The Epidemiological Profile of Sexual Violence Notifications in the Capitals of the Northeast of Brazil: An Ecologic Time Series

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Abstract

This study aimed at outlining the epidemiological profile of the notifications of sexual violence in the capitals of the Northeast of Brazil. It is a descriptive, analytical, and ecological study, made with the information about sexual violence recorded at SINAN (the Information System of Health Problem Notifications). The nine capital cities of the Northeast of the country were selected, and data from them was analyzed from 2012 to 2014. The depending variables were notifications of sexual violence and rape. Independent variables included sex, age group, educational level, and race. For a statistical analysis, the Chi-squared and Fisher's exact tests were used when the expected frequencies were below 5. The statistical treatment of variables was done using the R software. Regarding the results, 6811 sexual violence cases were notified in the capitals. Most of them took place in Recife (31.2%), Teresina (16.5%), and Aracaju (13.3%). In most cases, the victims were females, children or adolescents, and brown. Most victims had less than eight years of study. The city with the most notifications of rape was Recife. The results show the association between socioeconomic factors and sexual violence, outlining a profile of the victims of this type of violence in the capitals of the Brazilian Northeast. A high prevalence of sexual violence was found in the investigated cities.

Keywords: violence; sex offenses; compulsory notification;

1. Introduction

Sexual violence is understood as any type of sexual activity that is not consensual, being imposed through force, intimidation, threats, or coercion (SOUZA; MINAYO, 2017; BASILE; SMITH, 2011). A commonly observed result of this practice is the severe emotional, economic, and social damage to the victim and their relatives. Furthermore, there are other aspects involved in the context of sexual abuse, such as: the risk of being contaminated by sexually transmissible infections, psychological traumas, and unwanted pregnancies, the latter of which also increases the number of abortions (MUTTA; YELA, 2017; SILVA et al., 2019).

The World Health Organization proposed an ecological model of violence, taking into account risk factors that are considered to be milestones to understand the complex interaction between them. That leads to the understanding of key-factors with regard to preventing and intervening with this problem. These factors are divided in individual factors, which include biological factors and the history of the individual; relational factors; community factors, understood as the relations established with the society; and, finally, social factors, including a broader, macro-social view, such as gender inequality, religious influence, economic policies, and social norms, which are a subject of Collective Health studies (KRUG, E.G. et al., 2012; SILVA; MELO NETO; NÓBREGA, 2020).

It has been estimated that, every year, nearly 12 million people are victims of sexual violence in the world. Six out of every ten women experienced some type of unwanted sexual relation in their lives. In adolescence, from 6 to 59% report experiences of sexual assault, especially by intimate partners (OLIVEIRA et al., 2013). Data from Martins and Alencastro (2015) identified a reality in which the general prevalence of sexual violence in Brazil was found to be 20.4%. On an individual level, the frequency of sexual violence against women (26.4%) is twice as high as that against males. Concerning age group,

children are seven times more likely to be submitted to violence than adults. Adolescents, on the other hand, are six times more likely. Among children, the prevalence found was 11.9%, compared to that of adolescents, which was of 8.8% (BRAZIL, 2011; LI; ZHAO; YU, 2019).

It is mandatory for professionals in health units to notify cases of sexual violence, registering the information in the Sistema de Informação de Agravos de Notificação (SINAN, the Information System of Health Problem Notifications), whether the cases are suspected or confirmed. To do so, they must use the Form of Notification/Investigation of Domestic Violence, Sexual Violence, and Other Types of Violence (FNI). The data is computerized, consolidated, and sent to the Sistema de Vigilância de Violências e Acidentes (VIVA — the Surveillance System of Violence and Accidents), integrated to SINAN since 2008. Previously, these data were processed using the EPI-info software, but this change took place due to the need to improve the quality of information, which is essential to get to know the reality.

Even considering the advances obtained by the health information systems, the persistent conditions that prejudice the quality of information — undernotification, incomplete data, negligence when completing the FNI — shows that improving the quality of the information generated is necessary in all hierarchical levels of the health care network (MEZZAVILLA et al., 2018).

Considering the above, the objective of this study was outlining the profile of the notifications of sexual violence and verify their prevalence in the capitals of the Northeast of Brazil, from 2012 to 2014.

2. Methods

2.1 Type of study

This is an exploratory, descriptive, analytical study, whose design is that of an ecological time series, using secondary data from sexual violence recorded in the SINAN-VIVA, from cities in the Brazilian Northeast. An inductive approach was used as a scientific method, since this study used private data to infer a universal truth (LAKATOS; MACONI, 2003).

2.2 Data collection procedure

The tabulation of the information was carried out by the Epidemiological Surveillance service of each city, after the forms with the individual notification were received from the health units. Data was extracted from the database of the Ministry of Health (DATASUS) through a consultation to the section of epidemiology and morbidity information. To do so, the software Tabwin 3.6b, from the Epidemiological Surveillance Management, was used. The notification form includes, among other information, content that identifies the victim and the potential aggressor, as well as characteristics of the event, specificities of the sexual violence — when there are any —, consequences of the violence, and data about the progression of the case and referrals.

The nine capital cities of the Northeast of the country were selected, and data from them was stratified and analyzed from 2012 to 2014. The notifications of sexual violence and rape were included as dependent variables. The independent variables, in turn, were sex, age group, educational level, and race.

2.3 Statistical analysis

Regarding the analysis of tabulated data, descriptive statistics were used, through simple absolute and relative frequencies (%) for the categorical variables and the organization of the results in tables and graphics. Aiming to verify possible associations between the variables analyzed, the Chi-squared (X^2) and Fisher's exact tests were applied when expected frequencies were below 5 (SIEGEL et al., 2006), considering a confidence interval of 95% (CI95%) and a significance level of 5% ($p<0.05$) to determine the statistical significance of the variables included in the study. The statistical program RStudio was used to analyze the cases of sexual violence notified (GBIF, 2015).

2.4 Ethical aspects

Since this is an ecological study, in which data has already been processed and the population investigated has not been identified, there was no need to submit it to a research ethics committee (DELZIOVO et al., 2017).

3. Results

6,811 notifications of sexual violence cases were registered in the Epidemiological Surveillance Secretariats (Figure 1), a mean of 756.8 considering all the cities. The capitals with the highest number of notifications were Recife (31.2%), Teresina (16.5%), and Aracaju (13.3%), as opposed to Natal, where only 3.7% of the notifications took place.

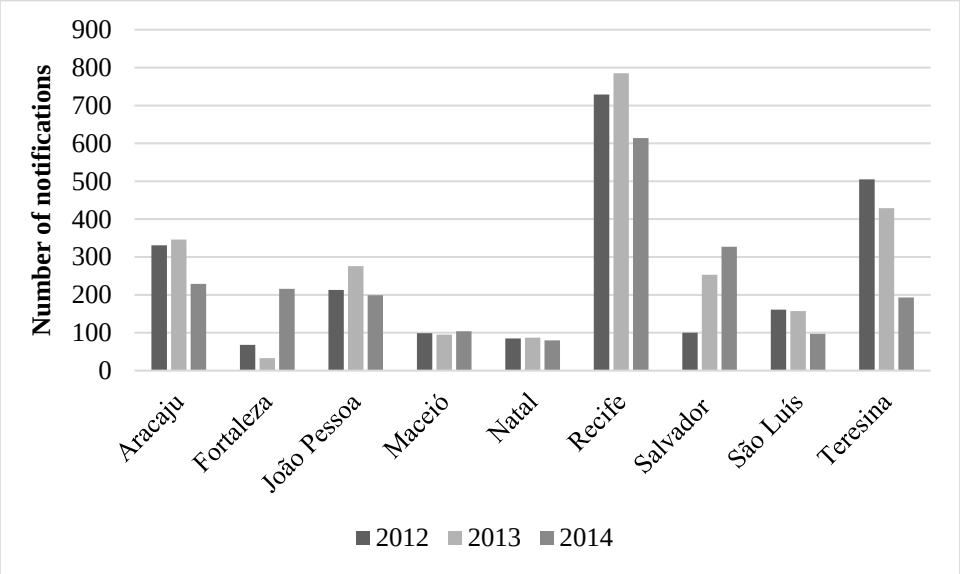

Figure 1. Distribution chart of notifications of sexual violence among the capitals of the Northeast

Females were overwhelmingly more affected by sexual violence in all capitals, with statistical significance in Recife (p=0.01), São Luís (p=0.01), Maceió (p=0.01), and Teresina (p=<0.001).

Sexual violence mostly affected children and adolescents, according to the classification of the data base. This result had a statistical significance in the cities of Natal (p=0.02), João Pessoa (p=0.02), Aracaju (p=0.008), São Luís (p=0.006), and Fortaleza (p=<0.001). With regard to the educational level, most

victims had less than eight years of study.

Notifications showed that most victims were brown, followed by those with white skin. This result was only statistically significant in Fortaleza (p=<0.001) (Table 1).

Table 1. Profile of notifications of sexual violence in the northeast (2012-2014)

Characteristics	Aracaju	Fortaleza	João Pessoa	Maceió	Natal	Recife	Salvador	São Luís	Teresina
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Sex									
Male	145 (16,0)	8 (2,5)	21 (3,1)	16 (5,4)	13 (5,2)	196 (9,2)	95 (14,0)	53 (12,8)	93 (8,3)
Female	760 (83,9)	309 (97,5)	667 (96,9)	282 (94,6)	239 (94,8)	1932 (90,8)	584 (85,9)	362 (87,2)	1034 (91,7)
Ignored	1 (0,1)	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)	1 (0,1)	0 (0,0)	0 (0,0)
X²(p-value)	2,90 (0,2349)	3,80 (0,1670)	3,57 (0,1679)	8,61 (0,0111)	3,09 (0,2192)	8,68 (0,0130)	3,51 (0,1725)	8,59 (0,0136)	18,48 (<0,001)
Age Range									
Ignored	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)	3 (0,4)	0 (0,0)	0 (0,0)
0-19	769 (84,9)	261 (82,3)	325 (47,2)	190 (63,8)	144 (57,1)	1434 (67,4)	546 (80,3)	342 (82,4)	969 (86,0)
20-49	125 (13,8)	55 (17,4)	330 (48,0)	105 (35,2)	96 (38,1)	635 (29,8)	124 (18,2)	69 (16,6)	142 (12,6)
>50	12 (1,3)	1 (0,3)	33 (4,8)	3 (1,0)	12 (4,8)	59 (2,8)	7 (1,0)	4 (1,0)	16 (1,4)
X²(p-value)	13,42 (0,0088)	106,88 (<0,001)	10,80 (0,0289)	0,48 (0,7854)	10,76 (0,0239)	7,56 (0,1076)	5,54 (0,2359)	9,95 (0,0069)	5,22 (0,2695)
Scholarity									
Ignored	522 (57,6)	67 (21,1)	196 (28,5)	93 (31,2)	109 (43,3)	915 (43,0)	194 (28,5)	121 (29,2)	334 (29,6)
Illiterate	16 (1,8)	2 (0,6)	5 (0,7)	5 (1,7)	3 (1,2)	5 (0,2)	5 (0,7)	0 (0,0)	24 (2,1)
Elementary School	327 (36,1)	160 (50,5)	258 (37,5)	118 (39,6)	66 (26,2)	780 (36,7)	376 (55,3)	217 (52,5)	629 (55,8)
High school	26 (2,9)	77 (24,3)	160 (23,3)	62 (20,8)	57 (22,6)	315 (14,8)	72 (10,6)	60 (14,5)	117 (10,4)
University education	15 (1,7)	11 (3,5)	69 (10,0)	20 (6,7)	17 (6,7)	113 (5,3)	33 (4,8)	17 (4,1)	23 (2,0)

X^2(p-value)	7,62 (0,2663)	21,38 (0,0001)	13,77 (0,0081)	2,52 (0,6462)	8,36 (0,0806)	14,85 (0,0040)	7,38 (0,1198)	12,76 (0,0142)	5,17 (0,5251)
Race									
Ignored	151 (16,7)	17 (5,4)	17 (2,5)	26 (8,7)	13 (5,2)	313 (14,7)	104 (15,3)	19 (4,6)	56 (5,0)
White	125 (13,8)	30 (9,5)	161 (23,4)	51 (17,1)	57 (22,6)	466 (21,9)	55 (8,1)	70 (16,9)	202 (17,9)
Black	61 (6,7)	15 (4,7)	101 (14,7)	27 (9,1)	9 (3,6)	251 (11,8)	169 (24,9)	52 (12,5)	123 (10,9)
Indigenous	6 (0,7)	2 (0,6)	17 (2,5)	2 (0,7)	2 (0,8)	32 (1,5)	7 (1,0)	1 (0,2)	46 (4,1)
Brown	563 (62,1)	253 (79,8)	392 (57,0)	192 (64,4)	171 (67,9)	1066 (50,0)	345 (50,7)	273 (65,8)	700 (62,1)
X^2(p-value)	5,22 (0,2655)	70,82 (<0,001)	8,04 (0,0901)	4,42 (0,3577)	4,30 (0,3646)	0,63 (0,9595)	6,18 (0,1864)	3,88 (0,4291)	5,23 (0,3567)

When the analysis evaluated specifically the variable "rape", a total of 5,848 notifications was found. Recife (29.9%), Aracaju (15.1%), and Teresina (14.1%) had the highest prevalences (Figure 2).

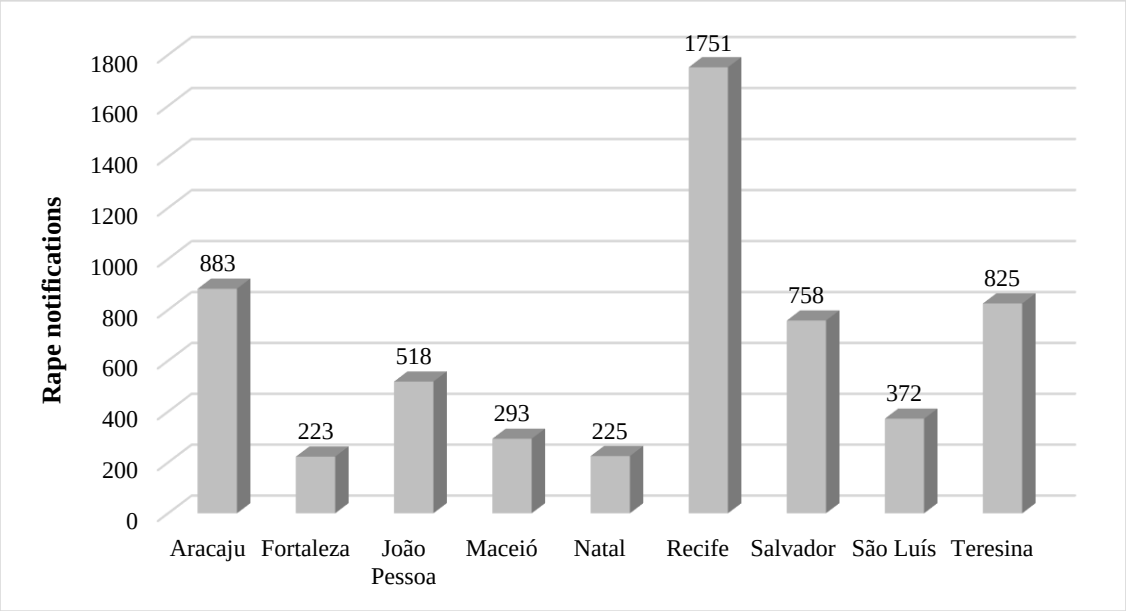

Figure 2. Rape prevalence among reports of sexual violence

4. Discussion

Understanding how sexual violence propagates is significantly effective to indicate the destructive potential of this problem to the population affected by it and their relatives, since it is difficult to diagnose this reality in certain contexts, since the victims, oftentimes, feel ashamed to report the reality in which they are in. Discussions on the theme have been increasingly common, but intersectoral actions are still needed to

confront this type of violence with effective actions (CAMARGO et al., 2019).

Among the capitals investigated, and considering a reality in which a large number of notifications was found, some capitals — despite having registered a high prevalence of sexual violence — have shown to be on a downward trend with regards to notification numbers, which could be connected to the actions of public policies to confront this type of violence. This tendency can be affirmed due to the Human Development Index, which measures some aspects inherent to the development of human beings. Recife is the city with the highest index (0.78) among the Northeast capitals (BRAZIL, 2018).

The capital Recife also registered the highest number of notifications of sexual violence at SINAN, a result similar to the one found by another study (ALVES et al., 2018), which identified 867 records of sexual violence in the same capital, based on the records of cases which had been confirmed and archived in the files of the Legal Medicine Institute.

The research found that females were the most common victims of sexual violence, corroborating previous findings in literature (SCHRAIBER; D'OLIVEIRA, 2008). The highest prevalence of this type of violence among females is a historical fact throughout the world, and is related to the sexualization of women's bodies, especially by men. Sexism, as a form of domination, in addition to financial dependence, are factors that contribute for sexual violence (MEZZAVILLA et al., 2018). There was a statistical association in most capitals, reiterating the influence of sexual violence in females.

Regarding the age group, Lindner et al. (2015) have shown that young adults — from 20 to 29 years old — are more likely to be affected, since this is an age group in which sexual relations are more practiced, coupled with the fact that people are more deeply inserted in society through work, study, or leisure, increasing the exposure to violence. In this article, the most prevalent victims of sexual violence were found to be children and adolescents in all capitals in the Northeast, except João Pessoa.

This research shows a strong statistical association, in some capitals, between the educational level of the population investigated and sexual violence. All capitals investigated had a similar pattern, which is in accordance to studies by Alves et al. (2018) and Marinheiro et al. (2006). This could lead to inferences according to which sexual violence is inversely proportional to educational levels, that is, the lower the educational level, the highest the proportion of sexual violence experience, since the most frequent victims were those under eight years of study.

In the case of the variable race, the findings of this research were in accordance to other studies by Facuri et al. (2013) and Matias et al. (2013), according to which the most prevalent victims of sexual violence are non-white people, that is, brown and black ones. The high frequency of brown people may be related to the fact that Brazil is considered to be a country of mixed races, due to the influence of its many different colonizing peoples.

Worldwide, thousands of people are forced to practice unwanted sexual acts, which leads to irreversible damage, such as psychological disorders, higher risk of suicide, the formation of violent personalities, trauma related to sexual life, in addition to a higher risk of contamination by Sexually Transmitted Infections (STIs) (BARROS et al., 2016).

There are many ways in which sexual violence can take place, from physical violence, using various types of aggression, to sexual coercion. This article followed the structure of the variables proposed by DATASUS — which subdivides sexual violence in sexual harassment, rape, indecent assault, child

pornography, and sexual exploitation —, choosing the variable "rape" for analysis due to the high frequency of this type of sexual violence in a similar research (LIMA et al., 2017). When sexual violence is restricted to rape, the most common typology, the results are in accordance to previous studies (D'ABREU; KRAHÉ; BAZON, 2013; ASSIS; GOMES; PIRES, 2014).

Data from the Ministry of Health indicate that less than 10% of rape cases are notified to the responsible bodies (BRASIL, 2005). Due to the negative effect a rape has on the victim, such as the fear of it happening again, the prejudice with regard to STI infections, the submission and dependency from the attacker, and unwanted pregnancies, oftentimes the possibility of making a report is neglected (SOUTO et al., 2014). These rapes frequently go unnoticed by the public powers, not only because victims do not report them, but also because professionals are unaware that the notification system has been standardized, or even due to their fear of retaliation, all of which make it much more difficult to confront sexual violence (KURG, 2002).

It is extremely important to highlight the limits of cross-sectional studies, such as the impossibility of establishing causal relationships, the memory bias, the undernotification from health workers, and/or the lack of training or of awareness of those responsible for transmitting this data to DATASUS. In addition, the system is lacking updates with regards to national Epidemiological Surveillance data, since the last year available for consultation is still 2014. Still, the data presented here, despite its shortcomings, is not less reliable, and the issues mentioned above only mean that it requires more care to be analyzed.

One of the positive aspects of this work is the relevance of the information collected, considering it as true. Also, it raises the possibility of presenting a comparative analysis of Northeastern capitals, since no other studies were found that specifically analyze these cities and have a broader geographic scope, enabling an analysis of the profile of the victims.

5. Conclusion

The results presented show the association of socioeconomic factors with sexual violence, outlining a profile of the victims of this type of violence in the capitals in the Northeast of Brazil. Furthermore, it shows which capitals have the highest prevalence of sexual violence notifications.

Therefore, advances must be done in the use and analysis of the data generated by health information systems, due to the considerable power of data validation. As a result, it is essential to use methods and techniques of sexual violence monitoring, minimizing the causes of undernotification through intersectoral action.

Therefore, it can be concluded that the instruments of mandatory sexual violence notification are still challenging to public health workers, despite being indispensable to portrait health indicators and subsidize the elaboration of public policies.

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