 32,308 notifications of violence against women in the entire study period. In 2016 alone, according to criminal indicators from the Civil Police of Pernambuco, there were 31,081 records of domestic and intrafamily violence against women.⁽¹⁹⁾ Admittedly, the number of cases of violence is higher than those reported by health, as not all types of violence require assistance in health services or, when there is health care, they are not notified; however, they can generate complaints to the police authorities, which may justify the existence of a greater number of cases in the police records.^(5,20)

Women victims of violence, treated at health services, characterize an opportunity for the prevention of homicides through the integration of risk assessment (identifying high-risk cases) and reinforce the need for criminal justice and social service interventions.⁽¹⁶⁾ Although screening for partner violence in healthcare settings is recommended by medical and nursing organizations, it is underperforming. In this sense, training to track victims of violence in emergency care can contribute to identifying these victims, carrying out interventions and increasing the necessary referrals.⁽²¹⁾

In the United States, 11.2% of women victims of homicide suffered some form of violence in the month before their death.⁽²²⁾ In Italy, 52.4% of women victims of homicides had records of admission to emergency services, due to physical aggression, in the 24 months prior to their death.⁽²³⁾ In Brazil, from 2011 to 2015, there were 23,278 deaths of women due to homicide; among these, 2,559 (10.9%) had prior notification of violence.⁽¹⁶⁾

The victims' characteristics reinforce the discussion that race/black color and low education, related to the socioeconomic situation, interfere with the vulnerability to violent injuries.⁽²⁴⁾ A study showed that black women had the highest homicide death rate (4.4 per 100,000) when compared to other races.⁽²²⁾

The aggressions committed by a partner or ex-intimate partner and by firing a firearm predominated in this study. A study of women assisted in primary care in Spain, showed that, among those who reported having suffered violence, 42.7% were assaulted by their intimate partner.⁽²⁵⁾ Other authors show that in cases where the perpetrator had a history of assaults, the likelihood of victims of suffering a fatal injury at home is 2.4 times greater.⁽²⁶⁾

In Peru, it was identified that the perpetrators of femicides were predominantly intimate partners, had as their main reasons jealousy and did not accept separations.⁽²⁷⁾ A survey conducted in the United States showed that 60.2% of homicide victims had a history of previous violence and that 5.7% were assaulted in the month prior to their death.⁽²⁸⁾

Deaths by firearms were more frequent, agreeing with results found in national and international surveys.⁽²⁸⁻³⁰⁾ In the United States, in 2015, 64% of homicides of women were perpetrated by an intimate partner and firearms were prominent in those deaths. About 60% of men kill using a firearm.^(22,31) Studies suggest that the legal restriction on the possession of firearms by people with a history of intimate partner violence may prevent homicides of women.^(32,33)

Sharps were the second cause of homicides in this study. The use of sharp, blunt objects or methods that use corporal force can represent a means to attack the victim during an acute conflict, while the firearm indicates a clear intention to murder the

victim (premeditation).⁽³⁴⁾ In Peru, between 2009 and 2014, it was observed that 40.9% of homicides of women were known to be premeditated.⁽²⁷⁾

Health services are places where victims of violence often seek assistance. Health teams may face cases of violence, from primary care to the tertiary level of health care.^(21,25) It is necessary to understand that health services need to act in an integrated manner with the other sectors of the protection network for victims of violence. Thus, notification of violence, through the interpersonal/self-inflicted notification of violence form, when articulated with the referral of the victim to other services (public security, social assistance) can interrupt the cycle of violence.⁽¹⁶⁾ As for health managers, it is understood that they need to know existing rules and/or protocols to deal with violence against women, in order to offer assistance to victims of violence.⁽³⁵⁾

This study presents a number of limitations. Firstly, the relationship quality is limited by the absence of unique identifiers and data quality (truncated records and missing or ambiguous information). It may not have been possible to identify all correspondences lost due to missing data in some records. For the best use of the paired data, it is important to assess linking processes' quality and understand the limitations and bias that the linking errors can introduce in the study results. The high quality of the relationship of bases is fundamental for results robustness.

Secondly, the data sets do not overlap exactly, so the expected number of matches is unknown. Third, data that would be relevant for a more detailed analysis of the situation of violence against women, such as, for example, police records, have restrictions on availability. In this study, even after an official request, the data were not made available by the Social Defense Office. In spite of these limitations, linkage is relevant for the knowledge of the scenario of violence against women and for the elaboration of a set of actions that aim to reduce it.

Conclusion

The profile of women victims of violence was single, black and with low education. Physical aggression

was the most reported type of violence, committed by a partner/ex-intimate partner. Most deaths occurred by firearms. Women with prior notification of violence were at higher risk of homicide when compared to the general population of women. Reducing lethal violence against women requires comprehensive measures, addressing individual, social, economic, cultural and situational factors. The results of this study may contribute to the expansion of knowledge, in the area of public health, about violence against women. The description of homicides of women, with previous records of violence, can assist in planning actions of intersectoral network that works to combat violence against women, as well as for formulating public policies for the protection and prevention of violence against women.

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Collaborations

Barros SC, Pimentel DR, Oliveira CM and Bonfim CV declare that they contributed to the study design, analysis and interpretation of data, writing of the article, relevant critical review of intellectual content and approval of the final version to be published.

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