Sexual Violence Against Adolescents in a Brazilian State: an Analysis of Reported Cases

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Keywords: Domestic Violence, Adolescents, Sexual Violence, Health Information Systems, Epidemiology

Posted Date: October 27th, 2021

DOI: https://doi.org/10.21203/rs.3.rs-997126/v1

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Abstract

Background: sexual violence against adolescents is a highly prevalent problem with profound impacts throughout life, and most often perpetrators are relatives and acquaintances of the victims. In Brazil, sexual violence is a problem that must be reported in all health services and the data collected must be registered in the Information System for Reporting Diseases (SINAN - Sistema de Informação de Agravos de Notificação). This study aimed to describe the frequency of reported cases of sexual violence against adolescents and to analyze their associated factors.

Method: a cross-sectional analytical study was conducted with reported data on sexual violence against adolescents in the state of Espírito Santo registered in SINAN between 2011 and 2018. Variables to characterize the victim, aggression and perpetrator were used. Bivariate analyzes were performed using Chi-Square ($\chi^2$) and Fisher's exact tests. Multivariate analysis considered the log-binomial model and adjustment results were presented in Prevalence Ratio. All analyzes were stratified by sex. The study was approved by the Institutional Review Board of Federal University of Espirito Santo, under Opinion 2,819,597.

Results: among the full-filled forms in the variables analyzed in the study, the frequency of sexual violence was 32.6% and 93% of victims were female. The occurrence of injury reporting was associated in both sexes with adolescents aged between 10 and 12 years, the place of occurrence being the home, the relationship with the victim, and the recurrence of violence. In females, the outcome was also associated with number of perpetrators, and in males, with perpetrator's age.

Conclusion: through this study, prevalence and factors associated with reporting sexual violence in Espírito Santo were observed. The importance of information systems for disseminating data and the need for measures to prevent and treat the disease among adolescents is verified.

PORTUGUESE ABSTRACT

Introdução: a violência sexual contra adolescentes é um agravo de alta prevalência e de profundos impactos ao longo da vida, sendo os agressores em sua maior parte são familiares e conhecidos das vítimas. No Brasil, a violência sexual é um agravo de notificação compulsória em todos os serviços de saúde e os dados coletados devem ser registrados no Sistema de Informação de Agravos de Notificação (SINAN). O objetivo desse estudo foi descrever a frequência dos casos de violência sexual notificados contra adolescentes e analisar os seus fatores associados.

Método: estudo analítico do tipo transversal realizado com os dados notificados de violência sexual contra adolescentes no Espírito Santo registrados no SINAN entre 2011 e 2018. Foram utilizadas as variáveis de caracterização da vítima, da agressão e do agressor. Foram realizadas análises bivariadas por meio do teste Qui-Quadrado ($\chi^2$) e exato de Fisher. A análise multivariada considerou o modelo log-binomial e os resultados do ajuste foram apresentados em Razão de Prevalência. Todas as análises foram estratificadas por sexo.

Resultados: entre as fichas de preenchimento completo nas variáveis analisadas no estudo, a frequência de violência sexual foi 32.6%, sendo que 93% das vítimas eram do sexo feminino. A ocorrência da notificação do agravo esteve associada em ambos os sexos a adolescentes com idade entre 10 e 12 anos, ao local de ocorrência ser a residência, à variável vínculo com a vítima, e à reincidência da violência. No sexo feminino o
Background

Adolescence is a stage of extreme vulnerability to sexual violence, whether in the domestic or community context. Within the home, most cases are perpetrated by relatives or acquaintance of the victims [1, 2]. On the other hand, in the community context, the risks facing the occurrence of sexual violence increase as adolescents begin to attend new environments, where there is greater contact with groups of peers and involvement in affective relationships [2, 3].

According to data from the United Nations Children's Fund (UNICEF) [2], around 15 million adolescent girls between 15 and 19 years old have experienced forced sex during their lifetime. In a survey conducted in 20 countries, approximately 9 out of 10 victims of sexual violence reported that the act occurred for the first time during adolescence. A systematic review and meta-analysis study suggested that the prevalence of child sexual violence worldwide is approximately 20% among girls and 8% among boys [4].

Data on sexual violence in Brazil against children and adolescents are alarming. According to the Brazilian National Human Rights Ombudsman, 17,073 reports of sexual violence were made through Dial 100, a telephone channel for anonymous reporting of acts that violate human rights in Brazil [5]. Between 2011 and 2017, 184,524 suspected or confirmed cases of sexual violence were registered in the Information System for Reporting Diseases (SINAN - Sistema de Informação de Agravos de Notificação), with 45% of these cases occurring against adolescents [6]. A study conducted in the state of Santa Catarina demonstrates that the prevalence of reporting of sexual violence is higher in adolescents when compared to occurrence in women over 20 years of age [1]. Still, the Brazilian National Survey of School Health (PeNSE - Pesquisa Nacional de Saúde do Escolar) shows a prevalence of sexual violence among students enrolled in elementary school in Brazil, in 2015, was 4.0% [7].

In this scenario, adolescence is perceived as a period of great vulnerability to sexual violence, especially in the case of girls, and affecting youth of all levels of income, development, ages, contexts, and countries [2]. Regardless of the type, every act of sexual violence is both intrusive and traumatic, ranging from direct physical contact to the use of force, or occurring through less direct forms, such as unwanted exposure to sexual language and images [8].

This phenomenon has short to long-term impacts on adolescents’ physical and mental health, such as sexually transmitted infections, early pregnancy, gastrointestinal disorders [9–12], post-traumatic stress disorder, anxiety, depression, eating and sleep dis-orders, relationship problems, and suicidal behaviors [11, 13, 14]. In addition to these consequences, studies also show engagement in risky sexual behavior [15, 16] and substance abuse [17, 18] as a consequence of sexual violence. In this context, the protection of youth against all forms of violence is a fundamental right guaranteed by international treaties and human rights standards [19]. The Convention on the Rights of the Child, held in 1989, had an impact on national and international legislation, programs and policies in favor of promotion and protection of their rights.
In Brazil, until the advent of the Federal Constitution of 1988, children and adolescents were not considered subjects of rights. Since then, modern legislation has been adopted in accordance with the United Nations Convention on the Rights of the Child, in order to ensure the rights of those under eighteen years of age [20]. As the main normative instrument in Brazil with regard to this population, in 1990 the Children and Adolescents Statue was sanctioned to ensure full protection for these individuals [21].

In the field of health, compulsory reporting of sexual violence is an instrument to guarantee rights and social protection that allows health, education, social assistance, Guardianship Councils and justice professionals to adopt measures to care for victims [22]. The Ministry of Health's Ordinance 1271 of 2014 made sexual violence a grievance with mandatory immediate reporting (within 24 hours), to ensure intervention in cases through the health sector [23], being an institutional obligation, and it is up to healthcare professionals to notify in accordance with current legislation [24], in order to introduce the adolescents into a protection and health care network.

Given the above, this study aimed to describe the frequency of cases of sexual violence reported against adolescents and to analyze their associated factors.

**Materials And Methods**

An analytical cross-sectional study was carried out with all reported cases of sexual violence against adolescents (10 to 19 years old) in Espirito Santo, between 2011 and 2018, registered in SINAN. SINAN aims to collect, convey and disseminate data generated by the Epidemiological Surveillance System to support the investigation process and provide subsidies for analysis of information on compulsory reporting injuries. It is fed by records of diseases and injuries that are of compulsory reporting, such as interpersonal and self-inflicted violence, among others [25].

Espirito Santo is situated in southeastern Brazil, having 46,074.444 km² of land area. According to the last census (IBGE), the state had about 3.5 million inhabitants, and the population of adolescents estimated at the time was 603,835, with a demographic density of 76.25 inhab./km² and a Human Development Index (HDI) of 0.740 [26].

Initially, in order to qualify the data, an exploratory descriptive analysis was carried out following instructive reporting of interpersonal and self-inflicted violence guidelines. Duplicate cases were verified by organizing the records by date of reporting, comparing date of occurrence, victim's name, date of birth and mother's name, and were later excluded. Furthermore, only reporting forms whose variables of interest in the study do not have the terms “ignored” or “blank” were analyzed.

The study’s dependent variable was sexual violence, and the independent variables were victim characteristics, aggression and perpetrator characteristics. Victim characteris-tics were categorized as follows: age (10 to 12 years, 13 to 17 years, 18 to 19 years); race/color (white/non-white - brown, yellow, indigenous); disability/disorder (no/yes); area of residence (urban/rural, peri-urban); place of occurrence: home (yes/no – collective housing, school, sports venue, bar or similar, public road, commerce/services, industries/construction, other), occurred other times (no/yes); number of perpetrators (one/two or more); perpetrator’s age (up to 19 years/20 years or older); perpetrator’s sex (male/female/both sexes); relationship with the victim (partners and ex-partners -
spouses, ex-spouse, boyfriend, ex-boyfriend/parental relationship - father, mother, stepmother, stepfather/acquaintance and others/unknown); suspected alcohol use (no/yes) referral (no/yes).

To obtain the Prevalence Ratios, adjustment was considered via the log-binomial regression model, which is the particular case of the generalized linear regression model when considering the response variable with Bernoulli distribution and logarithmic link function [27].

The study was approved by the Institutional Review Board of Federal University of Espirito Santo, under Opinion 2,819,597, and all norms and guidelines of Resolution 499/2012 were respected.

**Results**

From 2011 to 2018, 561 cases of sexual violence were reported, representing a frequency of 32.6% of cases of reporting violence against adolescents, of which 522 (93.0%) cases occurred among female adolescents and 39 (7.0%) among male adolescents.

Table 1 presents victim characteristics. It is noted that, regardless of sex, most youth were between 13 and 17 years old, were non-white, did not have any disorders or disabilities, and lived in urban areas. Sexual violence mostly occurred at home and victims reported a history of a previous sexual violence. Regarding perpetrator characteristics, it is observed that in most cases there was only one perpetrator, who was typically over 20 years old, male, an acquaintance of the victims, and without suspicion of alcohol use. Almost all victims received referral.
Table 1
Characteristics of reported cases of sexual violence against adolescents aged 10 to 19 years. Espirito Santo, 2011 to 2018 (N=561).

| Variables                  | Female (N=522) | Male (N=39) |
|----------------------------|----------------|-------------|
|                            | n   | (%)    | 95% CI      | N   | (%)    | 95% CI      |
| Age group                  |     |        |             |     |        |             |
| 10 to 12 years             | 169 | 32.4   | 28.50 – 36.51 | 17  | 43.6   | 29.30 – 59.02 |
| 13 to 17 years             | 300 | 57.5   | 53.19 – 61.64 | 19  | 48.7   | 33.87 – 63.80 |
| 18-19 years                | 53  | 10.2   | 7.85 – 13.04  | 03  | 7.7    | 2.65 – 20.32  |
| Race/color                 |     |        |             |     |        |             |
| White                      | 137 | 26.1   | 22.47 – 29.98 | 06  | 15.4   | 7.25 – 29.73 |
| Non-white                  | 386 | 73.9   | 70.02 – 77.53 | 33  | 84.6   | 70.27 – 92.75 |
| Disability/Disorder        |     |        |             |     |        |             |
| No                         | 481 | 92.1   | 89.52 – 94.16 | 33  | 84.6   | 70.27 – 92.75 |
| Yes                        | 41  | 7.9    | 5.84 – 10.48  | 06  | 15.4   | 7.25 – 29.73 |
| Area of residence          |     |        |             |     |        |             |
| Urban                      | 451 | 86.4   | 83.19 – 89.07 | 35  | 89.7   | 76.42 – 95.94 |
| Rural/Peri-urban           | 71  | 13.6   | 10.93 – 16.81 | 04  | 10.3   | 4.06 – 23.58 |
| Place of occurrence: Home  |     |        |             |     |        |             |
| No                         | 113 | 21.6   | 18.33 – 25.38 | 08  | 20.5   | 10.78 – 35.53 |
| Yes                        | 409 | 78.4   | 74.64 – 81.67 | 31  | 79.5   | 64.47 – 89.22 |
| Occurred other times       |     |        |             |     |        |             |
| No                         | 219 | 42.0   | 37.79 – 46.23 | 10  | 25.6   | 14.57 – 41.08 |
| Yes                        | 303 | 58.0   | 53.77 – 62.21 | 29  | 74.4   | 58.92 – 85.43 |
| Number of perpetrators     |     |        |             |     |        |             |
| One                        | 459 | 87.9   | 84.86 – 90.45 | 32  | 82.1   | 67.33 – 91.02 |
| Two or more                | 63  | 12.1   | 9.55 – 15.14  | 07  | 17.9   | 8.98 - 32.67 |
| Perpetrator’s age (years)  |     |        |             |     |        |             |
| Up to 19 years             | 122 | 23.4   | 19.94 - 27.19 | 08  | 20.5   | 10.78 - 35.53 |
| 20 years and older         | 400 | 76.6   | 72.81 - 80.06 | 31  | 79.5   | 64.47 - 89.22 |
| Perpetrator’s sex          |     |        |             |     |        |             |
| Both sexes                 | 07  | 1.3    | 0.65 - 2.74   | 01  | 2.6    | 0.45 - 13.18 |

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Table 2 describes the bivariate analyses. It is observed that sexual violence in both sexes was predicted by the act, place of occurrence, occurred other times, and relationship with the victim (p < 0.05). In females, the prevalence of sexual violence was also related to disability/disorder, number of perpetrators, perpetrator’s sex and perpetrator with suspected alcohol use (p < 0.05).
Table 2
Distribution of characteristics of reports of sexual violence among adolescents by sex Espirito Santo, 2011 to 2018 (N=561).

| Variables                        | Female (N=522) | Male (N=39) |
|----------------------------------|----------------|-------------|
|                                  | n  | (%)       | 95% CI       | p-value | n  | (%)       | 95% CI       | p-value |
| **Age group**                    |    |           |              |         |    |           |              |         |
| 10 to 12 years                   | 169 | 65.5     | 59.51 - 71.04 | 0.000   | 17 | 14.9     | 9.52 - 22.59 | 0.013   |
| 13 to 17 years                   | 300 | 41.7     | 38.12 - 45.30 |         | 19 | 7.3      | 4.73 - 11.13 |         |
| 18-19 years                      | 53  | 18.2     | 14.20 - 23.05 |         | 03 | 3.8      | 1.28 - 10.45 |         |
| **Race/color**                   |    |           |              |         |    |           |              |         |
| White                            | 137 | 40.8     | 35.70 - 46.20 | 0.899   | 06 | 4.9      | 2.27 - 10.32 | 0.091   |
| Non-white                        | 386 | 41.2     | 38.13 - 44.42 |         | 33 | 9.9      | 7.17 - 13.63 |         |
| **Disability/Disorder**          |    |           |              |         |    |           |              |         |
| No                               | 481 | 40.3     | 37.54 - 43.09 | 0.014   | 33 | 8.2      | 5.92 - 11.33 | 0.435(*)|
| Yes                              | 41  | 54.7     | 43.45 - 65.43 |         | 06 | 11.3     | 5.29 - 22.58 |         |
| **Area of residence**            |    |           |              |         |    |           |              |         |
| Urban                            | 451 | 40.5     | 37.64 - 43.40 | 0.207   | 35 | 9.2      | 6.72 - 12.57 | 0.271   |
| Rural/Peri-urban                  | 71  | 45.8     | 38.16 - 53.66 |         | 04 | 5.3      | 2.09 - 12.93 |         |
| **Place of occurrence:**         |    |           |              |         |    |           |              |         |
| Home                             |     |           |              |         |    |           |              |         |
| No                               | 113 | 28.2     | 24.00 - 32.77 | 0.000   | 08 | 3.5      | 1.77 - 6.68  | 0.000   |
| Yes                              | 409 | 47.1     | 43.82 - 50.45 |         | 31 | 13.9     | 9.97 - 19.06 |         |
| **Occurred other times**         |    |           |              |         |    |           |              |         |
| No                               | 219 | 36.0     | 32.25 - 39.85 | 0.000   | 10 | 3.7      | 2.02 - 6.68  | 0.000   |
| Yes                              | 303 | 45.9     | 42.14 - 49.72 |         | 29 | 15.8     | 11.20 - 21.72 |         |
| **Number of perpetrators**       |    |           |              |         |    |           |              |         |
| One                              | 459 | 44.3     | 41.27 - 47.30 | 0.000   | 32 | 10.3     | 7.38 - 14.16 | 0.057   |
| Two or more                      | 63  | 27.2     | 21.84 - 33.22 |         | 07 | 4.9      | 2.39 - 9.76  |         |
| **Perpetrator's age (years)**    |    |           |              |         |    |           |              |         |
| Up to 19 years                   | 122 | 39.7     | 34.42 - 45.31 | 0.568   | 08 | 6.1      | 3.10 - 11.50 | 0.219   |

(*) Fisher's exact test.
Variables | Female (N=522) | Male (N=39)
---|---|---
20 and older | 400 | 41.6 | 38.51 - 44.72 | 31 | 9.6 | 6.87 - 13.34

**Perpetrator's sex**
- Both sexes | 07 | 10.6 | 5.23 - 20.31 | 0.000 | 01 | 2.9 | 0.52 - 14.92 | 0.262(*)
- Female | 07 | 2.9 | 1.40 - 5.80 | 04 | 5.2 | 2.04 - 12.61
- Male | 508 | 53.0 | 49.81 - 56.11 | 34 | 9.9 | 7.18 - 13.53

**Relationship with the victim**
- Partners and ex-partners | 77 | 24.0 | 19.64 - 28.95 | 0.000 | 02 | 11.8 | 3.29 - 34.34 | 0.014(*)
- Parental relationship | 147 | 44.1 | 38.91 - 49.51 | 04 | 2.9 | 1.12 - 7.17
- Acquaintance/others | 219 | 45.9 | 41.49 - 50.40 | 27 | 11.3 | 7.91 - 16.00
- Unknown | 79 | 57.3 | 48.91 - 65.19 | 06 | 10.0 | 4.66 - 20.15

**Suspected alcohol use**
- No | 395 | 43.8 | 40.63 - 47.10 | 0.002 | 30 | 9.0 | 6.34 - 12.50 | 0.642
- Yes | 127 | 34.5 | 29.84 - 39.51 | 09 | 7.6 | 4.03 - 13.75

**Referral**
- No | 49 | 36.8 | 29.12 - 45.30 | 0.288 | 02 | 3.8 | 1.04 - 12.75 | 0.293(*)
- Yes | 473 | 41.6 | 38.80 - 44.53 | 37 | 9.2 | 6.77 - 12.46

(*) Fisher's exact test.

The prevalence of cases of sexual violence against girls was 2.69 times (95%CI: 2.07 - 3.50) higher among those aged between 10 and 12 years compared to the group of girls aged 18 and 19 years. There is a higher occurrence of sexual violence at home than other spaces (PR: 1.57; 95%CI: 1.33 – 1.86) when there is a history of sexual violence and (PR: 1.21; 95%CI: 1.08 - 1.36) and was 1.58 times (95%CI: 1.28 - 1.95) by a lone perpetrator. As for the relationship with the victims, sexual violence against girls is approximately 1.9 times more perpetrated by strangers than by partners or ex-partners (e.g. boyfriends, girl-friends) (95% CI: 1.57 – 2.34) (Table 3).
Table 3
Raw and adjusted analysis of the effects of characteristics of cases of sexual violence against female adolescents. Espirito Santo, 2011-2018 (N=522)

| Variables                           | Raw analysis |                          |                   | Adjusted analysis (**) |                          |                   |
|-------------------------------------|--------------|---------------------------|-------------------|------------------------|---------------------------|-------------------|
|                                     | PR 95% CI    | p-value                   | PR 95% CI        | p-value                | PR 95% CI        | p-value |
| **Age group**                       |              |                           |                   |                        |                           |                   |
| 10 to 12 years                      | 3.60 2.78 - 4.66 | 0.000                    | 2.69 2.07 - 3.50 | 0.000                  |                           |                   |
| 13 to 17 years                      | 2.29 1.77 - 2.96 | 2.05 1.58 - 2.64         |                   |                        |                           |                   |
| 18-19 years                         | 1.0 –        |                          | 1.0 –            |                        |                           |                   |
| **Race/color**                      |              |                           |                   |                        |                           |                   |
| White                               | 1.0 –        | 0.899                     | 1.0 –            | 0.985                  |                           |                   |
| Non-white                           | 1.01 0.87 – 1.17 | 0.99 0.93 - 1.15        |                   |                        |                           |                   |
| **Disability/Disorder**             |              |                           |                   |                        |                           |                   |
| No                                  | 1.0 –        | 0.014                     | 1.0 –            | 0.176                  |                           |                   |
| Yes                                 | 1.36 1.09 - 1.69 | 1.17 0.93 - 1.46        |                   |                        |                           |                   |
| **Area of residence**               |              |                           |                   |                        |                           |                   |
| Urban                               | 0.88 0.73 - 1.06 | 0.207                    | 0.92 0.77 - 1.09 | 0.312                  |                           |                   |
| Rural/Peri-urban                    | 1.0 –        |                          | 1.0 –            |                        |                           |                   |
| **Place of occurrence: Home**       |              |                           |                   |                        |                           |                   |
| No                                  | 1.0 –        | 0.000                     | 1.0 –            | 0.000                  |                           |                   |
| Yes                                 | 1.67 1.41 - 1.98 | 1.57 1.33 - 1.86        |                   |                        |                           |                   |
| **Occurred other times**            |              |                           |                   |                        |                           |                   |
| No                                  | 1.0 –        | 0.000                     | 1.0 –            | 0.001                  |                           |                   |
| Yes                                 | 1.28 1.12 - 1.46 | 1.21 1.08 - 1.36        |                   |                        |                           |                   |
| **Number of perpetrators**          |              |                           |                   |                        |                           |                   |
| One                                 | 1.63 1.31 - 2.03 | 0.000                    | 1.58 1.28 - 1.95 | 0.000                  |                           |                   |
| Two or more                         | 1.0 –        |                          | 1.0 –            |                        |                           |                   |
| **Perpetrator’s age (years)**       |              |                           |                   |                        |                           |                   |
| Up to 19 years                      | 1.0 –        | 0.568                     | 1.0 –            | 0.720                  |                           |                   |
| 20 and older                        | 1.05 0.89 – 1.22 | 1.03 0.89 – 1.18        |                   |                        |                           |                   |
| **Relationship with the victim**    |              |                           |                   |                        |                           |                   |
| Partners and ex-partners            | 1.0 –        | 0.000                     | 1.0 –            | 0.000                  |                           |                   |
| Variables          | Raw analysis | Adjusted analysis (**) |
|--------------------|--------------|------------------------|
| Parental relationship | 1.84 | 1.46 - 2.31 | 1.25 | 1.01 - 1.54 |
| Acquaintance/others | 1.91 | 1.54 - 2.38 | 1.70 | 1.39 - 2.07 |
| Unknown            | 2.39 | 1.87 - 3.04 | 1.92 | 1.57 - 2.34 |

**Suspected alcohol use**

|     |       |       |
|-----|-------|-------|
| No  | 1.0   | 0.002 |
| Yes | 0.79  | 0.92  |

In males, sexual violence was 3.47 times (95%CI: 1.01 – 11.92) higher among adolescents aged between 10 and 12 years when compared to the occurrence among those aged between 18 and 19 years. It associated with a higher prevalence of occurrences at home (PR: 4.44; 95%CI: 1.97 – 10.01), and with a history of sexual violence (PR: 3.56. 95%CI: 1.71 – 7.39). Perpetrators aged 20 years or more increased the prevalence of sexual violence against boys by approximately two times (95%CI: 1.03 - 4.02) and the outcome was practiced more by partners and ex-partners than by parents (PR: 0.12; 95%CI: 0.03 - 0.53).
Table 4
Crude and adjusted analysis of the effects of characteristics of cases of sexual violence against male adolescents. Espirito Santo, 2011-2018

| Variables                  | Raw analysis |       | Adjusted analysis (**) |       |
|----------------------------|--------------|-------|------------------------|-------|
|                            | PR           | 95% CI| p-value                | PR    | 95% CI | p-value |
| Age group                  |              |       |                        |       |
| 10 to 12 years             | 3.98         | 1.21 - 13.12 | 0.013            | 3.47  | 1.01 - 11.92 | 0.037 |
| 13 to 17 years             | 1.95         | 0.59 - 6.42  | 0.234            | 2.34  | 0.69 - 7.89  | 0.037 |
| 18-19 years                | 1.0          | –      |                        | 1.0   | –      |        |
| Race/color                 |              |       |                        |       |
| White                      | 1.0          | –      |                        | 1.0   | –      | 0.982  |
| Non-white                  | 2.02         | 0.87 - 4.70 | 0.091            | 1.01  | 0.51 - 1.97 | 0.784 |
| Disability/Disorder        |              |       |                        |       |
| No                         | 1.0          | –      |                        | 1.0   | –      | 0.377  |
| Yes                        | 1.38         | 0.61 - 3.13 | 0.035(*)         | 1.23  | 0.78 - 1.95 | 0.035 |
| Area of residence          |              |       |                        |       |
| Urban                      | 1.73         | 0.63 - 4.73 | 0.271            | 1.03  | 0.42 - 2.56 | 0.942 |
| Rural/Peri-urban           | 1.0          | –      |                        | 1.0   | –      |        |
| Place of occurrence: Home  |              |       |                        |       |
| No                         | 1.0          | –      |                        | 1.0   | –      | 0.000  |
| Yes                        | 4.01         | 1.89 - 8.54 | 0.000            | 4.44  | 1.97 - 10.01 | 0.000 |
| Occurred other times       |              |       |                        |       |
| No                         | 1.0          | –      |                        | 1.0   | –      | 0.000  |
| Yes                        | 4.26         | 2.13 - 8.52 | 0.000            | 3.56  | 1.71 - 7.39 | 0.000 |
| Number of perpetrators     |              |       |                        |       |
| One                        | 2.10         | 0.95 - 4.65 | 0.057            | 1.61  | 0.77 - 3.35 | 0.239 |
| Two or more                | 1            | –      |                        | 1     | –      |        |
| Perpetrator’s age (years)  |              |       |                        |       |
| Up to 19 years old         | 1.0          | –      |                        | 1.0   | –      | 0.020  |
| 20 and older               | 1.59         | 0.75 - 3.36 | 0.037            | 2.04  | 1.03 - 4.02 | 0.020 |

(*) Fisher’s exact test
(**) Log-binomial model
| Variables                  | Raw analysis | Adjusted analysis (**) |
|----------------------------|--------------|------------------------|
| **Relationship with the victim** |              |                        |
| Partners and ex-partners   | 1.0          | 0.018                  |
| Parental relationship      | 0.24         | 0.12                   |
| Acquaintance/others        | 0.96         | 1.61                   |
| Unknown                    | 0.85         | 2.17                   |
| **Suspected alcohol use**  |              |                        |
| No                         | 1.0          | 0.642                  |
| Yes                        | 0.84         | 1.01                   |

(*) Fisher’s exact test
(**) Log-binomial model

**Discussion**

It is observed that the frequency of reports of sexual violence in Espirito Santo was 32.6%, higher than the previously reported national prevalence of 24.7% between 2011 and 2017 [28]. As for associated factors, the sexual violence was significantly predicted by younger age of the victim with 10 to 12 year olds most at risk. Most sexual violence cases occurred at home, and were part of a history of violence with a perpetrator known to the victims. In females, the sexual violence was also more likely by a lone perpetrator, and in males, perpetrators aged 20 years and older.

It is noted that the number of reported cases of sexual violence against girls is significantly higher when compared to the number of reported cases in male adolescents. This finding is similar to that found in a study conducted with reported cases of sexual violence throughout Brazil, in which the prevalence of the outcome was 77.1% in females [29], which is similar to that found in other studies [30–32]. It is worth highlighting a study of cases of violence reported in Pernambuco, that the prevalence of sexual violence was higher in females compared to males [33].

Historically, in the context of a patriarchal society deeply marked by the asymmetry of power in gender relations, there is a perpetuation of eroticization and objectification of the female body, which begins during childhood and intensifies during adolescence [34]. In this context, it is important to emphasize that sexual violence is one of the manifestations of gender inequality that mainly affects women across the lifespan, and one of the cruelest forms of demonstration of dominance imposed on them [1]. Sexual violence against adolescents is a favored form of gender-determined violence, as it is usually perpetrated by an older, experienced man who has a trusting relationship with the victim [35].

Although sexual violence is mostly committed against girls, it is important to emphasize that it also affects male youth; however, the data available in the literature limit knowledge of its magnitude [2]. Some factors may be related to the underreporting of these cases in males, namely: fear of homosexuality and/or fear of being seen as homosexual; emotional responses differentiated from teenagers; fear of being blamed, as they are generally seen
as able to defend themselves; difficulty of guardians to perceive relevant signs and symptoms of abuse, and; denial of abuse when it occurs through perpetrators such as parents and other adolescents [36, 37]

In both sexes, there is a higher prevalence of reports of sexual violence against adolescents aged between 10 and 12 years. Girls become more exposed to sexual violence during puberty, when secondary sexual characteristics develop [2, 30]. Moreover, individuals in the early stages of adolescence are physically, psychologically and socially more vulnerable, not having sufficient maturity to understand or anticipate violence by the perpetrators, who often gain the victims’ trust and may also impose authority over victims to perpetrate violence [1, 30]. Therefore, in order to break with this type of violence, it is necessary that third parties denounce and activate the protection network for adolescents, as they depend on the initiative of others to break the silence [1].

It is important to highlight the higher prevalence of sexual violence against girls in the age groups from 10 to 12 years and from 13 to 17 years, compared to the age of 18 to 19 years, suggesting perpetuation of the cycle of violence throughout adolescence. On the other hand, in males, the highest prevalence was associated only with boys aged between 10 and 12 years. These findings suggest that boys are victims more often while there is still no possibility of defense, and for this reason the outcome is less prevalent in older ages [34].

In the present study, the main place of occurrence of sexual violence was in the victims’ homes. A survey of reported cases of sexual violence registered in SINAN observed that the chances of sexual violence were approximately twice as high at home than other spaces [31]. In a study carried out in the state of Paraná, sexual violence was most often carried out in the homes of victims, followed by the homes of perpetrators and relatives [30].

The first experience of human interaction usually takes place at home, in a positive, nurturing, and loving context. However, the home is also a place where the first exposure to violence and perpetuation of the cycle is likely to occur [2]. Due to home privacy, violence against children and adolescents is practiced without public knowledge, making interventions difficult to be carried out to deconstruct youths’ perception of a safe and trustworthy place [30, 31]. In addition to these factors, home privacy contributes to the silence of recurrent episodes [31].

After adjusting for the multivariate analysis, revictimization remained associated with a higher prevalence of sexual violence in both sexes. In a longitudinal study carried out with adolescents in the United States, there was a recurrence of sexual violence in a quarter of victims during the academic semester [38]. Between 2010 and 2014, 680 cases of sexual violence against adolescents were reported in schools, of which 40.0% were recurrent cases [29], supporting similar prevalence found in other studies conducted with data from SINAN [39] [31].

In a study that analyzed the recurrence of reported cases of violence, it was possible to note that there was a recurrence of sexual violence or negligence, even after previous reports of physical and sexual violence, suggesting that in some cases reporting is not enough to change the victim’s environment may not prevent revictimization [40]. A systematic review revealed that, revictimization is associated with greater suffering, presence of psychiatric disorders, difficulty in interpersonal relationships and coping, self-blame, shame, and revictimization in adult life [41–44].

Regarding perpetrator characteristics, a higher prevalence of sexual violence among females remained associated with having only one perpetrator. According to national descriptive studies that used reported data on violence, most sexual assaults against adolescents are by a lone perpetrator [28, 31]; however, it is important to
emphasize that although the reported cases mostly contain only one perpetrator, adolescents may be exposed to more than one perpetrator frequently [38].

In males, the perpetrator was likely to be an adult (aged 20 years or more) regardless of adjustment. This finding corroborates other research in which most perpetrators were adults [45]. The relationship of adults with children and adolescents is guided by hierarchy and power relations; thus, adults can more easily take advantage of these relationships to coerce, manipulate and attack their victims who are more vulnerable [46].

As for the perpetrators’ relationships with the victims, the highest prevalence of sexual violence was associated with the perpetrator being unknown. During adolescence, contact with people in environments outside family life tends to increase, which makes adolescents more exposed to violence by people outside the home. However, it is worth raising a hypothesis that suspected or confirmed cases of sexual violence committed by strangers or by acquaintances without family ties to the victim can be more easily reported by youth and relatives, compared to cases where the perpetrator is a relative, since chronicity and silence are common in the domestic environment [35]. Additionally, it is noteworthy that the data in this study come from the reporting of the health sector, which can facilitate the omission by victims and their families as to the perpetrator’s true identity [1].

Limitations of this study include the use of a secondary database, which makes it impossible to correct, or fill in, missing data. Furthermore, selection bias may also be a limitation as only cases reported via the health system are reported, that is we did not access legal system reports. Thus, it is not possible to infer the real prevalence of sexual violence, since there are cases that, even when they arrive at the health service, are not reported, and cases that occur in the community in general that are not attended to by health services.

Despite the limitations, studies using secondary databases such as SINAN are important for determining the predictors and profiles of sexual violence for healthcare professionals and managers. This type of study is also relevant to signal managers about possible improvements that can be made in the sexual violence reporting instrument, in information systems and in continuing education of professionals about identification and report of injuries.

**Conclusions**

This study revealed the high frequency sexual violence among youth, as well as the characteristics of victims, perpetrators, and sexual violence, with attention paid to sex differences.

Factors associated with the reporting of suspected or confirmed cases of sexual violence against adolescents in Espírito Santo, the first study in the state to explore these data. Therefore, given the high magnitude and complexity of the injury throughout the Brazilian territory, carrying out studies that assess the distribution and factors associated with sexual violence at the municipal and state levels are relevant, to assess systemic weaknesses and intervene adequately responding to situations according to local reality.

It is important to consider the need to approach and work on sexual education with adolescents so that they can know their rights, recognize possible situations of sexual violence, and expose such experiences in order for them be protected. In this context, schools are fundamental to fostering such age-appropriate discussions, and to promote an environment where: (1) students can expose situations in which their rights have been violated, and (2) students feel safe and protected.
It is hoped that the reporting of cases of sexual violence against youth can be encouraged, contributing to the development and improvement of public policies to promote health and provide safety for youth. National studies with primary data should be conducted to strengthen enable greater understanding and the creation of policies, programs and intervention strategies that can be carried out in local contexts.

**Declarations**

**Ethics approval**

The study was approved by the Institutional Review Board of Federal University of Espirito Santo, under Opinion 2,819,597.

**Consent for publication**

Not applicable.

**Availability of data and materials**

The original data from the survey are available upon request.

**Competing interests**

Not applicable.

**Grant numbers and/or funding information**

Espírito Santo Research and Innovation Support Foundation (FAPES) (In Portuguese: Fundação de Amparo à Pesquisa do Espírito Santo). Edital FAPES/CNPq/Decit-SCTIE MS/SESA Nº 03/2018 – PPSUS.

**Authors' contributions**

FMCL contributed substantially to the concept and design of the study; ML wrote the first draft; NM and LG conducted the data analyses; all authors contributed to the interpretation of data and approved the final version to be published, with NL and FMCL primarily responsible for revising the drafts for publication. All authors read and approved the final manuscript.

**Acknowledgment and Credits**

The authors would like to thank the Espirito Santo Research and Innovation Support Foundation (FAPES) for funding the study.

**Conflict of interests, if any**

There is no conflict of interest to declare.

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