







Impact of COVID-19 on Child Sexual Violence: Cross-Sectional Study of Forensic Cases in a State Capital of Northeastern Brazil

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ABSTRACT

Objective: To investigate the potential impact of the pandemic on the number of sexological forensic examinations among children and adolescents in a state capital of Northeastern Brazil, as well as to outline the profile of victims and perpetrators. **Material and Methods:** Cross-sectional study with retrospective analysis of medical-legal/forensic dental examinations conducted from March 2019 to March 2023, focusing on cases of sexual intercourse/sexual assault suffered by children and adolescents examined in the municipality of João Pessoa, Brazil. **Results:** Of the 1254 reports included, 370 occurred during the pre-pandemic period, 272 during the critical pandemic, 280 during the stabilization, and 332 during the post-pandemic. One thousand and eighty-eight cases involved females, and 692 affected children, with the pre-pandemic period showing the highest number of occurrences. 86.36% of perpetrators were male and acted alone, and 51.20% had a relationship with the victim. Three hundred and fifty-one cases occurred at the victim's residence. No statistically significant association was found among cases across the pandemic periods. **Conclusion:** Despite the apparent decrease in cases of child sexual violence, it does not necessarily imply a real reduction due to widespread underreporting during COVID-19. The predominant profile of victims is composed of girls aged 11-14 years, with the victim's and perpetrator's residence being the most common locations of sexual violence occurrence, with the perpetrator being a male individual with familial relationship.

Keywords: Domestic Violence; Child Abuse; Sex Offenses; Coronavirus Infections.

Introduction

The World Health Organization (WHO) defines violence as the intentional use of physical force or power, real or threatened, against oneself, another person, or a group or community, resulting in or having a high likelihood of resulting in injury, death, psychological harm, developmental impairment, or deprivation [1].

Of the three violence categories – self-directed, interpersonal, and collective – interpersonal violence can be subdivided into family and intimate partner violence, in the form of child abuse, intimate partner violence, elder abuse; and community violence, which includes youth violence, random acts of violence, rape or sexual assault by strangers, and violence in institutional settings [1].

Children represent the group most vulnerable to violence due to their fragilities, vulnerabilities, and dependence on care [2]. According to the Brazilian Society of Pediatrics, child abuse is understood as any physical, sexual, or psychological harm committed by an individual with superior conditions compared to the victim, contrary to their will or with their consent obtained through inducement or deceptive seduction [3].

According to Herrera et al. [4], child abuse can manifest in the form of physical violence, neglect, emotional violence, or sexual violence. Physical violence is the most recognized form, represented by the intentional use of physical force to harm someone, leaving visible or invisible marks. Neglect is the recurring omission of the caregiver to provide basic care for the development of the child and adolescent, putting them at risk. Emotional violence is the type of violence that does not leave physical marks but emotionally damages the victim's self-esteem or development [4,5]. Finally, sexual violence is defined as any act or sexual game intended to sexually stimulate the child or adolescent, providing sexual satisfaction to perpetrators, whose psychosexual development stage is more advanced than that of the victim [6]. Sexual contact may or may not occur [4], with examples of this type of violence including sexual harassment, rape, commercial sexual exploitation, pornography, among others [6].

Considered a global epidemic, as almost one-third of adolescents have their first forced sexual experience [1], child sexual violence continues to bring numerous consequences for individual and collective health [7].

In March 2020, WHO declared the pandemic triggered by the SARS-CoV-2 virus [7], leading to the adoption of some coping strategies, such as social distancing and isolation [8]. These measures, while necessary, disrupted routines in general, generating new sources of tension and stress [9]. For example, more than 1.5 billion children worldwide were affected by the quarantine [10], as the closure of schools required changes in their daily routines, restricting access to group school activities and sports, among others [9].

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO) [11], this new social interaction configuration increased the likelihood of children of experiencing physical, psychological, and sexual violence at home, especially those already inserted in violent or dysfunctional families.

The urbanization process in developing countries over the past decades has directed resources to the wealthiest areas of cities, resulting in the reduction of basic social rights - work, health, education, housing, and urban infrastructure - creating spaces where social inequalities are expressed and situations of violence are reproduced. Thus, violence has been observed migrating to smaller cities, as observed in João Pessoa, the capital of the state of Paraíba, which rose to the 29th position in the ranking of the world's most violent cities and the 10th position among Brazilian cities [12].

Therefore, this study aimed to investigate the possible influence of the COVID-19 pandemic on the number of sexological forensic examinations performed on children and adolescents treated at the Center for Legal Medicine and Dentistry (NUMOL) of the Institute of Scientific Police (IPC) in João Pessoa, Paraíba (PB), Brazil, from March 2019 to March 2023. Additionally, it sought to outline the epidemiological profile of these

sexual violence victims and identify the main locations of the occurrence of sexual violence and possible perpetrators.

Material and Methods

Ethical Clearance

All ethical aspects established by Resolution 466/12 of the National Health Council (CNS) of the Ministry of Health and the Helsinki Declaration, which addresses research involving human subjects and materials derived from them, were observed and followed. To this end, after obtaining approval from the institution involved, the project was reviewed and approved by the Research Ethics Committee of the Health Sciences Center, Federal University of Paraíba, under number 6.197.207

Study Design

A field research was conducted using an inductive approach and descriptive and comparative procedure, applying intensive direct observation techniques. This was a quantitative, exploratory, documentary, analytical cross-sectional study with retrospective analysis of medical-legal/forensic dental examinations conducted from March 2019 to March 2023, focusing on cases of sexual intercourse/sexual assault suffered by children and adolescents examined in the municipality of João Pessoa, Brazil [13]. João Pessoa is located in the Northeastern region of Brazil, with a population of 833,932 people [14], a municipal Human Development Index of 0.76 [15], and a Gini Index of 0.652 [16].

Sample and Data Collection

The research universe consisted of all reports of sexological forensic examinations conducted from March 2019 to March 2023 at NUMOL/IPC/PB. The sample was census-based, consisting of these reports, which involved children and adolescents as victims.

Data collection was carried out between January and September 2023 at the archives department, belonging to the NUMOL/IPC/PB facilities, located in the municipality of João Pessoa.

As the pandemic was declared by the WHO on March 20/2020, and social isolation measures began in Brazil a little later, this research considered the period from March 2019 to March 2020 as pre-pandemic; April 2020 to March 2021 as the critical pandemic period; April 2021 to March 2022 as the stabilization period; and April 2022 to March 2023 as the post-pandemic period.

Sociodemographic data of victims (age and gender) and information regarding the aggression suffered (location of the aggression occurrence, potential perpetrator - number and relationship with the victim - and type of aggression - naked or instrumentalized) were collected. Data collection was carried out through the examination of forensic reports from NUMOL/IPC/PB with the assistance of an electronic form developed by the researchers.

Data Analysis

Data were tabulated in a Microsoft Office Excel® spreadsheet, where descriptive analyses were conducted to examine absolute and relative frequencies. Subsequently, data were transferred to the Jamovi 2.3 software (Computer Software Inc., Sydney, Australia), and inferential statistical analysis was performed using Pearson's Chi-square test, adopting a significance level of 5%.

Results

Of the 1318 reports of sexual intercourse/sexual assault, a total of 1259 reports of children and adolescents were obtained, representing 95.52% of the sexological examinations conducted during the study period. Among these, five reports were excluded as they described bicycle accidents, falls in the bathroom, and examinations not performed due to the victim resisting the examination. Thus, the final sample consisted of 1254 reports.

Table 1 presents the overall number of children and adolescents subjected to sexological forensic examination during the study period. It was observed that females were the most affected, and the age group of 0 - 11 years stands out numerically in the number of cases.

Table 1. Profile of victims of sexual intercourse / violent assault submitted to sexological examination.

Variables	N	%
Gender		
Female	1088	86.77
Male	166	13.23
Age Group		
0 – 11 years	692	55.14
12 – 17 years	562	44.86
Periods		
Pre-Pandemic	370	29.50
Critical Period	272	21.70
Stabilization	280	22.33
Post-Pandemic	332	26.47

Regarding age groups, Figure 1 shows the comparison of sexual violence between male and female genders across different age groups of children and adolescents. It was observed that, regardless of age, females are the most affected by cases of sexual violence, with the age group of 11-14 being the most affected.

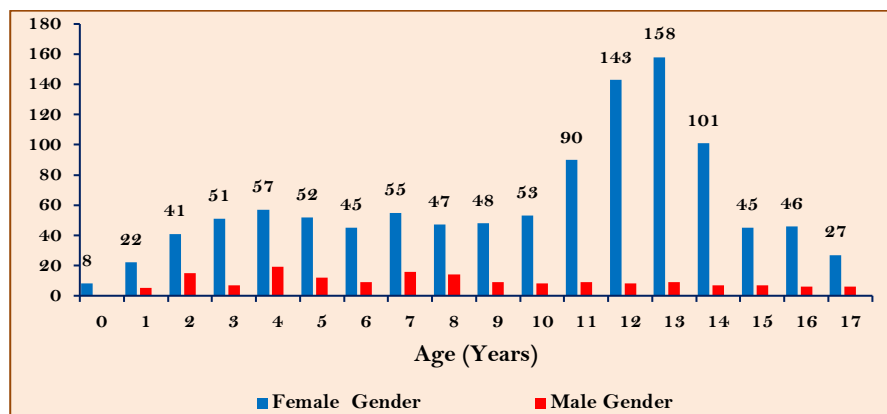


Figure 1. Comparison of sexual violence between male and female genders across different age groups of children and adolescents undergoing sexological examination.

Table 2 presents the number of cases of sexual intercourse/violent assault, per year, in children and adolescents according to variables gender and age group. Also in Table 2, it was observed that the pattern remained the same in all periods, namely, the female gender and the age group of 0-11 years showing the highest number of cases, with the pre-pandemic period being the most prevalent in both variables.

When observing the distribution of cases by gender, it was observed that the number of reports of males continued to decline in all periods, and the female gender showed a decrease (25.32%) in the number of reports during the critical pandemic period, compared to the pre-pandemic period. However, when comparing the critical period with the stabilization period and the post-pandemic period, it was observed that the number of reports increased by 5.58% and 27.47%, respectively.

The present study did not find statistical significance between cases of sexual intercourse/violent assault over the pandemic periods and variables gender and age group (p-value >0.05).

Table 2. Distribution of reports of sexual intercourse/violent assault in children and adolescents according to variables related to the victim's profile.

Variables	Period								Total	p-value*	
	Pre-Pandemic		Critical Period		Stabilization Period		Post-Pandemic				
	N	%	N	%	N	%	N	%	N	%	
Gender											
Male	58	15.67	39	14.34	34	12.14	35	10.54	166	13.24	0.204
Female	312	84.32	233	85.66	246	87.86	297	89.46	1.088	86.76	
Total	370	100.0	272	100.0	280	100.0	332	100.0	1254	100.0	
Age Group											
0-11 years	206	55.68	145	53.31	148	52.86	193	58.13	692	55.18	0.531
12-17 years	164	44.32	127	46.69	132	47.14	139	41.87	562	44.82	
Total	370	100.0	272	100.0	280	100.0	332	100.0	1254	100.0	

*Pearson's Chi-square test.

It was observed that during the critical pandemic period, there was a decline of 26.49% in the number of reports compared to the pre-pandemic period. When comparing the stabilization period with the pre-pandemic period, there was a decline of 24.33%, and when comparing the critical pandemic period with the stabilization period, there was a slight increase of 2.94%. Comparing the pre-pandemic period with the post-pandemic period, there was a decline of 10.27% in the number of reports. However, when comparing the critical period and the stabilization period with the post-pandemic period, there was an increase of 18.07% and 15.66% in the number of cases, respectively (Figure 2).

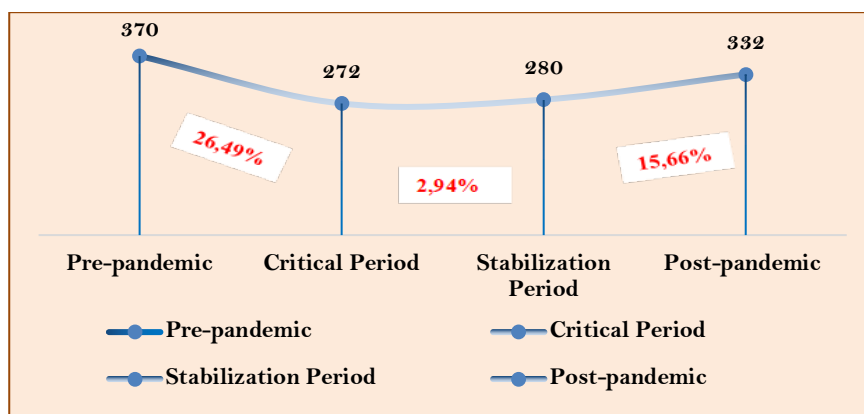


Figure 2. Comparison of child sexual violence between pandemic periods.

Table 3 presents the distribution of reports according to variables related to the aggressor's profile. Regarding gender and number of aggressors, it is possible to observe that male aggressors (N= 1,083; 86.36%) and those who commit violence alone (N= 1,033; 82.38%) are more prevalent. Regarding the relationship with the aggressor, it was observed that the majority had some connection with the victim (51.20%), which could be:

father, mother, other relatives of the victim, spouse/partner, boyfriend, ex-partner, ex-boyfriend, stepfather, or stepmother. Cases of aggression where the aggressor had no relationship (36.44%) are represented by those in which the aggressors had no emotional ties with the victim, such as third parties, neighbors, or caregivers. In these cases, it was possible to observe a reduction during the critical and stabilization pandemic periods compared to the pre-pandemic period; likewise, it was observed that in the post-pandemic period, these numbers increased again.

Table 3. Distribution of reports of sexual intercourse/violent assault in children and adolescents.

Variables	Period								Total	p-value*	CI	
	Pre-Pandemic		Critical Period		Stabilization Period		Post-Pandemic					
	N	%	N	%	N	%	N	%	N	%		
Aggressor's gender#												
Male	323	87.30	243	89.34	236	84.29	281	84.64	1083	86.36	-	95%
Female	7	1.89	4	1.47	9	3.21	6	1.80	26	2.08		
Both sexes	1	0.27	0	0.00	0	0.00	1	0.30	2	0.16		
Unknown	39	10.54	25	9.19	35	12.5	44	13.25	143	11.40		
Relationship with the aggressor												
Yes	179	48.38	146	53.68	152	54.29	165	49.70	642	51.20	0.391	95%
No	149	40.27	97	35.66	92	32.86	119	35.84	457	36.44		
NR / NA	42	11.35	29	10.66	36	12.86	48	14.48	155	12.36		
Number of aggressors												
One aggressor	312	84.32	233	85.66	224	80.00	264	79.52	1.033	82.38	0.388	95%
> 1 aggressor	18	4.86	12	4.41	15	5.36	21	6.32	66	5.26		
Unknown / NR	40	10.81	27	9.92	41	14.64	47	14.16	155	12.36		

CI: Confidence Interval; NR / NA: Not reported / Not applicable; *Pearson's Chi-square test; #Pearson's Chi-square test could not be conducted due to the small sample size.

Regarding the location of the violence (Table 4), it was observed that cases occurred most frequently in urban areas (84.05%), with the highest number of occurrences recorded in the pre-pandemic period (84.05%). The victim's residence as the location of the violence predominated in all years (27.99%), followed by the aggressor's residence (18.02%). Childcare centers and schools had 28 cases (2.23%), with the majority of them occurring in the pre-pandemic period (4.05%). No statistically significant association was found between cases of sexual intercourse/violent assault over the pandemic periods and variables related to the zone where assaults occurred (p=0.12).

Regarding the type of aggression suffered by children, Figure 3 shows a predominance of direct aggression (n=944; 75.28%) – where aggressors use their own force to harm the victim across all periods. Additionally, regarding the type of aggression, it was observed that instrumentalized aggression decreased by 40% when comparing the pre-pandemic period with the pandemic critical period.

Table 4. Distribution of reports of sexual intercourse/violent assault in children and adolescents regarding variables related to the zone and location of assaults.

Variables	Period								Total	p-value*	CI	
	Pre-Pandemic		Critical Period		Stabilization Period		Post-Pandemic					
	N	%	N	%	N	%	N	%	N	%		
Zone												
Urban area	311	84.05	215	79.04	238	85.0	290	87.35	1054	84.05	0.12	95%
Countryside	54	14.60	48	17.65	35	12.50	36	10.84	173	13.80		
Not reported	5	1.35	9	3.31	7	2.50	6	1.81	27	2.15		
Location of Aggression#												
Victim's residence	90	24.32	92	33.82	81	28.93	88	26.51	351	27.99		
Aggressor's residence	73	19.73	47	17.28	48	17.14	58	17.47	226	18.02		
Public street	16	4.32	16	5.88	17	6.07	12	3.61	61	4.86		
Victim's family residence	12	3.24	13	4.78	12	4.28	6	1.81	43	3.43	-	95%
Residence of the aggressor's relatives	1	0.27	0	0.00	0	0.00	0	0.00	1	0.08		
School/Daycare centers	15	4.05	1	0.37	4	1.43	8	2.41	28	2.23		
Business establishment	4	1.08	4	1.47	1	0.36	5	1.51	14	1.11		
Healthcare establishment	0	0.00	1	0.37	1	0.36	0	0.00	2	0.16		
Long-term care institution	3	0.81	2	0.73	1	0.36	4	1.20	10	0.80		
Internet	3	0.81	0	0.00	0	0.00	1	0.30	4	0.32		
Others	16	4.32	7	2.57	10	3.57	13	3.91	46	3.67		
Not reported	137	37.02	89	32.72	105	37.5	137	41.26	468	37.33		

CI: Confidence Interval; *Pearson's Chi-square test; #Pearson's Chi-square test could not be conducted due to the small sample size.

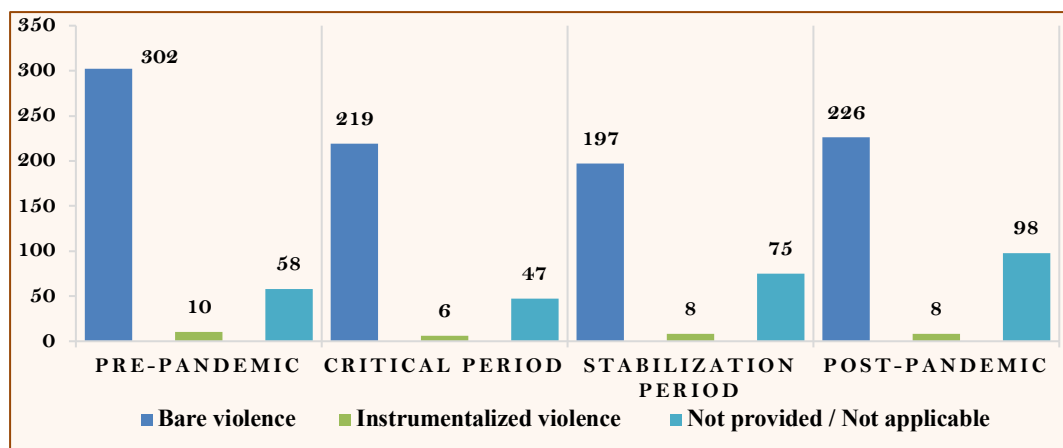


Figure 3. Distribution of reports of sexual intercourse/sexual assault examinations, involving children and adolescents, categorized by type of aggression.

Discussion

Given the data presented, it is noted that child sexual violence is configured as a complex phenomenon, being present in the daily lives of children and adolescents. Regarding the victim profile, it was observed that the majority of victims in all age groups were female, with a higher number of cases between the ages of 11 and 14. This age group was also reported as the most prevalent in a study conducted on the subject in the state of Pará [17]. It is believed that this age group presents significant vulnerability, as girls are going through the process of puberty and bodily changes signal the transition from childhood to adolescence [18].

Regarding gender, the data from this study agree with the findings by Trajano et al. [8], who, when investigating sexual violence in another capital city in the Brazilian Northeast, found that the female gender was the most victimized. The Brazilian Forum on Public Security [19], when assessing violence against children and adolescents between 2019-2021, also identified a higher prevalence of female victims of sexual violence (85%). In addition to these, a systematic review demonstrating the worsening of cases of sexual violence against children and adolescents during the COVID-19 pandemic in Brazil also indicated that the majority of victims in all age groups are female and, furthermore, that the older the victim, the higher the prevalence of female gender [7]. These findings may be related to social and cultural gender issues, such as gender stereotypes, toxic masculinity patterns, and power inequalities.

Regarding sexual violence against boys, underreporting is evident. Studies attribute this phenomenon to structural sexism [7,20], in addition to the prejudice that arises regarding sexual identity following violence against boys, making the act to be hidden and highly underreported [21].

In this context, the COVID-19 pandemic transformed the way children and adolescents live, primarily due to social isolation measures that led to the closure of schools and restricted movement, altering their routines and social support systems [8].

Regarding the number of forensic reports, a study indicated a reduction in the number of forensic reports in the year 2020 compared to previous years [8]. Reports from the *Disque 100* hotline also indicate that the number of reports of sexual violence against children and adolescents in Brazil decreased by approximately 12% between March and June 2020 compared to the same period the previous year [22]. In the present study, a similar decrease was observed during the aforementioned period, as the number of reports during the critical pandemic period showed a reduction of 26.49% compared to the pre-pandemic period.

Fumagali and Santos [23] reported that in the state of Pernambuco, shortly after the pandemic declaration – within two months – there was a 108% increase in reports of child pornography in that state. These authors also reported that it is not difficult to perceive that the reduction in reports of child sexual abuse during the pandemic is not an indication of a decrease in violence [23]. On the contrary, childhood and adolescence sexual violence is the fourth most reported cause on the *Disque 100* hotline, and it is estimated that there has been an increase in cases of sexual assault against children and adolescents during this period [24]. This finding challenges society to recognize the importance of valuing policies to protect children and adolescents [23].

Regarding the profile of the aggressor, the current study found that most of the time they are male, act alone, and have a relationship with the victim. In line with the present study, Platt et al. [25] and Trajano et al. [8] reveal that the majority of cases of child sexual violence are perpetrated by only one male author. This predominance can be attributed to the dynamics of the crime, which often occurs at specific moments when the aggressor seeks to control and subjugate the victim. These episodes often occur in family, social, or professional contexts, where the aggressor has direct access to the victim and may use their position of power to commit violence. However, further investigations are needed to deepen this understanding. Additionally, gender

inequality and social acceptance of violence against women are the main factors related to violence committed by men against women [26].

As for the other characteristics, these are in line with the *Anuário Brasileiro de Segurança Pública* of 2022, which stated that, in cases registered in 2020 and 2021, 95.4% of the criminals were men and in 82.5% they were acquaintances of the victim, with 40.8% being fathers or stepfathers; 37.2% brothers, cousins, or other relatives, and 8.7% grandparents [27]. Furthermore, the same report states that the location of the violence also remains the same as in previous years, with 76.5% of cases occurring inside the home [27], which was also observed in this study.

During the period of social isolation, some perpetrators, who previously spent part of the day away from home, began working in a home office mode. That is, they started to stay at home full time, with more time for the practice of sexual aggression. So, concern about sexual violence against children and adolescents marked the beginning of the pandemic, as children started spending more time at home with their potential abusers [28], and with limited contact with informal support networks, such as friends, teachers, childcare providers, relatives, and community members [29].

It is known that the school plays a fundamental strategic role in addressing the sexual assault of vulnerable individuals, especially given that the violence is predominantly intrafamilial and occurs within homes. Thus, addressing violence is not solely within the scope of public security; schools can assist in the identification and reporting process, but above all, in prevention efforts [27].

In the present study, it was observed that during the stabilization and post-pandemic periods, the number of reported cases increased compared to the critical period. It is worth highlighting that during these periods, children and adolescents were returning to their school activities. Therefore, one hypothesis for this decrease is the underreporting of cases during the critical period due to the closure of daycare centers and schools. This hypothesis is supported by the findings of Trajano et al. [8], who reported that schools, the main reporting channels, were closed during the pandemic. Additionally, the 2023 Epidemiological Bulletin [30] observed a reduction in notifications in 2020 and suggested the possibility of underreporting due to the closure of schools and decreased healthcare services, which are mechanisms that allow children in danger to seek help [8]. Therefore, these services should have been adapted to address the challenges of COVID-19 [31].

The involvement of professionals, health services, and other sectors – such as social assistance, education, and law – in an organized, interconnected, connected, and articulated network is of great importance, given that child sexual violence involves, for the most part, physical and psychological acts [32]. Bringing about a series of emotional, cognitive, and behavioral changes that can be presented by the victims, such as post-traumatic stress disorder, depression, attention deficit hyperactivity disorder, fear, shame, sadness, anxiety, psychosomatic disorders, delinquent behavior [33], social isolation, aggressiveness, mood disorders, suicide, and cardiac or hepatic problems [2,4].

In addition to bringing various disorders to mental health, sexual violence also produces effects on physical health, some of which include pain, rectal and/or vaginal bleeding, dysuria, genital and/or anal alteration and laceration, Sexually Transmitted Infections (STIs) [34], laceration of lips and labial or lingual frenula, marks of bruising by suction on the neck, scratches, and bites [35,36].

The predominance of direct aggression, in which aggressors use their own force to harm the victim, suggests a dynamic in which they opt for more immediate and easily executed methods. This type of direct physical violence does not require complex planning or the use of specific instruments. Furthermore, it is possible







that aggressors choose direct methods to avoid leaving visible marks of violence, thus making it difficult to identify and report the abuse.

As study limitations, it is necessary to consider that this research is based on records of forensic reports of sexual intercourse/sexual assault in children and adolescents, which only represent reported cases that by law must be referred for forensic examination. Therefore, these results represent the tip of an iceberg, that is, the visible data, not revealing the true reality of the violence problem, considering the high underreporting rate. However, studies of this type demonstrate the need for greater visibility for the addressed issue and indicate the need for prevention and intervention policies, as well as care for victims of sexual violence.

Conclusion

There was a decrease in the number of reports of sexual violence against children and adolescents during the period of social isolation due to the COVID-19 pandemic. However, this does not necessarily indicate a reduction in the actual cases of violence. Regarding the epidemiological profile of sexual violence victims, it was found that the majority of victims are girls aged 11-14 years. The most common locations for these occurrences are the victim's and perpetrator's residence, with the primary perpetrator being male and having a familial connection with the victim. Therefore, it is believed that this study has significantly contributed to the fields of health and public safety by providing insights into important characteristics of sexual violence against children and adolescents. This knowledge can contribute to prevention and intervention initiatives, including addressing the underreporting of this type of violence.

Authors' Contributions

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All authors declare that they contributed to critical review of intellectual content and approval of the final version to be published.

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Conflict of Interest

The authors declare no conflicts of interest.

Data Availability

The data used to support the findings of this study can be made available upon request to the corresponding author.

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