

Patterns of recorded sexual violence in Lithuania before and during the COVID-19 pandemic

A national registry-based repeated cross-sectional study

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Abstract

Sexual violence is a major public health and medico-legal concern, but many cases remain unreported. During the coronavirus disease 2019 pandemic, social isolation, restricted services, and psychosocial stress raised concerns about changes in reporting. This study aimed to analyze and compare patterns of officially recorded sexual violence in Lithuania before and during the pandemic. A retrospective, registry-based, repeated cross-sectional study used data from the Departmental Register of Criminal Offences on recorded sexual offenses in Lithuania during 2018 to 2021. Cases were divided into pre-pandemic (2018–2019) and pandemic (2020–2021) periods. Data were analyzed using Microsoft Excel and R 4.3.2 with Rcmdr 2.9.2 (R Foundation for Statistical Computing). Categorical variables were compared using chi-square or Fisher exact tests, with Monte Carlo simulation where appropriate; quantitative variables using the *t*-test or Mann–Whitney *U* test; and population-based recorded case rates using Poisson rate comparison. A total of 736 recorded sexual violence cases were analyzed. Recorded cases decreased from 451 before the pandemic to 285 during the pandemic, and the recorded case rate decreased from 8.01 to 5.07 per 100,000 population (rate ratio 0.63, 95% confidence interval 0.54–0.74, $P < .001$). Rape was the most frequently recorded offense type. Most recorded victims were female, and most cases involved suspects known to the victim. The proportion of minors among recorded victims slightly increased, but not significantly (64.8% vs 69.0%, $P = .255$), while the population-based recorded victim rate among minors decreased. Victims were significantly younger than suspects ($P < .001$). Recorded alcohol involvement slightly decreased, but not significantly. Among cases with documented physical-damage information (48.1%), non-severe health impairment was recorded more frequently during the pandemic period (3.95% vs 18.08%, $P < .001$). In Lithuania, officially recorded sexual violence cases and their population-based rate decreased during the coronavirus disease 2019 pandemic, while the main recorded victim–suspect profile remained broadly similar. Most recorded cases involved female victims and suspects known to the victim, and minors constituted a large proportion of recorded victims. Among cases with documented physical-damage information, non-severe health impairment was more frequently recorded during the pandemic period.

Abbreviations: CI = confidence interval, COVID-19 = coronavirus disease 2019, IQR = interquartile range, RR = rate ratio, UK = United Kingdom, US = United States, WHO = World Health Organization.

Keywords: COVID-19, lockdown, sexual assault, sexual crimes, sexual violence

1. Introduction

Violence is a major public health issue worldwide, including in Lithuania. In its 2013 resolution, the World Health Organization (WHO) identified violence, particularly violence against vulnerable groups such as women and children, as a healthcare priority. Sexual violence is one of the forms of violence that is particularly difficult to measure and analyze because many

cases remain unreported, and official records capture only incidents that reach formal reporting channels.^[1,2] WHO defines sexual violence as “any sexual act, attempt to obtain a sexual act, unwanted sexual comments or advances, or acts to traffic, or otherwise directed, against a person’s sexuality using coercion, by any person regardless of their relationship to the victim, in any setting, including but not limited to home and work.” Globally, around 30% of ever-partnered women have

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The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

The data were analyzed in anonymized form in accordance with the data protection guidelines set by the Lithuanian Biomedical Research Ethics Committee and in compliance with the requirements of good scientific practice and relevant laws. Approval was obtained from the Vilnius Regional Biomedical Research Ethics Committee (approval number 2024/2-1566-1029).

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experienced physical and/or sexual violence by an intimate partner in their lifetime.^[1,3,4]

A further global public health emergency emerged when, on March 11, 2020, the WHO declared coronavirus disease 2019 (COVID-19) a pandemic.^[5] In response, public health measures were implemented to contain viral transmission, including hand hygiene, personal protective equipment, physical distancing, social isolation, and movement restrictions. All these measures were accompanied by stress, uncertainty, and fear.^[5–8] On March 27, 2020, the United Nations issued a statement warning about a possible increase in domestic violence.^[9] WHO subsequently warned that violence against women tends to increase during emergencies, including epidemics, and reports from countries including China, the United Kingdom (UK), and the United States (US) had already described increases in domestic violence since the beginning of the COVID-19 pandemic.^[10] The United Nations Population Fund warned that up to 31 million additional cases of sexual and gender-based violence could occur.^[11] Although social distancing and “stay-at-home” policies were effective in controlling the spread of COVID-19, an increasing body of research raised concerns about negative socioeconomic and psychological consequences, including a potential increase in sexual and intimate partner violence. This situation has been described as a “shadow pandemic within the pandemic.”^[12–16]

Evidence from previous pandemics, emergencies, natural disasters, and humanitarian crises supports these concerns about increasing rates of violence, including sexual violence. Such crises are often accompanied by increased tension, economic insecurity, poverty-related stress, job loss or reduced working hours, school closures, social isolation, and adverse household conditions. The combination of these factors may increase the risk of abuse, rape, and teenage pregnancies. Evidence from previous crises requiring quarantine or major social disruption, including the Ebola outbreak in West Africa, H1N1 influenza, severe acute respiratory syndrome, and Hurricane Katrina, has documented similar risks.^[17–26]

The first COVID-19 case in Lithuania was confirmed on February 28, 2020. The first national lockdown was introduced on March 16, 2020, and lasted until June 17, 2020. The second lockdown was announced on November 4, 2020, came into effect on November 7, 2020, and lasted until July 1, 2021.^[27,28]

Although international studies have examined changes in sexual violence reporting, emergency department presentations, sexual assault referral center attendances, and police or registry records during the COVID-19 pandemic, findings have been heterogeneous and highly dependent on the data source and reporting pathway used. In Lithuania, national registry data on recorded sexual violence are available; however, published studies analyzing changes in these records before and during the COVID-19 pandemic remain limited. Therefore, this study aimed to analyze and compare patterns of recorded sexual violence in Lithuania before and during the pandemic using data from the national Departmental Register of Criminal Offenses.

2. Materials and methods

A retrospective, registry-based, repeated cross-sectional study was conducted using data on sexual violence cases recorded in Lithuania between 2018 and 2021 in the Departmental Register of Criminal Offences, maintained by the Information Technology and Communications Department under the Ministry of the Interior of the Republic of Lithuania. The Departmental Register of Criminal Offences is the official national register of criminal offenses recorded by law-enforcement authorities in Lithuania. Therefore, the dataset was considered to cover all officially recorded sexual offenses registered nationally under the selected Lithuanian Criminal Code articles during 2018 to 2021. However, the register does not capture unreported incidents, cases reported only to healthcare or support services, or

cases not registered under the selected legal categories. The completeness of individual variables depended on the information available in the official record; missing information was treated as missing, and denominators were reported separately where applicable. The study was approved by the Vilnius Regional Biomedical Research Ethics Committee (approval number 2024/2-1566-1029). Informed consent was waived because the study used anonymized registry-based data and did not involve direct contact with victims or suspects.

The study included cases classified under the Lithuanian Criminal Code as crimes against the freedom and integrity of sexual self-determination. Cases registered under the following articles were included: article No. 149 (Rape), article No. 150 (Sexual assault), article No. 151 (Sexual abuse), and article No. 151–1 (Satisfaction of Sexual Desires by Violating a Minor's Freedom of Sexual Self-Determination and/or Inviolability). The Lithuanian Criminal Code provides definitions of these sexual offense types:^[29]

- Rape (article No. 149)—sexual intercourse with a person against his will by using physical violence or threatening the immediate use thereof or by otherwise depriving him of a possibility of resistance or by taking advantage of the helpless state of the victim;
- Sexual assault (article No. 150)—satisfaction of sexual desires, against a person's will, through anal, oral or inter-femoral intercourse by using physical violence or by threatening the immediate use thereof or by otherwise depriving the victim of a possibility of resistance or by taking advantage of the helpless state of the victim;
- Sexual abuse (article No. 151)—compelling the person to have sexual intercourse with or otherwise satisfy sexual desires of the offender or a third person by threatening to resort to violence, using other mental coercion, or by taking advantage of a person's dependency;
- Satisfaction of Sexual Desires by Violating a Minor's Freedom of Sexual Self-Determination and/or Inviolability (article No. 151–1)—sexual intercourse or other acts committed by an adult to satisfy sexual desires with a person under 16 years of age, in the absence of signs of rape, sexual assault, or sexual abuse; sexual intercourse or other acts committed with a minor in exchange for money or another form of consideration; or sexual intercourse or other sexual acts committed with a minor by a parent, guardian, custodian, legal representative, or another person holding statutory authority over the minor, in the absence of signs of rape, sexual assault, or sexual abuse.

All included cases were divided into 2 groups based on the date of the event: pre-pandemic (2018–2019) and pandemic (2020–2021) periods. Annual overall, sex-specific, and age-specific population denominators for 2018 to 2021 were obtained from the Official Statistics Portal of the State Data Agency of Lithuania^[30] using the average annual population indicator (S3R633).

The analyzed variables included victims' sociodemographic characteristics, interpersonal relationship with the suspect, suspect characteristics, substance use, and physical-damage classification. Variables were operationalized as recorded in the official register. The period variable was defined according to the recorded date of the event and classified as pre-pandemic (2018–2019) or pandemic (2020–2021). Case type was defined according to the Lithuanian Criminal Code article. Victim-related variables included recorded sex, age at the time of the event, and education. Suspect-related variables included recorded sex, age, occupation, group involvement, and recurrent offending. The relationship with the suspect, substance use, and physical-damage category were analyzed according to the categories recorded in the register. Physical damage and physical-health impairment were defined according to the physical-damage

Table 1
Recorded sexual violence cases by Lithuanian Criminal Code article and period, with population-based rates, Lithuania, 2018 to 2021.

Article code	2018	2019	2020	2021	Pre-pandemic period (2018–2019), n (%)	Pandemic period (2020–2021), n (%)	Total recorded cases, n (%)	Pre-pandemic rate/100,000	Pandemic rate/100,000	Rate ratio (RR)	95% CI	P value
149	104	84	68	45	188 (41.7)	113 (39.6)	301 (40.9)	3.34	2.01	0.60	0.47–0.76	< .001
150	88	64	49	46	152 (33.7)	95 (33.3)	247 (33.6)	2.70	1.69	0.63	0.48–0.81	< .001
151–1	65	40	50	24	105 (23.3)	74 (26.0)	179 (24.3)	1.86	1.32	0.71	0.52–0.96	.025
151	0	6	1	2	6 (1.3)	3 (1.1)	9 (1.2)	0.11	0.05	0.50	0.08–2.35	.508
Total	257	194	168	117	451 (100)	285 (100)	736 (100)	8.01	5.07	0.63	0.54–0.74	< .001

Article no. 149: Rape; article no. 150: Sexual assault; article no. 151: Sexual abuse; article no. 151–1: Satisfaction of Sexual Desires by Violating a Minor's Freedom of Sexual Self-Determination and/or Inviolability. Rates were calculated per 100,000 population using the average annual population of Lithuania as the denominator. RRs, 95% CIs, and *P* values were calculated using exact Poisson tests; the null hypothesis was that the recorded case rate was equal in the pre-pandemic and pandemic periods. CI = confidence interval, n = number of cases, RR = rate ratio.

classification recorded in the official register and interpreted in accordance with the Lithuanian Criminal Code and related forensic medical criteria.^[29,31] In this study, physical damage was divided into the following adjusted categories:

- No physical damage;
- Physical pain;
- Negligible physical-health impairment (defined as an injury or illness impairing health for no longer than 10 days or causing a 5% loss of working capacity, including, for example, bruises and abrasions);
- Non-severe health impairment (defined as an injury or illness impairing health for more than 10 days or causing a 5–30% loss of working capacity, including, for example, fractures, ruptures, or deep wounds);
- Severe health impairment (defined as an injury or illness causing more than 30% loss of working capacity; loss of vision, speech, hearing, fertility, or pregnancy; or other severe conditions, including skull fractures, brain injuries, subdural hemorrhages, dislocation or fracture of a cervical vertebra with damage to the spinal cord or spinal nerve roots, perforating injury of the thoracic or peritoneal cavity, or injuries of the main arteries or veins);
- Death.

2.1. Statistical analysis

Statistical analysis was performed using Microsoft Excel and R version 4.3.2 with the Rcmdr package version 2.9.2. The normality of quantitative variables was assessed using the Shapiro–Wilk test. Normally distributed variables were presented as mean ± standard deviation and compared using the *t*-test, while non-normally distributed variables were presented as median and interquartile range (IQR) and compared using the Mann–Whitney U (Wilcoxon) test. Distributions of categorical variables were compared using the chi-square test when expected cell counts were sufficient, and Fisher exact test was used when expected frequencies were small. For larger sparse contingency tables, Fisher exact test with Monte Carlo simulation was applied where appropriate. Test assumptions were assessed by evaluating the distribution of quantitative variables and expected cell counts for categorical variables.

Recorded case rates were calculated per 100,000 population using the average annual population as the denominator. Recorded victim rates were calculated per 100,000 corresponding sex- or age-specific population; for minors, the population younger than 18 years was used as the denominator. For comparisons between the pre-pandemic and pandemic periods, annual average populations were summed and treated as person-years. Rate ratios (RR) with 95% confidence intervals (CIs) were calculated using Poisson rate comparison. The proportional distribution of cases by Lithuanian Criminal Code article was compared between periods using the chi-square test. For

selected key categorical comparisons, absolute differences and risk ratios with 95% CIs were calculated.

Missing data were not imputed. Analyses were performed using available data for each variable, and denominators were reported separately where applicable, particularly for variables with incomplete information such as education and physical-damage classification. Differences were considered statistically significant when *P* < .05.

2.2. Limitations

This study has several limitations. First, the data were obtained solely from official records in the Departmental Register of Criminal Offenses maintained by the Information Technology and Communications Department under the Ministry of the Interior of the Republic of Lithuania, and did not include information from helplines, emergency departments, or other support services. As a result, the number of official records may not accurately reflect the true number of sexual violence incidents, and the actual number is likely higher due to underreporting. Second, this study is retrospective and registry-based, and some information may be missing from official records if it was not disclosed, not documented, or not collected by law-enforcement officers. Therefore, variable completeness may differ across records. Finally, the information regarding alcohol or illegal substance consumption may be inaccurate, as suspects may not have been tested at the time, and this information may not have been consistently recorded.

3. Results

3.1. Recorded cases and population-based rates

Between 2018 and 2021, a total of 736 sexual violence cases were recorded in the Departmental Register of Criminal Offenses in Lithuania. The most frequently recorded offense was rape (article code 149) (*n* = 301; 40.9%), followed by sexual assault (article code 150) (*n* = 247; 33.6%), satisfaction of sexual desires by violating a minor's freedom (article code 151–1) (*n* = 179; 24.3%), and sexual abuse (article code 151) (*n* = 9; 1.2%) (Table 1). The annual number of recorded cases decreased from 257 in 2018 to 117 in 2021 (Table 1). In 2018 to 2019, there were 188 rape cases, 152 sexual assault cases, 105 cases of satisfaction of sexual desires by violating a minor's freedom, and 6 cases of sexual abuse. In 2020 to 2021, there were 113, 95, 74, and 3 cases, respectively (Fig. 1). The total number of recorded cases decreased from 451 in the pre-pandemic period to 285 in the pandemic period, corresponding to a 36.8% decrease. After accounting for the average annual population of Lithuania, the recorded case rate decreased from 8.01 per 100,000 population in 2018 to 2019 to 5.07 per 100,000 population in 2020 to 2021 (RR 0.63, 95% CI 0.54–0.74, *P* < .001). However, the proportional distribution of cases by Lithuanian Criminal Code

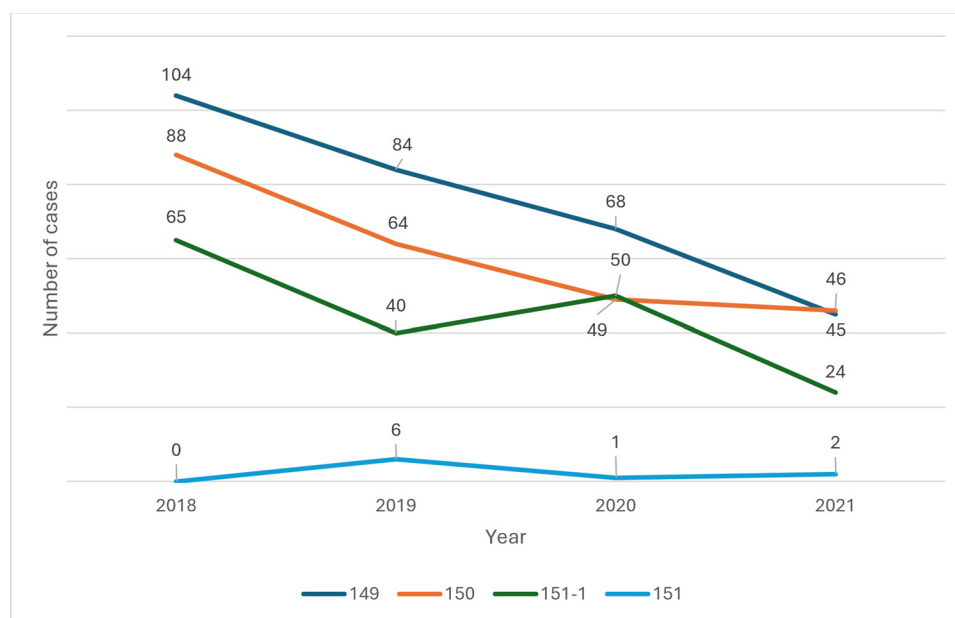


Figure 1. Number of recorded sexual violence cases by Lithuanian Criminal Code article and year. Article no. 149: Rape; article no. 150: Sexual assault; article no. 151: Sexual abuse; article no. 151–1: Satisfaction of Sexual Desires by Violating a Minor's Freedom of Sexual Self-Determination and/or Inviolability.

article did not differ significantly between the pre-pandemic and pandemic periods (χ^2 test, $P = .857$). The number of recorded cases of satisfaction of sexual desires by violating a minor's freedom increased from 40 in 2019 to 50 in 2020 but decreased again to 24 in 2021.

During both the pre-pandemic and pandemic periods, recurring waves in the number of recorded cases were observed across months of the year. In addition, a slight seasonal increase in recorded cases was observed during the summer months. Weekly variation was also observed based on the recorded date of the incident, with higher numbers of cases recorded on Thursdays, Fridays, and Mondays in both periods.

3.2. Sociodemographic characteristics of victims of sexual violence

Between 2018 and 2021, a total of 800 victims were recorded. The number of victims was higher than the number of recorded cases because 2 or 3 victims were identified in some cases. Most recorded victims were female ($n = 720$; 90.0%). The proportion of female victims did not differ significantly between the pre-pandemic and pandemic periods (89.7% and 90.4%, respectively; $P = .846$). The recorded victim rate among females decreased from 14.69 per 100,000 female population in 2018 to 2019 to 9.10 per 100,000 female population in 2020 to 2021. Among males, the corresponding rates decreased from 1.97 to 1.11 per 100,000 male population.

During the entire study period, the youngest recorded victim was 1 year old, and the oldest was 91 years old. The median age of victims was 15 years (IQR: 13–25), and the mean age was 20 years. The median age of male victims was 13.5 years (IQR: 8–17), and that of female victims was 15 years (IQR: 14–25). Male victims' ($n = 80$) mean age was 15.5 ± 10.4 years, while female victims' mean age was 21.1 ± 14.15 years. The difference in median age between male and female victims was statistically significant ($P < .001$). During the pre-pandemic period (2018–2019), the youngest victim was 1 year old, and the oldest was 91 years old, while during the pandemic period (2020–2021), the youngest victim was 3 years old, and the oldest was 90 years old. The mean age of victims during the pre-pandemic period was 21.3 ± 17.73 years, and during the pandemic period, it was

19.2 ± 12.38 years (Fig. 2). The median age of victims during the pre-pandemic period was 16 years (IQR: 13–27), and during the pandemic period, it was 15 years (IQR: 13–21). No statistically significant difference between the median ages of these 2 groups was found ($P = .064$).

When the pre-pandemic and pandemic periods were compared, the proportion of minors among recorded victims slightly increased (64.8% and 69.0% of all victims, respectively); however, the difference was not statistically significant ($P = .255$). Using the population younger than 18 years as the denominator, the recorded victim rate among minors decreased from 32.48 per 100,000 population younger than 18 years in 2018 to 2019 to 21.13 per 100,000 population younger than 18 years in 2020 to 2021. Among adults, the corresponding rates decreased from 3.77 to 2.03 per 100,000 adult population. The detailed age-group distribution did not differ significantly between the pre-pandemic and pandemic periods ($P = .262$) (Table 2). When victims' age was analyzed within each detailed age group, a statistically significant difference was found only in the 0 to 10-year age group ($P = .011$). In this group, the mean age was 6.6 ± 2.36 years and the median age was 7 years in the pre-pandemic period, compared with a mean age of 7.8 ± 1.82 years and a median age of 8 years during the pandemic period. No similar differences were found in other age groups.

Because education level was closely related to victims' age, most victims had school-level education during the study period ($n = 549$; 72.9%). Comparing the pre-pandemic and pandemic periods, victims in both periods most commonly had elementary school education; the proportion of victims in this group slightly increased during the pandemic period (37.8–45.5%, respectively). However, there were no significant changes in the proportions of education levels between the periods ($P = .155$). Education data were available for 450 victims in the pre-pandemic period and 303 victims in the pandemic period; data were missing for 47 and 0 victims, respectively.

3.3. Interpersonal relationship with the suspect and suspect characteristics

During the entire analyzed period, suspects were recorded in 636 cases, corresponding to 86.4% of all recorded cases.

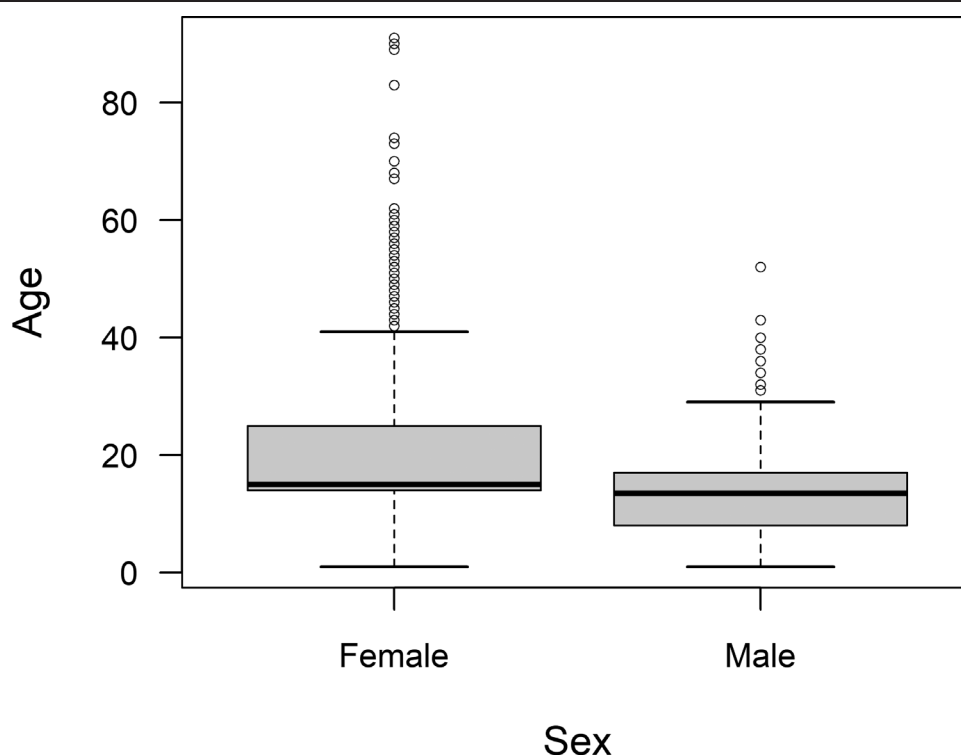


Figure 2. Victims' age distribution by sex.

Table 2

Sociodemographic characteristics and population-based rates of recorded victims of sexual violence.

Characteristic	Pre-pandemic period (2018–2019), n (%)	Pandemic period (2020–2021), n (%)	Pre-pandemic rate/100,000	Pandemic rate/100,000	P value
Sex					.846
Female	446 (89.7)	274 (90.4)	14.69	9.10	
Male	51 (10.3)	29 (9.6)	1.97	1.11	
Age					
Median	16	15	-	-	.064
Minors	322 (64.8)	209 (69.0)	32.48	21.13	.255
Adults	175 (35.2)	94 (31.0)	3.77	2.03	
0–10 yr	75 (15.1)	38 (12.5)	-	-	.262
11–20 yr	262 (52.7)	188 (62.0)	-	-	
21–30 yr	57 (11.5)	34 (11.2)	-	-	
31–40 yr	44 (8.9)	21 (6.9)	-	-	
41–50 yr	27 (5.4)	10 (3.3)	-	-	
51–60 yr	20 (4.0)	9 (3.0)	-	-	
61–70 yr	7 (1.4)	1 (0.3)	-	-	
71–80 yr	2 (0.4)	0 (0.0)	-	-	
81–90 yr	2 (0.4)	2 (0.7)	-	-	
91–100 yr	1 (0.2)	0 (0.0)	-	-	
Education					.155
Data available, n	450	303	-	-	
Missing data, n	47	0	-	-	
None	64 (14.2)	39 (12.9)	-	-	
Elementary school (1–4 grades)	170 (37.8)	138 (45.5)	-	-	
Middle school (5–8 grades)	84 (18.7)	63 (20.8)	-	-	
High school (9–12 grades)	62 (13.8)	32 (10.6)	-	-	
Vocational education	23 (5.1)	10 (3.3)	-	-	
Higher nonuniversity education	15 (3.3)	9 (3.0)	-	-	
University education	32 (7.1)	12 (4.0)	-	-	

Percentages were calculated among victims with available data. *P* values compare distributions between periods; Fisher exact test with Monte Carlo simulation was used for detailed age groups. Recorded victim rates were calculated per 100,000 corresponding population; for minors, the population younger than 18 years was used. "-" indicates not applicable or not calculated. n = number of cases.

Among cases with recorded suspect information, 76.3% ($n = 485$) involved acquaintances, such as family members, friends, partners, neighbors, and other people known to the victim (Table 3). Comparing the pre-pandemic and pandemic periods, the proportion of cases involving suspects known to the victim slightly decreased (77.9 to 74.0%), while cases involving unknown suspects slightly increased (14.3 to 16.6%); however, the overall distribution of relationship categories did not differ significantly between periods ($P = .513$). The number of minor victims in cases involving unknown suspects did not differ significantly between periods ($P = .736$). Within the acquaintance category, the proportion involving stepfathers and foster fathers increased slightly during the pandemic period (5.9 to 9.1%). However, the distribution of acquaintance subcategories did not differ significantly between periods ($P = .494$). Overall, 7% of recorded cases were committed by a group of suspects, and 12% of recorded suspects were recurrent.

Between 2018 and 2021, the youngest recorded suspect was 14 years old and the oldest was 87 years old. The median age of suspects was 27 years (IQR: 20–37), and the mean age was 29.9 ± 12.73 years. The median age of female suspects was 24 years (IQR: 19–28), and the median age of male suspects was 27 years (IQR: 20–37). The difference between the median ages of male and female suspects was not statistically significant ($P = .252$) (Fig. 3). The median age of victims was 15 years (IQR: 13–25), while the median age of suspects was 27 years (IQR: 20–37). Victims were significantly younger than suspects ($P < .001$). The median age of suspects was 28 years (IQR: 20–38) in the pre-pandemic period and 25 years (IQR: 19–36) during the pandemic period; the difference was not statistically significant ($P = .093$). During both periods, most suspects with available occupation data were unemployed at the time of the incident. There were no significant

changes in the distribution of suspects' occupation between the periods ($P = .103$).

3.4. Circumstances of the events

In the substance-use analysis, 352 recorded suspects were included in the pre-pandemic period and 265 recorded suspects in the pandemic period (Table 4). The proportion of suspects recorded as being under the influence of alcohol slightly decreased from 35.5% in the pre-pandemic period to 33.6% during the pandemic period; however, the difference was not statistically significant ($P = .680$). Narcotic or psychotropic substance use was recorded rarely, in 0.3% of suspects in the pre-pandemic period and 0.8% during the pandemic period ($P = .579$). These data should be interpreted cautiously, as suspects might not have been tested at the time, and this information may not have been consistently recorded.

Of 736 recorded cases, physical-damage information was available for 354 cases (48.1%). Completeness differed between periods: physical-damage information was available in 177 of 451 cases (39.2%) in the pre-pandemic period and in 177 of 285 cases (62.1%) during the pandemic period, while it was missing in 274 (60.8%) and 108 (37.9%) cases, respectively ($P < .001$). The physical-damage analysis was restricted to cases with documented physical-damage classification in each period, and no matching or additional selection criteria were applied. Among cases with available physical-damage information, most reports indicated no physical damage or physical pain during both periods (Table 4). Physical pain was recorded less frequently during the pandemic period (66/177, 37.29% vs 39/177, 22.03%; $P = .002$), while non-severe health impairment was recorded more frequently during the pandemic period (7/177, 3.95% vs 32/177, 18.08%; absolute difference 14.1 percentage points, 95% CI 7.8–20.5; RR 4.57,

Table 3
Interpersonal relationship with the suspect and suspect characteristics of recorded sexual violence cases.

Characteristic	Pre-pandemic period (2018–2019), n (%)	Pandemic period (2020–2021), n (%)	P value
Relationship with suspect			
Relationship data available, n	371	265	-
Unknown person	53 (14.3)	44 (16.6)	.513
Other	29 (7.8)	25 (9.4)	
Acquaintances	289 (77.9)	196 (74.0)	
Father	21 (5.7)	14 (5.3)	.494
Mother	2 (0.5)	1 (0.4)	
Brother	10 (2.7)	6 (2.3)	
Stepfathers and foster fathers	22 (5.9)	24 (9.1)	
Partner	24 (6.5)	16 (6.0)	
Other relative	15 (4.0)	4 (1.5)	
Other acquaintances	195 (52.6)	131 (49.4)	
Suspect age (years)	30.35 $\pm$ 12.59	29.03 $\pm$ 12.81	.093
Data available, suspects, n	353	264	-
Minors	48 (13.6)	44 (16.7)	.345
Adults	305 (86.4)	220 (83.3)	
Suspect occupation			
Data available, suspects, n	352	264	-
School student	20 (5.68)	19 (7.2)	.103
Student	30 (8.52)	24 (9.1)	
Employee	70 (19.89)	55 (20.8)	
Unemployed	157 (44.60)	99 (37.5)	
Disabled	9 (2.56)	1 (0.4)	
Pensioner	8 (2.27)	4 (1.5)	
Inmate	1 (0.28)	1 (0.4)	
Other	57 (16.19)	61 (23.1)	

Percentages were calculated among records with available data for each section. Denominators are shown separately because available data differed for relationship with suspect, suspect age, and suspect occupation. Fisher exact test with Monte Carlo simulation was used for suspect occupation because of small cell counts. "-" indicates not applicable.
n = number of cases.

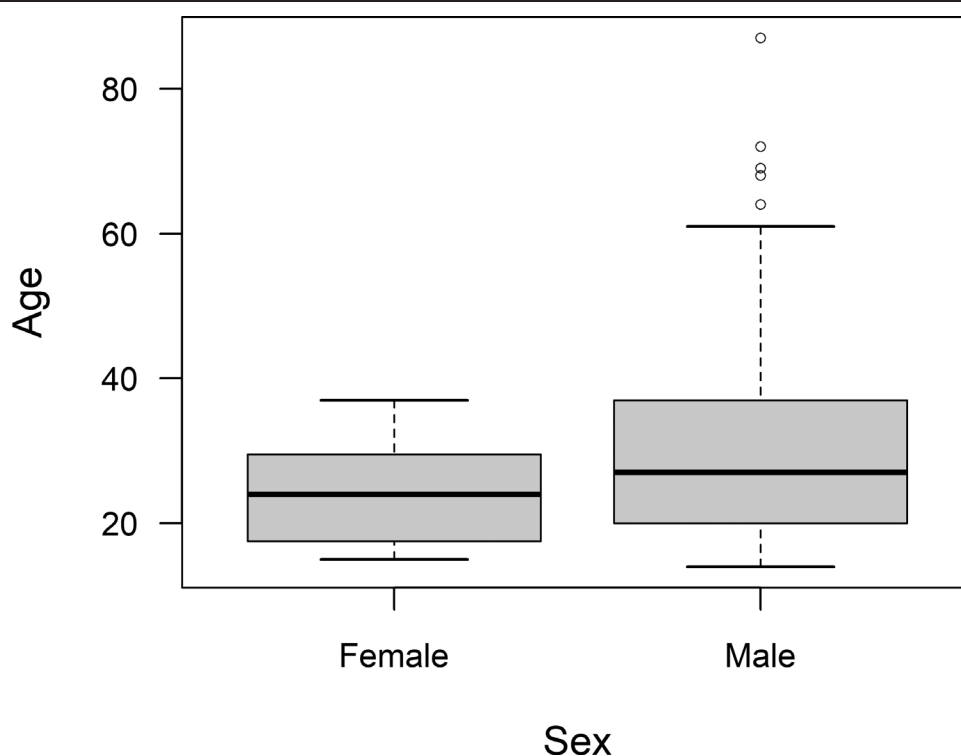


Figure 3. Suspects' age distribution by sex.

Table 4

Circumstances of recorded sexual violence cases.

Characteristic	Pre-pandemic period (2018–2019), n (%)	Pandemic period (2020–2021), n (%)	P value
Substances used			
Substance-use denominator, suspects, n	352	265	-
Alcohol	125 (35.5)	89 (33.6)	.680
Narcotic/psychotropic substances, unspecified	1 (0.3)	2 (0.8)	.579
Physical damage			
Available data, n (% of all recorded cases)	177 (39.2)	177 (62.1)	< .001
Missing data, n (% of all recorded cases)	274 (60.8)	108 (37.9)	
No physical damage	78 (44.07)	76 (42.94)	.915
Physical pain	66 (37.29)	39 (22.03)	.002
Negligible physical-health impairment	24 (13.56)	23 (12.99)	> .99
Non-severe health impairment	7 (3.95)	32 (18.08)	< .001
Severe health impairment	0	4 (2.26)	.123
Death	2 (1.13)	3 (1.69)	> .99

Percentages for substance use were calculated among recorded suspects included in the substance-use analysis: 352 suspects in the pre-pandemic period and 265 suspects in the pandemic period.

Percentages for physical-damage categories were calculated among cases with available physical-damage information. Available and missing physical-damage data percentages were calculated among all recorded cases in each period; the *P* value for physical-damage data availability compares documentation completeness between periods. *P* values for individual substance-use and physical-damage categories compare the proportion of the respective category between periods. "-" indicates not applicable.

n = number of cases.

95% CI 2.07–10.08; $P < .001$). Severe health impairment was recorded in 2.26% of cases during the pandemic period, compared with no cases in the pre-pandemic period ($P = .123$). Death was recorded in 1.13% of cases before the pandemic and 1.69% during the pandemic period ($P > .99$). These findings suggest that, among cases with available physical-damage data, documented physical-health consequences were more severe during the pandemic period. However, this interpretation should be made with caution because physical-damage information was missing in more than half of all recorded cases, documentation completeness differed between periods, and differential documentation may have contributed to the observed differences.

4. Discussion

4.1. Literature search and terminology

To contextualize the findings of the present study, relevant scientific literature was reviewed using the PubMed database with the keywords "sexual violence," "sexual assault," "COVID-19," "lockdown," and "child sexual abuse." Full-text English-language articles were prioritized, with emphasis on studies published within the last 5 to 10 years, although older studies with strong relevance to the topic were also analyzed. Case reports and duplicate articles were excluded. A total of 86 sources were used. Since the data were obtained from the Departmental Register of Criminal Offences and classified

according to the Lithuanian Criminal Code, legal terminology was retained in the Methods and Results sections. Broader medical and academic terms, including “sexual violence,” “domestic violence,” “intimate partner violence,” and “child sexual abuse,” are used in the Discussion to interpret the findings in relation to existing literature.

4.2. Main findings and international context

The main finding of the present study is that the number and population-based rate of sexual violence cases recorded in the Departmental Register of Criminal Offences in Lithuania decreased during the COVID-19 pandemic period. The number of recorded cases declined from 451 in 2018 to 2019 to 285 in 2020 to 2021, and the recorded case rate decreased from 8.01 to 5.07 per 100,000 population. This finding represents a decrease in officially recorded cases and does not necessarily indicate a proportional decrease in the underlying incidence of sexual violence. During the pandemic, reporting pathways, access to healthcare and support services, mobility, contact with law-enforcement authorities, and victims’ ability or willingness to report incidents may all have changed.

The broader literature on domestic and intimate partner violence provides relevant context, although the present study was not limited to domestic violence. Many countries reported increases in helpline calls, service contacts, police reports, or other indicators of domestic or intimate partner violence during lockdown, including Peru,^[16] Spain, Cyprus,^[32] Mexico, Brazil,^[33] China,^[34] the US,^[35] and South Africa.^[36] Other studies from the US, Bangladesh, Australia, France, the UK, Germany, and India also suggested increased domestic or intimate partner violence during pandemic restrictions.^[13,33,37–43] These findings contrast with the decrease in officially recorded sexual violence cases observed in Lithuania, but they are not necessarily contradictory because helpline calls, service contacts, police reports, emergency department presentations, and registry data measure different stages of disclosure, help-seeking, and formal reporting. At the same time, the literature is mixed. Studies from Dallas (Texas, US), Italy, Chicago, and the International Sexual Health and REproductive Health study reported short-term increases, decreases, or mixed trends. These differences depended partly on whether the perpetrator was cohabiting with the victim and on the type of data source used.^[14,44–48] These findings show that pandemic-related violence trends depended strongly on study design, reporting pathway, type of violence analyzed, and local restrictions.

Studies focusing more directly on sexual violence or sexual assault also show heterogeneous results and are particularly relevant for interpreting the Lithuanian registry data. Similar to the present study, research from Charlotte-Mecklenburg, North Carolina, Eastern Denmark, and Hamburg, Germany, reported stable or only slightly changed numbers of sexual assault cases or service contacts during the pandemic.^[49–51] However, several studies reported decreased healthcare or support-service use, which may help explain why official or service-based numbers did not always increase despite concerns about higher risk. In Hamburg, presentations to the emergency department after sexual assault decreased by 38% during stay-at-home orders,^[51] while reports from the UK described decreases in emergency department and sexual assault referral center attendances,^[52–54] and a Canadian study reported a 53.49% reduction in weekly emergency department sexual assault cases during the early COVID-19 period.^[6] More recent US emergency department data showed that, although overall assault-related emergency department visits decreased, sexual assault-related visits remained relatively stable during the pandemic, with shifts in age distribution, perpetrator relationship, and injury severity.^[55] Other studies and reports described decreases in official reports, healthcare presentations, or access to services for sexual

violence survivors, although findings differed by country and data source.^[56–59] These results support a cautious interpretation of the Lithuanian findings, as the observed decrease may partly reflect reduced reporting, reduced healthcare or support-service use, or changes in access to formal reporting pathways.

In contrast, other studies reported increases in sexual violence, either specifically or within broader intimate partner violence contexts. A Kenyan study found a model-dependent 73 to 122% increase in reported sexual violence cases after COVID-19 mitigation measures, mostly among persons aged 10 to 17 years.^[60] A US study found that worsening intimate partner violence was more likely among those experiencing physical or sexual violence,^[13] while studies from Italy, Argentina, Ethiopia, Spain, Australia, Bangladesh, and other settings reported increased or worsened violence, including sexual violence, during pandemic restrictions.^[37,45,61–65] Some studies also described wave-like patterns, with changes in sexual assault reporting or emergency department encounters across pandemic phases.^[57,66] Therefore, the Lithuanian findings should be interpreted in the context of the registry-based design. The observed decrease reflects officially recorded cases in the national criminal-offence register and may partly reflect changes in reporting, help-seeking, or access to formal services during the pandemic.

4.3. Victim and suspect characteristics

Several characteristics of the Lithuanian cases were consistent with previous literature, but they should be interpreted as characteristics of officially recorded cases rather than of all sexual violence incidents in the population. Most recorded victims were female in both the pre-pandemic and pandemic periods. A global analysis reported that more than 90% of sexual assault victims were women,^[67] and studies from Germany and Canada also found that most victims or patients presenting for sexual assault or domestic violence-related care were female.^[6,51] This pattern was also observed in the Lithuanian registry data and remained stable across both periods. However, the median age of victims in the present study was 15 years, lower than the median age of 25 years reported in the Canadian study.^[6] More recent retrospective evidence from South Africa also showed that most sexual violence survivors were girls or women and that nearly half were younger than 18 years, supporting the relevance of sex and age structure when interpreting sexual violence records before and during the pandemic.^[68] The lower median age in the present study may reflect the high proportion of minors among officially recorded cases in Lithuania. Victims were also significantly younger than suspects, which further highlights the vulnerability of children and adolescents in this dataset.

Most cases involved suspects known to the victim, including family members, friends, partners, neighbors, or other acquaintances. This pattern is consistent with studies showing that many victims had some relationship with the offender and that incidents often occurred in private spaces such as the victim’s or offender’s home.^[6,50,51] In the Lithuanian data, this relationship pattern remained broadly similar before and during the pandemic, suggesting that the main recorded victim–suspect profile did not substantially change during the study period. Although the overall proportion of cases involving acquaintances slightly decreased during the pandemic, the proportion involving step-fathers and foster fathers increased slightly. This difference was not statistically significant, but it is relevant when interpreting the slight increase in cases involving minors during lockdown and reduced contact with external support systems, such as schools, healthcare providers, and social services.

4.4. Sexual violence against minors and child sexual abuse

In the Lithuanian registry data, the proportion of minors among recorded victims increased slightly during the pandemic

period, although the difference was not statistically significant. However, when the population younger than 18 years was used as the denominator, the recorded victim rate among minors decreased during the pandemic period. This means that minors represented a slightly larger share of recorded victims, but the population-based rate of recorded minor victims decreased. This finding should be interpreted cautiously, as it may reflect changes in disclosure, detection, or reporting pathways rather than a true reduction in sexual violence against minors.

International literature suggests that children may have been particularly vulnerable during the pandemic because school closures and reduced social contact limited opportunities for disclosure and detection. A recent study using child protection registry data from Georgia, US, similarly suggested that COVID-19 school closures created challenges for child sexual abuse reporting and were associated with a decline in reporting for some victim groups.^[69] In the US, an analysis of National Sexual Assault Online Hotline data found that the proportion of youth victims increased from 41.0% in the pre-COVID year to 56.5% during the first COVID-19 year. Among youth victims, family-member perpetrators and living with the perpetrator were also reported more frequently during the COVID-19 year than in the preceding year.^[70] Studies from Morocco, Argentina, Kenya, and Ghana also reported concerns about increased child sexual abuse or sexual violence affecting children and adolescent girls during lockdown and school closures.^[60,71–73] Findings from the US and Israel further suggested negative changes in intrafamilial child sexual abuse dynamics during the pandemic.^[74] These observations are relevant to the Lithuanian data, where most suspects were known to the victim and cases involving stepfathers or foster fathers increased slightly. Although this increase was not statistically significant, it may be relevant in the context of reduced contact with schools, healthcare providers, social services, and other external support systems during lockdown.

Online child sexual exploitation was another pandemic-related concern discussed in the literature. Increased internet use, more time spent online, contacts established through the internet, and reduced supervision were associated with increased risks of online child sexual abuse and exploitation, including the sharing and distribution of sexually explicit images and videos involving children.^[75–77] However, the present registry-based study could not separately analyze online sexual exploitation, and this mechanism should therefore be understood only as broader contextual background when interpreting risks among minors during social isolation. Conversely, a Norwegian study reported only a small increase in sexual abuse by an adult during the first pandemic year and stability in most other violence and sexual abuse indicators, while still emphasizing the need for continued monitoring.^[78] Overall, the slight proportional increase among minors in Lithuania should be interpreted cautiously, as the population-based recorded victim rate decreased and official registry data may underestimate the true burden, particularly when disclosure and third-party detection are limited.

4.5. Underreporting, help-seeking barriers, and case severity

Underreporting may help explain the discrepancy between concerns about possible increases in violence and stable or decreased official records. During the pandemic, mismatches were reported between helpline calls, sexual violence support-service attendances, emergency department visits, and police reports.^[37,54,57] In the present study, the observed decrease should therefore be interpreted as a decrease in officially recorded cases in the national criminal-offense register, not as a direct measure of the true occurrence of sexual violence in the population. Sexual violence is generally underreported because of shame, fear, anxiety, mistrust of authorities, dependence on the suspect, a relationship with the suspect, limited knowledge about available services,

and other barriers to accessing support.^[50,60] In drug-facilitated sexual assault, impaired memory or uncertainty about the event may further complicate disclosure and reporting.^[79] A German population-based study also found that only a small proportion (9.5%) of sexual assault victims filed an official police report.^[2]

Pandemic-specific barriers may have further reduced reporting or documentation. Decreased service availability, movement restrictions, fear of infection, possible changes in police accessibility, and reduced access to healthcare may all have limited formal reporting and documentation.^[11,43,51,57–59] Support systems such as hotlines, crisis centers, and shelters were also affected by the institutional focus on COVID-19 and limited resources.^[10,18,24,41] In addition, victims living with abusive or controlling partners may have had less privacy, restricted access to money, and fewer opportunities to contact family, friends, or support services.^[10,12,18,24,38,41] These mechanisms are especially important for interpreting the present registry-based data, which included only officially recorded criminal offenses and did not include unreported incidents, emergency department or hospital-only presentations, forensic medical services, helplines, shelters, crisis centers, or other victim support services. Because the study was based on selected Lithuanian Criminal Code articles, the findings also reflect legally registered offense categories rather than broader clinical or public-health definitions of sexual violence.

The severity of recorded cases is also important, but these findings should be interpreted cautiously because physical-damage information was available only for a subset of cases, and documentation completeness differed between periods. Among cases with documented physical-damage information, non-severe health impairment was recorded more frequently during the pandemic period, whereas physical pain was recorded less frequently. Severe health impairment and death were uncommon and did not differ significantly between periods. This pattern may suggest that more severe or more clearly documented cases were more likely to reach law enforcement, while less severe or less visible cases may have remained unreported. Similar interpretations have been proposed in studies showing increased severity of physical violence and delayed help-seeking during the pandemic.^[43] Restrictions on movement, isolation requirements, patient-flow management, and fear of infection may also have limited access to healthcare, and several authors emphasized the need to encourage victims to seek emergency care when needed.^[32,54,59,66]

4.6. Possible mechanisms and substance use

Several mechanisms may help explain changes in recorded sexual violence dynamics during the pandemic, although these mechanisms cannot be directly confirmed from the present registry data. Stay-at-home measures increased time spent in close contact with partners or family members and may have forced some victims to remain with persons who had already been abusive or controlling.^[24,42,46] This is relevant to the present findings because most recorded cases involved persons known to the victim. Isolation, anxiety, frustration, psychological stress, parenting stress, loneliness, role changes at home, preexisting psychological disorders, and economic insecurity were all described as risk factors for violence or related forms of abuse during the pandemic.^[10,13,15,25,34,38,39,46,74,80,81] For children, school and kindergarten closures were particularly important because these institutions often function as social safety nets where abuse can be noticed and reported.^[12,42,60,73,74] This may be relevant to the Lithuanian data, in which minors represented a large proportion of recorded victims, although the population-based recorded victim rate among minors decreased during the pandemic period.

Substance use should also be considered. In the present study, cases involving suspects recorded as being under the influence of

alcohol slightly decreased during the pandemic period, although the difference was not statistically significant. Cases involving narcotic or psychotropic substances were rare. However, these findings should be interpreted cautiously because they reflect substance-use information recorded in the register rather than systematically measured toxicological results, and specific substance types were not available. During the pandemic, average alcohol consumption decreased in most European countries included in a large cross-sectional study, although increases were reported in Ireland and the UK.^[82] Alcohol and drug use are recognized factors in sexual assault and drug-facilitated sexual assault.^[83–86] A study from Germany also reported changes in alcohol involvement among sexual assault cases during the pandemic period.^[51] Therefore, the slight decrease in alcohol-related recorded cases in Lithuania may be partly consistent with broader changes in alcohol consumption, reduced social interaction, and altered assault circumstances. However, this interpretation remains limited by the registry-based nature of the substance-use data.

5. Conclusion

In Lithuania, officially recorded sexual violence cases and their population-based rate decreased during the COVID-19 pandemic period. Most recorded cases involved female victims and suspects known to the victim in both the pre-pandemic and pandemic periods. Although the proportion of minors among recorded victims slightly increased during the pandemic period, this difference was not statistically significant, and the population-based recorded victim rate among minors decreased. Victims were generally younger than suspects. Among cases with available physical-damage information, non-severe health impairment was recorded more frequently during the pandemic period, although this finding should be interpreted cautiously because physical-damage documentation was incomplete and differed between periods.

Given the limitations of the official registry-based data, longer observation periods and additional data sources are needed to provide a more accurate assessment of the impact of the COVID-19 pandemic and related restrictions on recorded sexual violence in Lithuania.

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