







USING POLICE DATABASES AS A PROSPECT TO REDUCE UNDER-RECORDING OF VIOLENCE AGAINST WOMEN

UTILIZAÇÃO DE BANCOS DE DADOS POLICIAIS COMO PERSPECTIVA PARA REDUÇÃO DO SUB-REGISTRO DA VIOLÊNCIA CONTRA MULHERES

UTILIZAR LAS BASES DE DATOS POLICIALES COMO PERSPECTIVA PARA REDUCIR EL SUBREGISTRO DE LA VIOLENCIA CONTRA LAS MUJERES

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ABSTRACT

Objective: this study sought to evaluate the agreement between the Information System for Notifiable Health Problems (*Sistema de Informação de Agravos de Notificação*, SINAN) and Police data for cases of physical and sexual violence against women, as well as the profile of the assaulted women, the aggressions and the aggressors. **Method:** a cross-sectional study was conducted with cases in a city from Minas Gerais, notified to the SINAN and/or identified in the Police database between 2015 and 2016. A consolidated database was created, comprised by the eligible cases from both sources, with performance of descriptive analyses. An agreement analysis by means of the *Fleiss Kappa* test was performed in a paired database containing cases common to both databases. **Results:** a total of 1,185 cases comprised the consolidated database, whereas 56 were included in the paired one. There was 83.54% under-recording in the SINAN data, in addition to important information incompleteness. The Police database presented nearly eight times more recording of cases. Agreement of all the information was high/moderate for seven out of 11 characteristics evaluated for the common cases. In the consolidated databases, the victims were predominantly black-skinned, single or widowed, and aged between 18 and 39 years old. The main aggressors were men, mainly (former) partners and family members. **Conclusion:** under-recording and incompleteness of diverse information about violence against women in the SINAN is a reality that needs to be dealt with. Cross-referencing with Police data sources represent an alternative to improve quality of the information, reducing under-recording. Despite the underestimated data, it was noticed that physical and domestic violence, perpetrated by (former) partners against young and black-skinned women, continues to be prevalent, pointing to the fact that it should remain as the focus of public policies.

Keywords: Violence Against Women; Health Information Systems; Database; Legal Epidemiology.

RESUMO

Objetivo: buscou-se avaliar a concordância entre o Sistema de Informação de Agravos de Notificação (SINAN) e dados policiais para casos de violência física e sexual contra mulheres, bem como o perfil das mulheres agredidas, das agressões e dos agressores. **Método:** foi realizado estudo transversal com casos ocorridos em uma cidade de Minas Gerais, notificados no SINAN e/ou identificados na base policial, entre os anos de 2015 e 2016. Criou-se uma base consolidada, composta pelos casos elegíveis das duas fontes, tendo sido realizadas análises descritivas. Em uma base pareada contendo casos comuns aos dois bancos, foi realizada análise de concordância pelo teste *Fleiss Kappa*. **Resultados:** 1.185 casos compuseram a base consolidada e 56 constituíram a base pareada. Houve sub-registro de 83,54% nos dados do SINAN, além de incompletude importante de informações. A base policial apresentou cerca de oito vezes maior captação. A concordância de informações foi elevada/moderada para sete de 11 características avaliadas para os casos comuns. Na base consolidada, as vítimas foram predominantemente negras, solteiras ou viúvas, com idade entre 18 e 39 anos. Os homens, especialmente (ex)parceiros e familiares, foram os principais agressores. **Conclusão:** o sub-registro e a incompletude de informações sobre violência contra mulher no SINAN é uma realidade que precisa ser tratada. O cruzamento com fontes de dados policiais é uma alternativa para melhorar a qualidade das informações, reduzindo o sub-registro. Apesar dos dados subestimados, percebeu-se que a violência física e doméstica, cometida por (ex)parceiro contra mulheres jovens e negras continua sendo prevalente, atentando para o fato que se deve manter foco de políticas públicas.

Palavras-chave: Violência Contra a Mulher; Sistemas de Informação em Saúde; Base de Dados; Epidemiologia Legal.

RESUMEN

Objetivo: se buscó evaluar la concordancia entre el Sistema de Información de Agravos de Notificación (SINAN) y los datos policiales para los casos de violencia física y sexual contra las mujeres, así como el perfil de las mujeres maltratadas, de las agresiones y agresores. **Método:**

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estudio transversal realizado con casos ocurridos en una ciudad de Minas Gerais, notificados en el SINAN y/o identificados en la base policial, entre los años 2015 y 2016. Se creó una base consolidada, compuesta por casos elegibles de ambas fuentes, donde se realizaron análisis descriptivos. Se creó una base emparejada, que contenía casos comunes a ambos bancos, donde se realizó el análisis de concordancia mediante la prueba Fleiss'Kappa. **Resultados:** 1.185 casos compusieron la base de datos consolidada y 56 constituyeron la base de datos apareada. Hubo un subregistro del 83,54% en los datos del SINAN, además de importantes datos incompletos. La base policial tuvo una captación ocho veces mayor. La concordancia de las informaciones fue alta/moderada para siete de las 11 características evaluadas para los casos comunes. En la base de datos consolidada, las víctimas eran predominantemente negras, solteras o viudas, con edades entre 18 y 39 años. Los hombres, especialmente (ex) parejas y familiares, fueron los principales agresores. **Conclusión:** el subregistro y la información incompleta sobre violencia contra las mujeres en el SINAN es una realidad que debe ser atendida, siendo el cruce con fuentes de datos policiales una alternativa para mejorar la calidad de la información, reduciendo el subregistro. A pesar de los datos subestimados, se percibió que la violencia física, intrafamiliar, cometida por (ex) parejas contra mujeres jóvenes y negras sigue prevaleciendo, y debe permanecer en el foco de las políticas públicas.

Palabras clave: Violencia contra la Mujer; Sistemas de Información en Salud; Base de Datos; Epidemiología del Derecho.

INTRODUCTION

According to data from DATASUS - Brazilian Mortality Information System (*Sistema de Informações Sobre Mortalidade*, SIM), external causes (types of violence and accidents) were the second reason for hospitalization in Brazil in 2019 and the fourth cause of mortality reported in 2018. The Ministry of Health (*Ministério da Saúde*, MS) has included health promotion and prevention and surveillance of violence and accidents in its agenda since 2001, creating the Brazilian National Policy to Reduce Morbidity and Mortality due to Accidents and Violence.¹ To increase visibility of the problem, considered endemic and a public health problem, in 2004, the MS created the National Network for Violence Prevention and Health Promotion. In 2006, it created the Violence and Accidents Surveillance System (*Sistema de Vigilância de Violências e Acidentes*, VIVA), which has two components: the VIVA Survey, carried out periodically in Urgency and Emergency Sentinel Services; and Continuous VIVA, fed with information from the Notification Forms in the Information System for Notifiable Health Problems (SINAN).²⁻⁴ The SINAN is decentralized, has national coverage and aims at recording and processing diverse information related to the notification of various types of health problems, including the many forms of violence (MS Ordinance No. 104/2011).⁵

Although violence is a global problem, it does not affect the population uniformly, and gender is an important factor that defines patterns of violent events.⁶ According to the Inter-American Convention on the prevention, punishment and eradication of violence against women, Violence Against Women (VAW) is defined as “any action

or behavior, based on gender, that causes death, harm or physical, sexual or psychological distress to women, whether in the public or private spheres”. VAW has its own characteristics and causes countless health problems, including deaths and injuries due to aggressions, sexually transmitted infections (STIs) and depressive disorders, among others.^{4,7,8} In Brazil, there were 3,728 deaths of women as a result of aggressions, 298 of them in Minas Gerais (MG), as well as 185,868 notifications of VAW (non-self-inflicted) cases in the SINAN, of which 24,208 were in MG (data extracted from DATASUS).

Many women who experience violence tend not to seek help from primary or secondary social networks, which fosters under-recording and invisibility of the problem.^{8,9} When these women seek some kind of protection network device, health services are one of the first assistance resources to be visited.^{8,10,11} Health professionals are responsible for welcoming and assisting the victims, in addition to notifying the SINAN (MS Ordinance No. 2,406/2004).

Police units are another important first-access device.^{8,11} The Civil Police (*Polícia Civil*, PC) is responsible for guaranteeing, when necessary, Police protection, transportation of the woman and her dependents to a shelter/safety place and referral to health institutions and to the Legal Medical Institute (*Instituto Médico Legal*, IML), among other actions (Law No. 11,340/2006 – *Maria da Penha*). In addition to that, the PC is responsible for requesting urgent protective measures and for preparing and forwarding the Police investigation records to the judge and the Public Prosecutor's Office (Law No. 11,340/2006 – *Maria da Penha*).¹² The legal medicine investigation units are responsible for verifying any type of offense to the integrity of the human being, by means of a forensic examination of the *corpus delicti* (Decree Law No. 3,689/1941 – Criminal Procedure Code).¹³

Not all assaulted women who seek medical care report having being victims of violence,^{8,14} and not all the instances when they report violence to the health professional are duly notified to the SINAN.¹⁵ In addition, some women only seek assistance in the Civil Police Stations (*Delegacias de Polícia Civil*, DPCs), not resorting to health units for evaluations. Consequently, such cases tend not to be registered in SINAN, contributing to under-recording. Likewise, many women fail to seek the Civil Police to record the occurrence, leading to under-recording in both systems.²

VAW identification and notification constitute a path to protect the victims, as seeking improvements in these flows is both a legal obligation and a proof of citizenship

and humanism. Notification is the main key to better understand the problem and formulate promotion and prevention public policies that take into account the local peculiarities.¹⁵ The active search for VAW cases in Police data sources could contribute to reducing the invisibility of this problem.

In this sense, the current study aims at analyzing the agreement between the Information System for Notifiable Health Problems (SINAN) and Police data for cases of physical and sexual violence against women, as well as to evaluate the profile of the victims, the aggressions and the aggressors. To such end, a cross-sectional study was conducted with cases in a city from *Minas Gerais*, notified to SINAN and/or identified in the Police database between 2015 and 2016. A consolidated database was created, comprised by the eligible cases from both sources, with performance of descriptive analyses. A paired database containing cases common to both databases was also created, with performance of an agreement analysis by means of the *Fleiss Kappa* test.

METHOD

A cross-sectional and epidemiological study was conducted based on the deterministic relationship of cases of women victims of interpersonal violence (physical and sexual) in the municipality of *Ribeirão das Neves* (RN), *Minas Gerais* (MG), during 2015 and 2016.¹⁶ Two databases were used in data pairing, namely: the Information System for Notifiable Health Problems (SINAN) and the Civil Police database (prepared with information from the Forensic Medical Center and with Occurrence Bulletins).^{2,12} According to the 2010 Census by the Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística*, IBGE), *Ribeirão das Neves* had a resident population of 296,317 people, with 149,335 women, and an HDI of 0.684.¹⁷

The SINAN data related to the cases of “domestic, sexual and/or other types of violence” were made available by the *Ribeirão das Neves* Municipal Health

Department. The database included 363 notifications, with exclusion of 168 cases: 30 that were alien to *Ribeirão das Neves*, 126 self-provoked injuries, nine not dealing with physical and/or sexual violence and three duplicates (Figure 1). Therefore, the SINAN database was comprised by 195 cases (Figure 1).

The following sources/platforms were consulted for the Police data:

- *Ribeirão das Neves* Legal Medical Center (*Posto Médico Legal de Ribeirão das Neves*, PML/RN): a public agency linked to the Technical and Scientific Police Superintendence of the *Minas Gerais* Civil Police, responsible for the medical-legal investigation of cases of physical and sexual violence in *Ribeirão das Neves* and *Esmeraldas*. A digital table containing the records of all the cases investigated at PML/RN during 2015 and 2016 was made available. The cases of women victims of violence in *Ribeirão das Neves* were selected. Subsequently, all the information regarding the investigation reports of “Body Examination (Including Bodily Injury)”, “Complementary Body Examination”, “Sexology Examination of a Female Person”, and “Indirect Examination (from Medical Documentation)”, which was prepared, stored and provided by the PML/RN, was added to this table (Figure 2).
- Informatization and Management System for Legal Police Actions (PCNet): a virtual platform for archiving medical-legal investigation reports and various other police documents. Part of the forensic reports cited was available on this platform and was consulted by signing with a digital certificate, to add information to the table provided (Figure 2).
- Registry of Social Defense Events (*Registro de Eventos de Defesa Social*, REDS): an online platform in which the MG Occurrence Bulletins (*Boletins de Ocorrência*, BOs) are prepared by the Civil Police, the Military Fire Department and the Military Police (*Polícia Militar*, PM). On this platform, all the BOs of the selected women were searched to complement sociodemographic information and data related to the history of the aggressions that were not available in the investigation reports (Figure 2).

A total of 112 out of all 1,158 Police cases selected were excluded, as follows: 77 due to filling-in technical problems; 25 because the reports were not available;

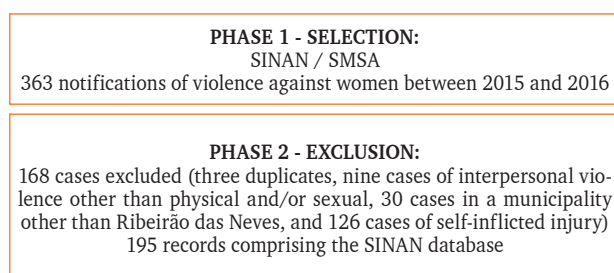


Figure 1 - Sampling flow of the SINAN data
Legend: SINAN = *Sistema de Informação de Agravos de Notificação* (Information System for Notifiable Health Problems) / SMSA = *Secretaria Municipal de Saúde* (Municipal Health Department).

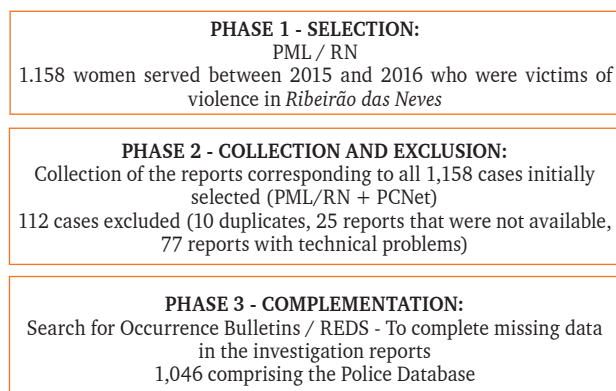


Figure 2 - Sampling flow of the Police data
Legend: PML/RN = Posto Médico Legal de Ribeirão das Neves / PCNet = Informatization and Management System for Legal Police Actions / REDS = Registro de Eventos de Defesa Social.

and 10 for being duplicates. The final Police database was comprised by 1,046 cases (Figure 2).

The SINAN data were crossed with the Police data seeking cases common to both databases. The R software (R Core Team, 2020) was used in the 'find_most_similar_string' function from the 'similars' 1 package, which identified and returned the closest value to each name in a list identified in a second list of names, and the result was manually verified. A manual check was also performed in Microsoft Excel®, where the following variables were used to verify the matching pairs in both databases: name, date of birth and mother's name of the woman victim of violence, and date of occurrence of the case of violence. All the cases in common observed after both searches were selected in each database and unified into a paired database (n=56). A consolidated database was also prepared, which was comprised by 1,185 cases (Figure 3).

All the information used corresponded to the data included in SINAN, as it is the official national source

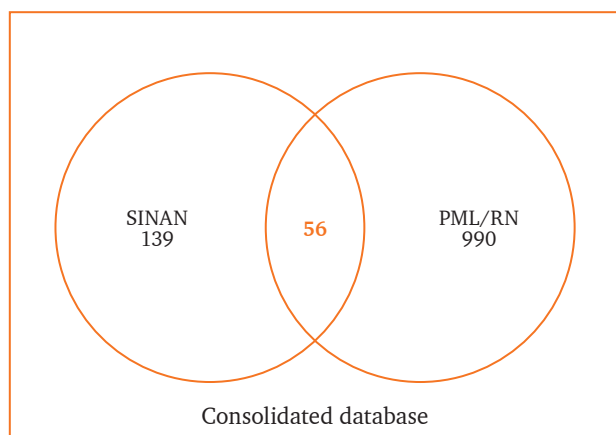


Figure 3 - Venn's diagram. PML/RN with 1,046 cases, SINAN with 195, consolidated database with 1,185 exclusive cases and paired database with 56 common cases (in orange)
Legend: SINAN = Sistema de Informação de Agravos de Notificação / PML/RN = Posto Médico Legal de Ribeirão das Neves.

The variables used in the study were classified and coded as follows:

- **Characteristics of the women served:** age group, skin color, marital status, schooling, and pregnancy.
- **Characteristics of the aggressors:** number, gender, kinship to the victim, and family member as aggressor.
- **Characteristics of the aggressions:** type, year of occurrence, having previously received medical care and medical-legal evaluation, part of the body assaulted, severity of the injury, and aggression instrument or means.
- **Course of action in cases of sexual violence:** collection of biological material (blood and/or semen and/or vaginal secretion); performance of legal abortion; prophylaxis for Sexually Transmitted Diseases (STDs); and emergency contraception.

Not all the variables evaluated were available in both databases.

Descriptive analyses of the frequency measures were performed in the paired and consolidated databases. Both databases were compared according to the sociodemographic characteristics and to the aggressions to the women in situations of violence, presenting the respective frequencies and proportions.

In the paired database, an agreement analysis of the common records in both databases was performed, using the *Fleiss Kappa* test for the following variables: type of aggression; year of occurrence; age group (in years old); race/skin color; marital status; schooling (in years of study); gender of the aggressor; aggressor's kinship with the victim; number of aggressor(s); aggression instrument or means; and collection of material. The *Kappa* index varies between 0 and 1, as follows: $K < 0$: no agreement; $0 \leq K < 0.21$: presence of slight agreement; $0.21 \leq K < 0.41$: weak agreement; $0.41 \leq K < 0.61$: moderate agreement; $0.61 \leq K < 0.81$: substantial agreement; and $0.81 \leq K \leq 1.00$: almost perfect agreement. The statistical assessments were performed in IBM® SPSS® Statistics (Version 23).

The research project was approved by the Research Ethics Committee, respecting all terms related to the confidentiality and protection of identified data, as stated in Resolution 466/2012, which approves guidelines and regulatory norms for research involving human beings.

RESULTS

The numbers of women in the Police and SINAN databases were 1,046 and 195, respectively. "Linkage" of

both databases yielded 56 cases for the paired database. The total of women evaluated in the consolidated database was 1,185. There was under-recording in 11.73% of the cases in the Police database, and 83.54% in SINAN.

For the 56 cases common to both databases (paired database), agreement was almost perfect for the type

of aggression, years of occurrence and age group; moderate for marital status, schooling, aggressor's kinship with the victim, and collection of biological material; weak for skin color, gender of the aggressor, number of aggressors, and aggression instrument or means (Table 1).

Table 1 - Evaluation of the information agreement between PML/RN and SINAN in the Paired Database according to sociodemographic characteristics and aggressions of women in situations of violence (Ribeirão das Neves, 2015-2016)

| | | PML | SINAN | Kappa [#] |
|-----------------------------------|-------------------------|-----|-------|--------------------|
| Type of aggression | Physical | 39 | 39 | 1 |
| | Sexual | 17 | 17 | |
| Year of occurrence | 2015 | 32 | 33 | 0.890 |
| | 2016 | 24 | 23 | |
| Age group (in years old) | 0 - 11 | 7 | 9 | 0.973 |
| | 12 - 17 | 8 | 8 | |
| | 18 - 39 | 25 | 25 | |
| | 40 - 59 | 12 | 12 | |
| | ≥ 60 | 2 | 2 | |
| Race/Skin color | Black | 31 | 9 | 0.241 |
| | White | 14 | 6 | |
| Marital status | Single | 25 | 13 | 0.585 |
| | Married | 16 | 7 | |
| | Separated | 3 | 0 | |
| | Does not apply | 3 | 5 | |
| Schooling (in years of study) | Does not apply | 2 | 3 | 0.538 |
| | Less than Eight | 31 | 8 | |
| | Eight | 3 | 0 | |
| | More than Eight | 12 | 0 | |
| | Unknown | 8 | 45 | |
| Gender of the aggressor | Male | 46 | 29 | 0.231 |
| | Female | 5 | 6 | |
| | Unknown | 5 | 21 | |
| Aggressors' kinship to the victim | Family member | 7 | 8 | 0.634 |
| | Acquaintance/ Friend | 14 | 6 | |
| | Unknown | 6 | 10 | |
| | Partner | 23 | 13 | |
| Number of aggressors | One | 50 | 34 | 0.236 |
| | More than one | 1 | 5 | |
| Aggression instrument or means | Blunt object | 43 | 39 | 0.382 |
| | Sharp object | 0 | 5 | |
| | Sharp perforation | 1 | 2 | |
| | Physical | 1 | 0 | |
| | Physicochemical | 0 | 0 | |
| Collection of material* | Not collected | 7 | 1 | 0.421 |
| | Collected | 10 | 10 | |

Legend: [#]missing excluded from the analysis, PML/RN = Posto Médico Legal de Ribeirão das Neves, SINAN = Sistema de Informação de Agravos de Notificação, *Only for Sexology = 17 cases.

In the consolidated database, most of the aggressions corresponded to physical violence (85.4%), and the instances were more frequent in 2015 (51.31%). Most of the victims were aged between 18 and 39 years old (55.70%). Black skin color was declared by 63.71% of the women, and there were 115 black- and 640 brown-skinned women. Most of the women were single or widowed (37.46%) and reported having more than eight years of study (34.35%). Although this study was focused on aggressions that occurred in *Ribeirão das Neves*, there were women who lived in other cities: 25 cases (Table 2).

Most of the aggressors were male (74.09%), with intimate partners (47.34%) as the most involved in the violent acts. For most cases, there was only one aggressor (82.62%), and the aggression means corresponded to blunt objects (75.36%). For sexual assaults, biological material was collected in 27.75% of the cases (Table 2).

Of the 195 women listed in the SINAN, 2.56% were pregnant, for whom no abortion was reported; 31.79% were in situations of sexual violence, and only for two women was there a description of prophylaxis against STDs and emergency contraception (Table 2).

Of the 1,046 women in the Police data, 23.42% received medical care prior to the forensic examination, and 0.86% had injuries of a serious nature (Table 2). As for the extragenital lesions observed, the number of cases per anatomical region affected was as follows: 511 - lower limbs; 348 - head; 308 - upper limbs; 118 - neck; 89 - anterior chest; 67 - back; 29 - abdomen, with the possibility of simultaneous injuries in more than one topography; data not shown.

Table 2 - Sociodemographic characteristics of the aggressions for women in situations of violence, according to database (*Ribeirão das Neves*, 2015-2016)

| Variables | | PML | | SINAN | | Consolidated | |
|-------------------------------------|-----------------|-----|-------|-------|-------|--------------|-------|
| | | N | % | N | % | N | % |
| Type of aggression | Physical | 918 | 87.76 | 133 | 68.21 | 1.012 | 85.40 |
| | Sexual | 128 | 12.24 | 62 | 31.79 | 173 | 14.60 |
| Year of occurrence | 2015 | 522 | 49.90 | 118 | 60.51 | 608 | 51.31 |
| | 2016 | 524 | 50.10 | 77 | 39.49 | 577 | 48.69 |
| Characteristics of the women served | | | | | | | |
| Age group (in years old) | 0 - 11 | 77 | 7.36 | 27 | 13.85 | 97 | 8.19 |
| | 12 - 17 | 134 | 12.81 | 32 | 16.41 | 158 | 13.33 |
| | 18 - 39 | 595 | 56.88 | 90 | 46.15 | 660 | 55.70 |
| | 40 - 59 | 193 | 18.45 | 40 | 20.51 | 221 | 18.65 |
| | ≥ 60 | 33 | 3.15 | 6 | 3.08 | 37 | 3.12 |
| | Unknown | 14 | 1.34 | 0 | 0 | 12 | 1.01 |
| Race/Skin color | Black | 748 | 71.65 | 38 | 19.69 | 755 | 63.71 |
| | White | 157 | 15.04 | 19 | 9.84 | 162 | 13.67 |
| | Unknown | 139 | 13.31 | 136 | 70.47 | 268 | 22.62 |
| Marital status | Single or widow | 429 | 41.01 | 42 | 21.54 | 446 | 37.46 |
| | Married | 402 | 38.43 | 23 | 11.79 | 409 | 34.51 |
| | Separated | 50 | 4.78 | 4 | 2.05 | 51 | 4.3 |
| | Does not apply | 56 | 5.35 | 19 | 9.74 | 72 | 6.08 |
| | Unknown | 109 | 10.42 | 107 | 54.87 | 207 | 17.47 |
| Schooling (in years of study) | Does not apply | 32 | 3.06 | 15 | 7.69 | 45 | 3.8 |
| | Less than Eight | 396 | 37.86 | 20 | 10.26 | 385 | 32.49 |
| | Eight | 76 | 7.27 | 1 | 0.51 | 74 | 6.24 |
| | More than Eight | 408 | 39.01 | 11 | 5.64 | 407 | 34.35 |
| | Unknown | 134 | 12.81 | 148 | 75.9 | 274 | 23.12 |

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Table 2 - Sociodemographic characteristics of the aggressions for women in situations of violence, according to database (Ribeirão das Neves, 2015-2016)

| Variables | | PML | | SINAN | | Consolidated | |
|---|-----------------------|-----|-------|-------|-------|--------------|-------|
| | | N | % | N | % | N | % |
| Pregnancy | No | X | X | 95 | 48.72 | X | X |
| | Yes | X | X | 5 | 2.56 | X | X |
| | Does not apply | X | X | 21 | 10.77 | X | X |
| | Unknown | X | X | 74 | 37.95 | X | X |
| Characteristics of the aggressors | | | | | | | |
| Gender of the aggressor | Male | 821 | 78.49 | 103 | 52.82 | 878 | 74.09 |
| | Female | 146 | 13.96 | 11 | 5.64 | 152 | 12.83 |
| | Both | 29 | 2.77 | 2 | 1.03 | 31 | 2.62 |
| | Unknown | 50 | 4.78 | 79 | 40.51 | 124 | 10.46 |
| Aggressors' kinship to the victim | Family member | 202 | 19.31 | 26 | 13.33 | 221 | 18.65 |
| | Acquaintance / Friend | 191 | 18.26 | 15 | 7.69 | 192 | 16.2 |
| | Unknown | 39 | 3.73 | 33 | 16.92 | 66 | 5.57 |
| | Partner | 544 | 52.01 | 40 | 20.51 | 561 | 47.34 |
| | Unknown | 70 | 6.69 | 81 | 41.54 | 145 | 12.24 |
| Family member as aggressor* | Parents | 78 | 38.61 | 13 | 50 | 89 | 40.27 |
| | Other | 124 | 61.39 | 13 | 50 | 132 | 59.73 |
| Number of aggressors | One | 919 | 87.86 | 110 | 56.41 | 979 | 82.62 |
| | More than one | 75 | 7.17 | 15 | 7.69 | 89 | 7.51 |
| | Unknown | 52 | 4.97 | 70 | 35.9 | 117 | 9.87 |
| Characteristics of the aggressions | | | | | | | |
| Aggression instrument or means | Blunt object | 814 | 77.82 | 122 | 62.56 | 893 | 75.36 |
| | Sharp object | 29 | 2.77 | 15 | 7.69 | 44 | 3.71 |
| | Sharp perforation | 8 | 0.76 | 14 | 7.18 | 21 | 1.77 |
| | Physical | 9 | 0.86 | 2 | 1.03 | 10 | 0.84 |
| | Physicochemical | 1 | 0.1 | 9 | 4.62 | 10 | 0.84 |
| | Unknown | 185 | 17.69 | 33 | 16.92 | 207 | 17.47 |
| Medical care | No | 329 | 31.45 | X | X | X | X |
| | Yes | 245 | 23.42 | X | X | X | X |
| | Unknown | 472 | 45.12 | X | X | X | X |
| Severity of the injury | Mild | 829 | 79.25 | X | X | X | X |
| | Severe | 9 | 0.86 | X | X | X | X |
| | Unknown | 208 | 19.89 | X | X | X | X |
| Courses of action in the cases of sexual violence | | | | | | | |
| Collection of material | Not collected | 98 | 76.56 | 6 | 9.68 | 97 | 56.07 |
| | Collected | 30 | 23.44 | 28 | 45.16 | 48 | 27.75 |
| | Unknown | 0 | 0 | 28 | 45.16 | 28 | 16.18 |
| STD prophylaxis | Not performed | X | X | 11 | 17.74 | X | X |
| | Performed | X | X | 2 | 3.23 | X | X |
| | Unknown | X | X | 49 | 79.03 | X | X |

continue...

...continuation

Table 2 - Sociodemographic characteristics of the aggressions for women in situations of violence, according to database (Ribeirão das Neves, 2015-2016)

| Variables | | PML | | SINAN | | Consolidated | |
|---|---------------|-------|---|-------|-------|--------------|---|
| | | N | % | N | % | N | % |
| Courses of action in the cases of sexual violence | | | | | | | |
| Emergency contraception | Not performed | X | X | 14 | 22.58 | X | X |
| | Performed | X | X | 21 | 33.87 | X | X |
| | Unknown | X | X | 27 | 43.55 | X | X |
| Abortion | Not performed | X | X | 23 | 37.10 | X | X |
| | Unknown | X | X | 39 | 62.90 | X | X |
| Total | | 1,046 | | 195 | | 1,185 | |

Legend: PML/RN = Posto Médico Legal de Ribeirão das Neves, SINAN = Sistema de Informação de Agravos de Notificação, *Aggression exclusively perpetrated by family members.

DISCUSSION

For the first time ever, the study analyzes the agreement in recording diverse information from two bases that address Violence Against Women (VAW), the SINAN and the Civil Police, in a city from inland *Minas Gerais* (MG). The Police database showed a recording level nearly eight times higher than the SINAN. The common cases in both sources were less than 5% of the total consolidated database. The information agreement for cases present in both databases was high/moderate for seven of 11 variables evaluated. In the consolidated database, the women were predominantly black-skinned, single or widowed, and aged between the 18 and 39 years old. The main aggressors were men, especially former partners and family members of the victims.

The study points to 83.54% underreporting in the SINAN. Despite the importance of Law No. 10,778/2003 and Ministry of Health (MS) Ordinances No. 2,406/2004 and No. 104/2011, which regulate the notification of VAW and make it compulsory, and the effort to increase notifications in the SINAN, there is still significant under-reporting.⁵ Filling out of the notification forms is in charge of professionals who are sometimes overworked, poorly trained to identify complex cases, or afraid of the consequences of notifying.^{5,6,18} The higher number of under-recordings in the SINAN when compared to the Police database may also indicate that assaulted women seek health services less than the Police, as violence does not always result in moderate/severe bodily injury requiring urgency/emergency care. Nearly 20% of the people assaulted by acquaintances and who answered the National Health Survey reported no bodily injury.¹⁹ In addition to that, according to BOs drawn up at a Civil Police Station from a municipality of *São Paulo* in 2014, only eight out of 143

adult women in situations of physical and/or sexual violence required hospitalization.²⁰

Regardless of the severity of the injury, every case of rape and domestic violence against women is of unconditioned public criminal action, not depending on the victim's representation to be investigated (Decree Law No. 2,848/1940 - Penal Code; Precedent 542 of the Superior Court of Justice). In 2020, it became mandatory for health services to compulsorily report all VAW cases to the Police authority (Law No. 13,931/2019). Thus, it was defined by law that health professionals must report to the Police all cases of aggression against women, regardless of the severity of the injury and the victim's consent. There are ethical issues, related to professional confidentiality and based on patient protection and the physician-patient relationship of trust, which can weigh on this obligation, and it is necessary to discuss them in more depth with the Class Councils.²¹

Despite the regulations that aim at protecting women in situations of violence, reporting to the Police against the victim's will - especially for minor injuries - might inhibit the search for health care or encourage untruthful reports, losing the chance to notify the SINAN and monitor the victim.²¹ Thus, the 2019 law might further worsen the landscape of data under-reporting in the SINAN, with the need to evaluate its impact on SINAN notifications in time-series studies. The prosecutors in the states of *Goiás* and *Mato Grosso* have instructed the health services to inform the Police authority about the sociodemographic characteristics of the services provided without, however, identifying each woman victim of violence.

Cross-referencing between databases might be useful to complete VAW information in the SINAN. The "linkage" technique was initiated in the AIDS epidemic between the

Mortality Information System (SIM) and the SINAN.²² Cross-referencing of the SINAN data with Police sources has proved to be efficient to assess under-reporting of other health problems - although Police data has a different purpose than the SINAN's, for covering criminal records and not being universal. In fatal work-related accidents reported in 2011 in *Belo Horizonte*, MG, underreporting of 14.8% of the cases was observed in the SINAN after crossing with the SIM and Police data.²³ In *Palmas (Tocantins)*, between 2007 and 2015, the same problem was investigated and underreporting was found in 15.1% of the cases in the SINAN after crossing with the SIM - data from the Ministry of Labor and Police sources.²⁴ For victims of fatal exogenous poisonings that occurred in the Federal District (*Distrito Federal*, DF) between 2009 and 2013, underreporting of 94.7% of the cases was observed in the SINAN after cross-checking with the SIM - Toxicological Information Center and Police data.²⁵ Therefore, depending on the problem and occurrence locus, the underreporting proportion in the SINAN may vary. Linking more than one information source, such as Police data, might improve the number of VAW records in the SINAN, in addition to their quality, rendering them more reliable.²³

Although Police and Health services are the first gateway of women in situations of violence to the care network, both types of institution are not always activated in the same event.^{8,10} The Civil Police Stations (DPCs) record the occurrence bulletin, open the Police investigation and issue the request for a forensic examination for all women in situations of violence.^{12,13} However, not all of them go to the forensic units to perform the *corpus delicti* exam. There are also cases initially handled by the PM in which the victim does not attend the DPC to proceed with the Police investigation. This means that searches for Police data with greater breadth, involving multiple sources, might further improve recording of cases in the SINAN. Oftentimes, women in situations of violence do not seek Police assistance or do not continue the assistance for fear of retaliation by the intimate partner, either out of shame, guilt or fear of being misunderstood, discredited and offended, or for other reasons.²

In addition to using “linkage” to improve recording of VAW cases in the SINAN, it is fundamental to train notifiers so that they understand that they have crucial technical and social roles in coping with the problem.⁵ Information coders should be made aware of how to improve data filling out, in order to reduce the number of lost or mistaken pieces of information.^{5,25} The amount of unknown/lost information pointed out in some papers and

observed in the current study points to the need for this improvement, being considered excellent when the “missings” are up to 10% - criteria defined by the Economic Commission for Latin America and the Caribbean.¹⁸ Despite the underreporting and unknown data in the databases addressed in this study, the information agreement between them varied from almost perfect to moderate in 63.63% of the variables analyzed.

Regulations that address the counterflow of information (Police to SINAN) might be efficient in reducing underreporting and monitoring of cases in the SINAN. Actively searching for VAW cases, performing database “linkage” and using digital tools - such as creating simultaneous BO digital records and summary notification of the problem - might be useful tools.

The health sector plays a key role in coping with these types of violence, as it participates in notification recording, as well as in welcoming, treatment and counseling of the victims.² VAW surveillance is part of the monitoring of the National Policy to Combat VAW, by the Policies for Women Department (2011). This surveillance is crucial to systematically monitor and evaluate all four axes of the policy in question: prevention, combat, assistance and guarantee of rights.¹⁹ It allows expanding and qualifying the data, pointing out risk and protective factors related to cases, helping to (re)organize the coping network.²⁴

In the current study, there was predominance of women aged between 18 and 39 years old, black-skinned, who suffered physical violence perpetrated by men, especially intimate partners, with the use of a blunt objects; these data are congruent with those pointed out in other studies involving VIVA.^{3,4,18} Although single women and widows were the main group assaulted, those who were married or separated presented a higher frequency (38.81%). As previously shown, family members were another important group of aggressors with a combined frequency of 65.99% with intimate partners.^{3,4,18} The data corroborate the importance of addressing and discussing domestic violence as the main form of VAW - although the problem is more serious than what is perceived, mainly due to underreporting. Prevention should guide changes in values to reduce the silence culture and trivialization of the problem, as well as to implement educational constructions to confront the use of force rooted in hegemonic masculinity, legacy of a macho and patriarchal society.^{3,4,19}

The results shown in this study have some limitations: the data were obtained from a specific geographic region, with a peculiar investigation flow, covering a period of only two years and based on secondary information sources; the number of cases in the paired database is small,

also due to data availability (2015-2016), which limits extrapolation of the results; there are administrative particularities involving the operation of the investigation bodies in the different Brazilian states; and there were difficulties in “linkage” of the databases, as there were no more objective criteria for integrating the systems, such as a unique individual number that could be used in all national databases.

In view of these limitations, it is suggested that new papers on the topic be developed, contemplating more recent, more complete and territorially more comprehensive data, therefore conducting them in a more robust database. In this context, a more dynamic compilation of Police data is mandatory, with the development of computer tools to foster such strategy. Thus, the performance of automatic “linkage” with health data would be eased, including prior standardization of variables/categories. Once the results are validated and future extrapolations are possible, it is suggested that correction factors be created to deal with underreporting in state analyses of violence against women. With improved information, it would be possible to review/construct public policies on the topic in a more targeted way.

CONCLUSION

After evaluating the VAW data record in two databases (SINAN and Civil Police) in a city from *Minas Gerais* during 2015 and 2016, it was observed that the Police database recorded nearly eight times more cases than the SINAN. When the agreement between these two databases was analyzed for the first time, it was concluded that there was high/moderate agreement for seven of the 11 variables evaluated. The assaulted women were predominantly black-skinned, single or widowed and aged between 18 and 39 years old. The main aggressors were men, mainly former partners and family members.

Knowing the VAW context more in depth is crucial to create more targeted and specific coping strategies, such as reviewing/devising specific public policies. The integration between the several agencies that comprise the VAW coping network, through cross-referencing/“linkage” of information (especially Police data), can be an excellent starting point for reducing under-recording and invisibility of the problem. Despite the underestimated data, it was perceived that physical and domestic violence perpetrated by former partners against young and black-skinned women is still prevalent and should remain as a focus of public policies.

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REFERENCES

1. Malta DC, Souza ER. A busca de sociedades pacíficas e inclusivas até 2030. *Rev Bras Epidemiol* [Internet]. 2020[cited 2022 Nov 19];23(Suppl.1):e200001. Available from: <https://doi.org/10.1590/1980-549720200001.supl.1>
2. Gawryszewski VP, Silva MMA, Malta DC, Mascarenhas MDM, Costa VC, Matos SG, et al. A proposta da rede de serviços sentinela como estratégia da vigilância de violências e acidentes. *Ciênc Saúde Colet* [Internet]. 2007[cited 2021 Jan 20];11(Suppl):S1269-78. Available from: <https://doi.org/10.1590/S1413-81232006000500016>
3. Vasconcelos NM, Andrade FMD, Gomes CS, Bernal RTI, Malta DC. Violência física contra mulheres perpetrada por parceiro íntimo: análise do VIVA Inquérito 2017. *Ciênc Saúde Colet* [Internet]. 2022[cited 2022 Nov 19];27(10):3993-4002. Available from: <https://doi.org/10.1590/1413-812320222710.08162022>
4. Pinto IV, Bevilacqua PD, Ribeiro AP, Santos AP, Bernal RTI, Malta DC. Agressões nos atendimentos de urgência e emergência em capitais do Brasil: perspectivas do VIVA Inquérito 2011, 2014 e 2017. *Rev Bras Epidemiol* [Internet]. 2020[cited 2021 Feb 10];23(Suppl.1):e.200009. Available from: <https://doi.org/10.1590/1980-549720200009.supl.1>
5. Campos ML, Almeida GHMD. Violência contra a mulher: uma relação entre dimensões subjetivas e a produção de informação. *RDBCI* [Internet]. 2017[cited 2021 Feb 15];15(2):349-67. Available from: <http://doi.org/10.20396/rdbci.v15i2.8645969>
6. Minayo MCS. A inclusão da violência na agenda da saúde: trajetória histórica. *Ciênc Saúde Colet* [Internet]. 2007[cited 2021 Feb 15];11(Suppl):1259-67. Available from: <https://doi.org/10.1590/S1413-81232006000500015>
7. Schaiber LB, D'Oliveira AFPL, Couto MT, Hanada H, Kiss LB, Durand JG, et al. Violência contra mulheres entre usuárias de serviços públicos de saúde da Grande São Paulo. *Rev Saúde Pública* [Internet]. 2007[cited 2021 Feb 20];41(3):359-67. Available from: <https://doi.org/10.1590/S0034-89102007000300006>
8. Grossi PK, Tavares F, Oliveira SB. A rede de proteção à mulher em situação de violência doméstica: avanços e desafios. *Athena Digital* [Internet]. 2008[cited 2022 Dez 21];14:267-80. Available from: <http://repositorio.pucrs.br/dspace/handle/10923/8144>
9. Ministério da Justiça e Segurança Pública (BR). Visível e invisível: a vitimização das mulheres no Brasil. Fórum Brasileiro de Segurança Pública. 2ª ed. Brasília: MJ; 2019[cited 2021 Feb 22]. Available from: <http://www.iff.fiocruz.br/pdf/relatorio-pesquisa-2019-v6.pdf>
10. World Health Organization. COVID-19 and violence against women: what the health sector / system can do. Geneva: WHO; 2020[cited 2021 Feb 28]. Available from: <https://apps.who.int/iris/bitstream/handle/10665/331699/WHO-SRH-20.04-eng.pdf?ua=1>
11. Vieira PR, Garcia LP, Maciel ELN. Isolamento social e o aumento da violência doméstica: o que isso nos revela? *Rev Bras Epidemiol*. 2020[cited 2021 Feb 27];23:p.e200033. Available from: <https://doi.org/10.1590/1980-549720200033>
12. Ministério da Justiça e Segurança Pública (BR). Norma Técnica de Padronização das Delegacias Especializadas de Atendimento às Mulheres - DEAMs. Brasília: MJ; 2010[cited 2021 Mar 01]. Available from: <https://assets-compromissoeatitude-ipg.sfo2.digitaloceanspaces.com/2012/08/MJ-2010-Norma-Tecnica-Padronizacao-DEAMs.pdf>

13. Magalhães TA. A vítima como objecto da intervenção médico-legal. *Acta Med Port* [Internet]. 2005[cited 2021 Mar 06];18:453-8. Available from: <https://actamedicaportuguesa.com/revista/index.php/amp/article/viewFile/1065/733>
14. Casoteca FBSP / 2017. Práticas inovadoras de enfrentamento à violência contra as mulheres: experiências desenvolvidas pelos profissionais de segurança pública. Fórum Brasileiro de Segurança Pública. São Paulo: Ogra Oficina Gráfica; 2017[cited 2021 Mar 08]. Available from <https://casoteca.forumseguranca.org.br/wp-content/uploads/2019/04/CASOTECA-FINAL.pdf>
15. Saliba O, Garbin CAS, Garbin AJL, Dossi AP Responsabilidade do profissional de saúde sobre a notificação de casos de violência doméstica. *Rev Saúde Pública* [Internet]. 2007[cited 2021 Mar 10];41(3):472-7. Available from: <http://dx.doi.org/10.1590/S0034-89102007000300021>
16. Pinto IV, Bernal RTI, Souza MFM, Malta DC. Fatores associados ao óbito de mulheres com notificação de violência por parceiro íntimo no Brasil. *Ciênc Saúde Colet* [Internet]. 2021[cited 2022 Nov 19];26(3):975-85. Available from: <https://doi.org/10.1590/1413-81232021263.00132021>
17. Instituto Brasileiro de Geografia e Estatística. Estimativas da População. Tabelas 2021 [cited 2022 Nov 23]. Available from: <https://www.ibge.gov.br/estatisticas/sociais/populacao/9103-estimativas-de-populacao.html?=&t=resultados>
18. Andrade JO, Castro SS, Heitor SFD, Andrade WP, Atehe CC. Indicadores da violência contra a mulher provenientes das notificações dos serviços de saúde de Minas Gerais-Brasil. *Texto & Contexto Enferm* [Internet]. 2016[cited 2021 Mar 10];25(3):e2880015. Available from: <https://www.scielo.br/j/tce/a/8h6NwPh9FfwPkQLWgYvVhs/abstract/?lang=pt>
19. Mascarenhas DMM, Sinimbu RB, Malta DC, Silva MMA, Santos AF, Vieira MLFP, et al. Violência cometida por pessoa conhecida - Brasil, 2013. *Ciênc Saúde Colet* [Internet]. 2017[cited 2021 Mar 15];22(11):3763-71. Available from: <https://doi.org/10.1590/1413-812320172211.08672016>
20. Machado DF, Almeida MAS, Dias A, Bernardes JM, Castanheira ERL. Violência contra a mulher: o que acontece quando a Delegacia de Defesa da Mulher está fechada? *Ciênc Saúde Colet* [Internet]. 2020[cited 2021 Mar 16];25(2):483-94. Available from: <https://doi.org/10.1590/1413-81232020252.14092018>
21. Ávila TAP Articulação do trabalho em rede para a proteção à mulher em situação de violência doméstica e familiar. In: Conselho Nacional do Ministério Público (BR). *Violência contra a mulher: um olhar do Ministério Público brasileiro*. Brasília: CNMP; 2018. p. 140-62. [cited 2021 Mar 18]. Available from: https://www.cnmp.mp.br/portal/images/FEMINICIDIO_WEB_1_1.pdf
22. Ministério da Saúde (BR). A experiência brasileira em sistemas de informação em saúde, vol. 2. Brasília: MS; 2009[cited 2021 Mar 20]. Available from: http://bvsms.saude.gov.br/bvs/publicacoes/experiencia_brasileira_sistemas_saude_volume2.pdf
23. Bordoni PHC, Bordoni LS, Silva JM, Drumond EF Utilização do método de captura-recaptura de casos para a melhoria do registro dos acidentes de trabalho fatais em Belo Horizonte, Minas Gerais, 2011. *Epidemiol Serv Saúde* [Internet]. 2016[cited 2021 Mar 21];25(1):85-94. Available from: <https://www.scielo.br/j/ress/a/CDgCWJCYRB7cywGTQzxFYtC/?lang=pt>
24. Rodrigues AB, Santana VS. Acidentes de trabalho fatais em Palmas, Tocantins, Brasil: oportunidades perdidas de informação. *Rev Bras Saúde Ocup* [Internet]. 2019[cited 2021 Mar 22];44:e8. Available from: <http://dx.doi.org/10.1590/2317-6369000017817>
25. Magalhães AFA, Caldas ED. Underreporting of fatal poisonings in Brazil - a descriptive study using data from four information systems. *Forensic Sci Int* [Internet]. 2018[cited 2021 Mar 26]; 287:136-41. Available from: <https://doi.org/10.1016/j.forsciint.2018.03.040>