Temporal trend of sexual violence against adolescent women in Brazil, 2011-2018

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Abstract This study aimed to analyze the temporal trend of sexual violence (SV) reports against adolescent women in Brazil from 2011 to 2018. An ecological time series study was performed on reports of SV against women aged 10 to 19, which were available in the National Notifiable Diseases Reporting System (SINAN). Data were collected in 2020 but are related to reports filed from 2011 to 2018. The Prais-Winsten linear regression model was applied to analyze the time trend, including a calculation of the annual percentage variation (APC) and 95% confidence intervals (95%CI). We found a significant trend increase in all Brazilian regions. Although the rates in the Northern region are higher at the beginning and at the end of the analyzed time period, the reporting rates of the Southeast (APC 14.56%; 95%CI 7.98;21.54) and the South (APC 14.19%; 95%CI 6.56;22.36) showed a greater increase. The increase of SV reports in recent years shows how vulnerable adolescent women are to this type of violence, but also indicates greater improvement of violence surveillance systems. We conclude that both reporting systems and public policies aimed at tackling SV against women need to be further developed.

Key words Sexual abuse, Adolescent, Women, Time series studies, Surveillance

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Introduction

Despite its very high occurrence, violence against women is still barely visible in society. Since it takes place in the domestic environment and is committed by people who are close to the victim, it is usually considered to be a personal problem of the abused woman. In this context, adolescents are a more vulnerable group than adult women due to their young age, restricted access to means of protection, economic dependence and lesser degree of education. Violence faced by this population group takes place in different ways (sexual, physical, psychological, maltreatment and neglect, exploitation at work) and may cause serious harm to their physical and mental health.

One form of violence adolescents are exposed to is sexual violence (SV), which is a serious public health issue and one of the main causes of morbidity in this group. Usually accompanied by other forms of aggression, such as physical and psychological violence, SV may result in sometimes invisible injuries and traumas, require hospitalization, produce physical and/or psychic sequelae or even lead to death. SV suffered at a young age can damage the victim for life and cause other kinds of issues, such as educational under-performance, unsafe sexual practices, anxiety disorder, depression and substance abuse.

Worldwide, approximately 9% of the girls under 18 years of age are sexually abused, most often by a close family member. In Brazil, SV against school adolescents reached 4% in 2015. Probability of occurrence was higher in black girls under 13 years old who had already consumed alcohol, cigarettes or illicit drugs. Between 2009 and 2013, there was a positive variation of 364% in reporting of SV against adolescents aged 10 to 19 in Brazil. Over 70% of them were related to rape.

Despite its relevance, systematized information on the topic still lacks in Brazil, especially at national level. Data are available on reporting of SV in general population, on SV against school adolescents, on typification of (physical, psychological and/or sexual) violence against adolescents and on SV against adolescents that occurred at school. However, there are data gaps on reporting SV that takes place specifically against adolescent women. It is estimated that the prejudice, taboo and silence associated with cases of sexual crimes reduce epidemiological data, making it difficult to understand the risk and protection factors. Thus, reporting of cases of SV stands out as one of the ways of tackling that issue, as it helps assess its extent and impacts and develop intervention actions.

Methods

This is an ecological time-series study based on secondary data by the Epidemiological Surveillance System of Violence and Accidents (VIVA), which are registered in the National Notifiable Diseases Reporting System (SINAN) and made available by the IT Department of the Brazilian Public Health System (DATASUS). VIVA was deployed in Brazil in 2006 and in 2009, its reports were included into SINAN. In 2011, sexual violence was included on a mandatory reportable offense list. A standardized report form was created that applies to Brazil’s entire national territory to regulate reporting of this kind of incident in all health care centers. In 2016, SV became an immediate mandatory reportable event.

Research data were collected in 2020 but refer to SV reports registered from 2011 to 2018, the last year on which data are available at DATASUS. Reports of SV against women aged 10 to 19 were selected. Although the Brazilian Child and Adolescent Act (ECA) defines adolescence an age group that ranges from 12 to 18 years of age, this research adopted the concept by the Brazilian Ministry of Health that follows the World Health Organization (WHO), which defines adolescence as an age group that ranges from 10 to 19 years of age. SV has been defined as any action in which a person uses their position of power and physical force, coercion, intimidation or psychological influence, either with or without weapons or drugs, to compel another person of any gender and age to have, witness or participate in any way in sexual interactions, or uses their sexuality in any way for profit, revenge or any other intention.

The reporting rate of SV against adolescent women was calculated by dividing the number of reports of sexual abuse of women aged 10 to 19 by the female population of the same age group, multiplying the result by 100,000 for each year of the series. Population data were obtained from the Brazilian Institute of Geography and Statistics. Variables related to the victim were evaluated as follows: age group (in years: 10-14; 15-19), skin color (white; black; brown; yellow; indigenous), education (in years of study: ≤8; >8); features of aggression: year of occurrence (2011;
2012; 2013; 2014; 2015; 2016; 2017; 2018), place of occurrence (residence; public area; other), repeat violence (yes; no), suspicion of alcohol use (yes; no); and regarding the offender: relationship between offender and victim (father; stepfather; unknown person; boyfriend; ex-boyfriend; friends; acquaintances).

Using the Stata software program, version 14 (StataCorp LP, College Station, USA), the Prais-Winsten linear regression model was applied to analyze the temporal trend. We calculated the annual percentage change (APC) and its 95% confidence intervals (95%CI). The trend was considered to be on the increase when \( p<0.05 \) and the regression coefficient was positive. It was decreasing when \( p<0.05 \) and the regression coefficient was negative. It was stationary when \( p>0.05 \). The established significance level was 5%. This study was not submitted to the Research Ethics Committee as data from a public-access platform was used.

**Results**

We identified 96,018 reports on SV against adolescent women in Brazil for the 2011-2018 time period. The most common reporting profile shows a female adolescent aged between 10 to 14 (67.1%) of brown skin color (48.3%) with up to eight years of education (54.2%) and whose abuse occurred in private residences (59.8%). Recidivism was reported in 42.7% of all cases. Aggressors were mostly friends/acquaintances of the victim (26.5%) (Table 1).

We also found an increase in the reporting rate of all age groups. The largest increase was found in the 10-14 age group (APC 14.19%; 95%CI 6.56;22.36), as well as in all regions of the country. Although the Northern region rates were higher at the beginning and at the end of the analyzed time period, the Southeastern (APV 14.56%; 95%CI 7.98;21.54) and Southern (APV 14.19%; 95%CI 6.56;22.36) region showed greater increases in reporting rates (Table 2).

Figure 1 shows that in 2011, in the 10-14 age group, the reporting rate was 54.99/100,000 women. In 2018, it increased to 143.91 reports/100,000 women, i.e. an increase of 2.62 times over the time period.

Figure 2 shows an increase in the reporting rate of all regions. The Northern region showed higher rates in the entire historical series. Despite the Northeastern region showing lower rates, it had the largest relative percentage increase when start and end of the time period are compared. In 2011, this region showed a rate of 23.6 reports/100,000 women, which increased to 66.9 reports/100,000 women in 2018, i.e., a 2.84 times increase over the start of the series.

**Discussion**

Results show an increasing trend in the number of reports of SV against female adolescents in Brazil, which may be associated with an increase in the number of cases over the years and also with better structuring of reporting units. SV is a public health issue and consensus has it that reporting helps assess its extend15,16.

The low number of reports recorded in 2011 is probably due to the fact in this year SV became a mandatory reportable event, which may have caused failures in the flow of reports that were solved in the following years. On the other hand, most reports were filed in 2018, suggesting an increase in efforts by reporting agents and better filled-out forms, as well as increased awareness of professionals in reporting that kind of events.

Adolescents aged 10-14 were most exposed to SV. Similar results were found in the state of Santa Catarina, based on evidence that 47.3% of the SV cases occurred in the 10-14 age group and 22.4% in the 15-19 age group17. Adolescents between 10 and 14 years old are more vulnerable, since their development is not yet complete and they are often not aware of the sexual violence they suffer. In addition, the predominance of cases in this age group may be related to the fact that offenders prefer adolescent girls, a stage in which they develop sexual features18. In general, offenders are physically stronger, sexually more mature and more agile in accessing their victims who, due to their physical and psychological immaturity cannot defend themselves from their offenders who turn them into sexual objects19.

Most cases of SV occurred in private residences, a fact that was corroborated by national and international studies16,17,18-21. A survey on the profile of reported violence against children and adolescents carried out in the state of Minas Gerais between 2013 and 2015 also showed that most cases occurred in private residences (49.6%)20. This major profile of sexual assault in the domestic environment was also found in the state of Santa Catarina (76.8% were girls aged 10-14)17 and in the city of Maceió, state of Alagoas (49.8% were children and adolescents)21. Data from mainly low- and middle-income countries
<table>
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<tr>
<th>Age group (in years)</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>Total</th>
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<tbody>
<tr>
<td>10-14</td>
<td>4,649</td>
<td>6,128</td>
<td>7,650</td>
<td>8,095</td>
<td>7,752</td>
<td>8,622</td>
<td>10,143</td>
<td>11,424</td>
<td>64,463</td>
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<tr>
<td>15-19</td>
<td>2,355</td>
<td>2,909</td>
<td>3,528</td>
<td>3,916</td>
<td>3,714</td>
<td>4,128</td>
<td>5,348</td>
<td>5,657</td>
<td>31,555</td>
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<td>≤8 years</td>
<td>4,026</td>
<td>5,152</td>
<td>6,298</td>
<td>6,572</td>
<td>6,187</td>
<td>6,674</td>
<td>8,063</td>
<td>9,069</td>
<td>52,041</td>
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<tr>
<td>&gt;8 years</td>
<td>1,328</td>
<td>1,758</td>
<td>2,212</td>
<td>2,481</td>
<td>2,525</td>
<td>2,984</td>
<td>4,004</td>
<td>4,506</td>
<td>21,798</td>
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<td>White</td>
<td>2,473</td>
<td>3,200</td>
<td>3,672</td>
<td>3,602</td>
<td>3,529</td>
<td>3,920</td>
<td>4,941</td>
<td>5,454</td>
<td>30,791</td>
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<td>Black</td>
<td>625</td>
<td>844</td>
<td>962</td>
<td>1,023</td>
<td>959</td>
<td>1,059</td>
<td>1,310</td>
<td>1,506</td>
<td>8,288</td>
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<tr>
<td>Yellow</td>
<td>68</td>
<td>60</td>
<td>83</td>
<td>82</td>
<td>73</td>
<td>100</td>
<td>132</td>
<td>142</td>
<td>740</td>
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<tr>
<td>Brown</td>
<td>3,057</td>
<td>3,974</td>
<td>5,103</td>
<td>5,837</td>
<td>5,590</td>
<td>6,326</td>
<td>7,631</td>
<td>8,853</td>
<td>46,371</td>
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<td>Indigenous</td>
<td>47</td>
<td>78</td>
<td>122</td>
<td>142</td>
<td>136</td>
<td>181</td>
<td>221</td>
<td>210</td>
<td>1,137</td>
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<tr>
<td>Residence</td>
<td>4,045</td>
<td>5,278</td>
<td>6,380</td>
<td>7,086</td>
<td>6,654</td>
<td>7,681</td>
<td>9,274</td>
<td>11,003</td>
<td>57,401</td>
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<td>Public area</td>
<td>1,060</td>
<td>1,341</td>
<td>1,642</td>
<td>1,723</td>
<td>1,680</td>
<td>1,666</td>
<td>1,926</td>
<td>1,802</td>
<td>12,840</td>
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<tr>
<td>Others</td>
<td>1,785</td>
<td>2,273</td>
<td>2,851</td>
<td>3,001</td>
<td>3,126</td>
<td>3,398</td>
<td>4,284</td>
<td>4,273</td>
<td>24,991</td>
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<tr>
<td>Yes</td>
<td>1,579</td>
<td>1,878</td>
<td>2,178</td>
<td>2,221</td>
<td>2,074</td>
<td>2,430</td>
<td>2,864</td>
<td>3,166</td>
<td>18,390</td>
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<tr>
<td>No</td>
<td>2,782</td>
<td>3,784</td>
<td>4,671</td>
<td>5,431</td>
<td>5,328</td>
<td>5,905</td>
<td>7,222</td>
<td>8,543</td>
<td>43,666</td>
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<tbody>
<tr>
<td>Yes</td>
<td>2,699</td>
<td>3,537</td>
<td>4,359</td>
<td>4,939</td>
<td>4,461</td>
<td>5,041</td>
<td>6,393</td>
<td>7,867</td>
<td>39,296</td>
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<tr>
<td>No</td>
<td>3,186</td>
<td>4,130</td>
<td>4,859</td>
<td>5,116</td>
<td>5,128</td>
<td>5,558</td>
<td>6,410</td>
<td>6,608</td>
<td>40,995</td>
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<thead>
<tr>
<th>Type of offender</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friend/acquaintance</td>
<td>1,871</td>
<td>2,537</td>
<td>3,061</td>
<td>3,094</td>
<td>3,071</td>
<td>3,392</td>
<td>4,013</td>
<td>4,403</td>
<td>25,442</td>
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<tr>
<td>Unknown person</td>
<td>1,775</td>
<td>2,106</td>
<td>2,562</td>
<td>2,513</td>
<td>2,651</td>
<td>2,748</td>
<td>3,201</td>
<td>2,981</td>
<td>20,537</td>
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<tr>
<td>Stepfather</td>
<td>734</td>
<td>1,014</td>
<td>1,136</td>
<td>1,259</td>
<td>1,115</td>
<td>1,308</td>
<td>1,562</td>
<td>1,999</td>
<td>10,119</td>
</tr>
<tr>
<td>Father</td>
<td>514</td>
<td>684</td>
<td>781</td>
<td>1,024</td>
<td>782</td>
<td>950</td>
<td>1,117</td>
<td>1,287</td>
<td>7,139</td>
</tr>
<tr>
<td>Boyfriend/ ex-boyfriend</td>
<td>871</td>
<td>1,132</td>
<td>1,625</td>
<td>1,866</td>
<td>1,733</td>
<td>1,995</td>
<td>2,380</td>
<td>2,559</td>
<td>17,688</td>
</tr>
</tbody>
</table>

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1 Ignored: 22,179 (23.1%); 2 Ignored: 8,691 (9.1%); 3 Ignored: 786 (0.8%); 4 Ignored: 33,962 (35.4%); 5 Ignored: 15,727 (16.4%); 6 Others/ignored: 15,093 (15.7%).

Source: SINAN
also confirm that the privacy of the residential environment favors the action of offenders, facilitates their approach and the confidential nature of that kind of violence.16,19

It is known that offenders usually take advantage of a relationship of trust to approach the victim, leading the adolescent girl to interpret that contact as a demonstration of kindness and affection. When the victim begins to understand the situation as abuse or abnormal attitude, the offender takes advantage of her immaturity and insecurity to silence her, both by direct threats.

Table 2. Reporting rate trend (per 100,000 women) of sexual violence against adolescent women in Brazil, 2011-2018.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Reporting rate</th>
<th>APC^a</th>
<th>95%CI^b</th>
<th>p-value^c</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-14</td>
<td>54.9</td>
<td>14.1</td>
<td>6.56;22.36</td>
<td>0.003</td>
<td>Increase</td>
</tr>
<tr>
<td>15-19</td>
<td>27.8</td>
<td>13.0</td>
<td>8.15;18.17</td>
<td>0.001</td>
<td>Increase</td>
</tr>
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<td>10-19</td>
<td>41.4</td>
<td>13.0</td>
<td>8.15;18.17</td>
<td>0.001</td>
<td>Increase</td>
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<tr>
<td>Regions</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>North</td>
<td>94.65</td>
<td>13.43</td>
<td>9.73;17.25</td>
<td>0.002</td>
<td>Increase</td>
</tr>
<tr>
<td>Northeast</td>
<td>23.56</td>
<td>12.46</td>
<td>4.52;21.00</td>
<td>0.008</td>
<td>Increase</td>
</tr>
<tr>
<td>Southeast</td>
<td>34.91</td>
<td>14.56</td>
<td>7.98;21.54</td>
<td>0.001</td>
<td>Increase</td>
</tr>
<tr>
<td>South</td>
<td>56.12</td>
<td>14.19</td>
<td>6.56;22.36</td>
<td>0.003</td>
<td>Increase</td>
</tr>
<tr>
<td>Midwest</td>
<td>49.55</td>
<td>13.43</td>
<td>9.73;17.25</td>
<td>&lt;0.001</td>
<td>Increase</td>
</tr>
</tbody>
</table>

^aAnnual percentage change; ^b95% confidence interval; ^cWald test.

Source: SINAN.
and indirect ones aimed at her closest relationships. Even when the offender is unknown, victims tend to avoid reporting sexual abuse, either because they fear the consequences such a revelation may have, out of shame, or because they feel guilty about it.\textsuperscript{5,19,22}

According to this study, offenders were mainly friends or acquaintances, even if we take into account that the close relationship between offender and victim makes it difficult to identify violence as such. Factors such as omission, the absence of witnesses and the complicity of the family or third parties (friends, neighbors) who usually try to avoid a scandal are common barriers to reporting sexual abuse.\textsuperscript{23} In addition, repeat violence entails living under the same roof with the offender and reveals the chronic nature of violence, associated with the evidence that repetitive episodes tend to become increasingly more serious.\textsuperscript{24}

Nearly one in five adolescents in this investigation reported SV in the context of dating. Physical and psychological abusive behavior in relationships takes place in a variety of ways, such as monitoring mobile phone use, telling the victim what to wear, the places they may go to and who with. Rates of victims and offenders were similar among both girls and boys.\textsuperscript{25} However, when it comes to SV in romantic relationships, adolescent women show disproportionately higher rates, which is associated with several types of harmful behavior to health, such as substance abuse, risky sexual practices and arguments that include physical violence.\textsuperscript{16,25,26}

Although not explored in this study, SV is commonly associated with physical or psychological violence. When recurrent, there is a higher number of negative outcomes, such as post-traumatic stress, unwanted pregnancy, physical and psychological trauma, in addition to the risks of sexually transmitted infections.\textsuperscript{4,18} The impact on mental health stands out, as it is considered the main factor affected by SV in this age group, often with lasting effects.\textsuperscript{27} Data from the National School Health Survey 2015 showed that adolescents who suffered SV have a higher chance of

Figure 2. Dispersion of the reporting rate (per 100,000 women) of sexual violence against adolescents according to regions, Brazil, 2011-2018.

Source: SINAN.
being bullied, of experiencing a frequent feeling of loneliness and of having used alcohol or illicit drugs in the past.

Most cases of SV occurred among adolescents who had less than eight years of education, which was expected due to the victims’ age and the majority of them being of school age. Still, it is noteworthy that sexually abused adolescents show a greater grade-age distortion, a lower intention to continue studying and more serious learning issues, indicating their difficulty in adapting to school environment. On the other hand, a systematic review on violence against women pointed out that having access to education and employment can become coping and protection factors against gender violence, reducing the chances of suffering sexual violence by 60%

Similar to what was found in a research on SV reports in Brazil between 2009 and 2013, in the present study the Southeastern region showed the highest number of reported cases in all years. In addition to the fact that this region has a greater number of inhabitants, there is a greater quantity of health care centers that report SV. Although we found an increase in reports in all regions, the Northern region stood out in the entire historical series. In addition to the presence of other social and economic indicators related to sexual abuse of young people, some data show that the Northern region has the highest number of sexual trafficking routes of children, adolescents and women, favoring the commodification and objectification of the body of women and children/adolescents as drivers of the perpetuation of SV in interpersonal relationships.

This study is limited, especially regarding the use of secondary databases. In addition to the expected underreporting of SV, it is common knowledge that mistakes are made during report form filling due to difficulties in obtaining information from women and insufficient training of professionals working at the reporting units. Furthermore, the fact that non-mandatory fields are often left blank (such as race/skin color, suspicion of alcohol use, place and time of the incident) compromises the performance of surveillance and actions aimed at reducing cases. The high percentage of missing data in the variables education and suspected alcohol use, which reveals information quality issues regarding the data made available by the public health system, reduces and even prevents an adequate understanding of the profile of reports according to these features. These limitations do not invalidate our findings but point to the need for caution in interpreting data. We would like to emphasize that the results presented relate only to the records of reported cases and do not represent the actual extent of this phenomenon.

SV is a complex situation that causes suffering. The increase of SV reports in recent years shows the degree of vulnerability of adolescent women to this kind of violence. Reporting systems and the creation of public policies aimed at tackling SV against women need to be further developed. In addition to contributing to the understanding of its extent, information on the trend of this phenomenon may help guide possible intervention and control measures.
Collaborations

VAO Viana was responsible for the study, study design, analysis and manuscript writing. AP Madeiro participated in study design, review and manuscript writing. MDM Mascarenhas participated in the study design, review and manuscript writing. MTP Rodrigues participated in the study design, review and manuscript writing.

References
