

# Examining Government Administrative Measures During The Covid-19 Pandemic And Their Impact On Crime Rates In Santa Catarina

Ricardo Lemos Thomé  
Mariana Alvarenga  
Diogo Picchioni Soares  
Jocelia Felicia Andreola  
Nei Antonio Nunes

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## Summary

*The objective of this article is to analyze the impact of the COVID-19 pandemic on the occurrence of violent crimes in Santa Catarina, a federative unit located in the south of Brazil, with a population of more than seven million inhabitants. Furthermore, we sought to study how innovative preventive measures taken by public administration during this period influenced such crimes. The work involves a broad review of international literature on the topic; the analysis of indicators recorded between 2016 and 2020 and the interpretation of the answers to the questionnaire administered.*

*For the analysis of violence indicators, the study was sectional, documentary, quantitative, and descriptive, with the verification of seven categories of crimes: rape, homicide, robbery, domestic violence, femicide, robbery, and drug trafficking. The first five counted the number of victims and the last two counted the number of facts reported in the official Santa Catarina Civil Police database. The data were processed and analyzed in a statistical package, to indicate the distributions in the historical series and the rates per 100 thousand inhabitants (crime category/total population x 100 thousand). The distributions between the years 2019 and 2020 were confirmed using Pearson's Chi-Square with a significance of 5% ( $p < 0.05$ ), we checked whether the distributions of each criminal category were significantly different between the periods. Once the increases and decreases in police incidents were verified, the questions were directed to interviewees belonging to police institutions. It should be noted that the practices adopted by the public administration, such as social isolation, may have made it possible to significantly reduce some crimes that resulted in the contact or movement of people, but the confinement of people led to a high increase in incidents of domestic violence and rape of vulnerable people. The answers to the questions were consistent with the international bibliography presented in the article.*

**Keywords:** COVID-19. Social isolation. Indicators of violence. Public security.

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## I. Introduction

On January 30, 2020, the World Health Organization (WHO) declared a new outbreak of disease, on a global scale, caused by severe acute respiratory syndrome (SARS-CoV-2) COVID-19. The WHO declaration had impacts in all countries and led governments to take drastic actions as a measure to contain the spread of the disease among individuals in their populations.

The scale of the measures, the way they were implemented, and the time of application varied between countries but focused on combinations of measures involving travel restrictions, border controls, quarantine periods, social isolation, social distancing, cancellation, or modification of public events (e.g. Tokyo Olympics), business closures, encouraging remote work and the closure of educational facilities (Payne et al., 2021; Yang et al., 2021).

Due to measures to combat the disease, individuals' routine activities were impacted, especially people's ways of moving and gathering (Felson et al., 2020). With fewer people circulating on the streets, with the closure of businesses and greater stay-at-home, several academics turned their attention to the impacts that this could have on the incidence of crimes, as there was a change in the social environment of criminal activity (Payne et al., 2021).

Understanding these impacts in the short and medium term is important due to their social implications on public security and policing policies (Campedelli et al., 2020). It should also be considered that the COVID-19 pandemic occurred in a highly modern and globalized society, with very complex interactions, and from a sociological perspective it is interesting to investigate how COVID-19 has changed human behavior and how this

can affect governance approaches in cities (Sun et al., 2021). Still for Payne et al. (2021), in addition to the topic needing further studies, there is a research gap beyond the global north, with the USA being the country leading empirical studies on the topic.

This study is presented in three parts, the first proposal is to present a systematic review on the topic of COVID-19 and its impacts on crime rates, and for this purpose, three databases were consulted, Google Scholar, SCOPUS, and Science Direct, and 45 studies were selected. The second part aims to analyze the impact of the COVID-19 pandemic on violent crimes committed in the territory of Santa Catarina, southern Brazil, analyzing indicators between the years 2016 and 2020 to verify factors that increase or decrease violence. The third part seeks to understand, through the analysis of responses in questionnaires, the reasons that impacted the drop or increase in occurrences directly linked to government administrative decisions.

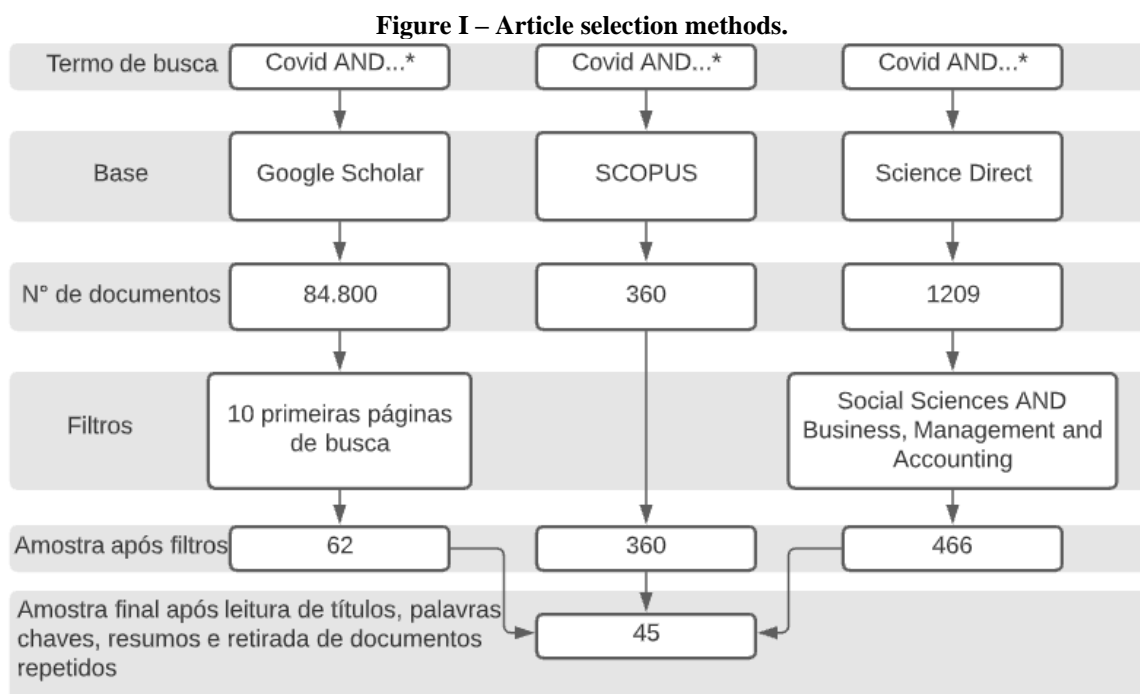
The research aims to contribute to the gap in studies on the topic in the global south and also to the understanding of the phenomenon in Brazil, as the systematic review suggests, the rates may vary depending on the location or environment (Ashby, 2020). In Brazil, there were few studies on the topic, Ertan et al., (2020) showed that during the pandemic calls to emergency helplines to report domestic violence increased by 40-50%. In the city of São Paulo there was a decrease in firearm and bladed weapon crimes after the emergence of the pandemic and preventive social isolation measures (Ribeiro-Junior et al., 2021).

The study also aims to help bodies responsible for Brazilian public security understand the pattern of certain crimes in the face of emergency measures of restriction and social isolation. Esposito and King (2021) remind us that the way we deal with similar events in the future may be different and a better understanding of crime trends in similar situations, such as disasters or diseases, can help governments and public bodies develop more effective responses and with less costs.

## II. Covid And Criminal Rates – A Systematic Review

For this systematic review, three databases were consulted: Google Scholar, SCOPUS, and Science Direct. Your search terms were COVID AND (Crime\* OR Violence OR Robbery OR Burglary OR Theft OR Assaults). The studies selected were those that addressed the following research question: Did crime rates vary during the restrictive isolation measures implemented due to COVID-19?"

At the conclusion of the research, 45 articles were selected, focusing on studies that demonstrated a correlation between restrictive measures and fluctuations in crime rates. A systematic literature review was then conducted based on these selected studies. Figure I illustrates the methods used for article selection.



\*COVID AND (Crime\* OR Violence OR Robbery OR Burglary OR Theft OR Assaults)

Source: prepared by the authors, 2021.

Several studies suggest that the COVID-19 pandemic and measures implemented to contain the disease have had varied effects on different types of crimes (Ashby, 2020; Payne et al., 2021). Social distancing measures

and periods of lockdown have significantly impacted certain types of criminal activity. While some types of crimes decreased, others remained stable, and some even increased following the implementation of restrictive measures. The following paragraphs will focus on presenting and analyzing recent studies addressing these three aspects.

### **Crimes That Reduced Their Rates**

The American study conducted by Yang et al. (2021) in Chicago reported a significant decrease in crimes attributed to COVID-19 restrictive measures, particularly in theft, robbery, and criminal damage. Similarly, Scott and Gross (2021) also observed notable reductions in total crimes across Chicago, Baltimore, and Baton Rouge in the USA. Specifically, in Chicago, declines were observed in property crimes and legal offenses, rather than interpersonal crimes.

Esposito and King (2021) conducted the first study on the topic in New York City, USA, where they reported a significant decrease in crimes such as rape, other sexual offenses, robbery, assault, theft, traffic violations, housing-related crimes, misdemeanors, assault, and petty thefts. Abrams (2021) conducted research involving 25 large American cities, which identified a widespread reduction in drug-related crimes, theft, residential burglaries, and most violent crimes. The study also concluded that the number of arrests decreased during stay-at-home periods due to COVID-19.

In Los Angeles, USA, there was a significant overall decrease in crime, as reported by Campedelli et al. (2020), with particular emphasis on the crimes of robbery, shoplifting, theft, and assault. Ashby (2020) analyzed crime behavior during lockdown periods in 16 large American cities and found reductions in residential burglaries but minimal change in non-residential burglaries. Motor vehicle thefts decreased in only a few cities included in the study.

The Australian studies conducted by Payne et al. (2021), Payne (2020), and Andresen et al. (2020) in Queensland reported a significant decrease in various property crimes, including retail theft, other robberies, theft, common assaults, serious assaults, and sexual assaults. In a study conducted in London by Sun et al. (2021), a decrease in crimes such as robbery, burglary, and theft was observed in areas with higher rates of COVID-19 infection and stricter disease containment policies.

A comprehensive study conducted in Japan by Shen et al. (2021) demonstrated that the lockdowns implemented in 2020 resulted in reduced victimization rates for both violent and property crimes. Interestingly, premeditated crimes, such as burglary and sexual assault, saw a more significant decrease compared to unpremeditated crimes, such as homicide. Furthermore, the study conducted an analysis of different age groups, revealing a significant decline in sexual assault victimization among individuals aged 0 to 29, as well as a notable decrease in overall victimization rates for violent and property crimes and their subtypes among those aged 30 to 59. The study also concluded with an examination of the decrease in suicide rates in the country because of the lockdown measures.

The Peruvian study conducted by Renzo and Calderon-Anyosa (2021) analyzed the variation in crimes based on the number of registered deaths, and in their temporal analysis, they found a significant decrease in homicides following the implementation of measures to restrict the movement of individuals. Similarly, the Mexican studies by Balmori de la Miyar et al. (2021a) and Hoehn-Velasco et al. (2021) reported a sharp decrease in crimes related to domestic violence, lapses in child support, sexual crimes, robbery, and vehicle theft. Additionally, these studies observed a temporary decrease in crimes related to aggression and extortion during certain weeks.

In New Zealand, Cheung and Gunby (2021) observed a decrease in crime rates against non-residential property, residential property, and crimes against individuals in non-residential environments following the implementation of movement restrictions. According to the authors, this resulted in substantial drops in the absolute number of crimes at the population level. They emphasized that these reductions were not only statistically significant but also economically significant.

In the United Kingdom, Halford et al. (2020) reported a decrease in all registered crimes, including theft, robbery, domestic violence, vehicle theft, assault, housebreaking, and home theft, within a week of implementing movement restrictions. The authors attributed the variation in crime rates in the UK to changes in people's mobility.

In a Swedish study conducted by Gerell et al. (2020), it was shown that total crimes decreased in the country during sanitary measures, with notable reductions in crimes of aggression, robbery, and theft. A worldwide study by Nivette et al. (2021), involving 27 countries, demonstrated a general decrease in urban crime, with significant reductions observed across all cities included in the study. The study found that the average reduction was lowest for homicide and highest for robbery, assault, theft, and vehicle theft. Additionally, a Malaysian study by Jamil et al. (2021) analyzed aspects of financial crimes during the COVID-19 pandemic and found a decrease in physically committed financial crimes.

According to Stickle and Felson (2020), Hodgkinson and Andresen (2020), Campedelli et al. (2020), Halford et al. (2020), Nivette et al. (2021), Payne et al. (2021), Cheung and Gunby (2021), and Sun et al. (2021), the observed drop in crime rates in various studies can be attributed to several factors. These include increased police patrolling in certain regions and the sudden decline in people's mobility or changes in routine activities in urban spaces due to stay-at-home orders. The authors argue that reduced mobility has led to fewer opportunities for offenders and increased the security of homes and vehicles due to greater property custody.

The authors conclude that, in line with economic and criminological opportunity theories, there is strong evidence indicating that crime levels respond rapidly to changes in opportunity structures and constraints. They emphasize that altering crime levels does not necessarily require significant changes in offender motivation. However, Mohler et al. (2020) note that while the effects of restriction and social distancing measures on crime rates are evident, the overall effect is notably smaller than expected, considering the scale of disruption in social and economic life.

Additionally, several studies have shown that crime rates returned to their previous levels once measures restricting the movement of people were eased. This indicates that the reduction in crime was temporary and closely linked to the restrictive measures imposed due to COVID-19 (Nivette et al., 2021; Yang et al., 2021; Andresen et al., 2020; Renzo and Calderon-Anyosa, 2021; Hoehn-Velasco et al., 2021; Balmori de la Miyar et al., 2021b).

### **Crimes That Had No Change Or Significant Changes**

Some types of crimes did not change significantly during the pandemic period. American studies conducted by Ashby (2020) and Felson et al. (2020) focused on analyzing the rates of robberies and assaults during periods of home restrictions resulting from COVID-19.

Ashby (2020) examined the crime rates of 16 large cities in the USA during the first months of 2020 and found stability in the rates of non-residential robberies and serious robberies in public or residential areas. Similarly, Felson et al. (2020) conducted a study on robberies in Detroit, analyzing the distribution of the city's commercial, residential, and mixed-use areas, and found that robberies remained stable in residential areas.

Other American researchers also dedicated their studies to gathering information about serious or violent crimes and found stability in their rates during the analyzed period. Boman and Gallupe (2020), in a national study, found stability in serious crimes, including homicides, intimate partner violence, and serious assaults, which are generally committed without co-perpetrators.

Campedelli et al. (2020) conducted a study in Los Angeles and found no significant changes in the rates of homicides, intimate partner violence, vehicular assaults, and assaults with weapons. Similarly, Abrams (2021) analyzed 25 cities in the USA and observed that homicide and shooting rates remained stable during the analysis period.

Brantingham et al. (2021) observed that restrictive social isolation measures did not affect the volume of violent crimes related to gang activities in Los Angeles, nor did they alter the territorial boundaries of established gangs, which remained unchanged during the period.

Researchers from other countries also found stability in certain types of crimes. Gerell et al. (2020) conducted a study in Sweden and found no changes in rates of personal theft or narcotics crimes. Additionally, Payne et al. (2020) observed no change in domestic violence crimes in Queensland, Australia, during the first months of 2020.

Balmori de la Miyar et al. (2021a) analyzed common crimes and organized crime in Mexico City. They showed that crimes related to robbery, kidnapping, and homicides remained stable. The study also confirmed that the pandemic had a low impact on organized crime. The London study by Sun et al. (2021) found no correlation between pandemic restriction actions and crimes of violence against people. The worldwide study, involving 27 countries, conducted by Nivette et al. (2021), showed that homicides remained stable in most of the countries analyzed.

An explanation for the permanence or stability of rates of serious violence, such as homicide, serious assaults, violence against people, and crimes involving the use of weapons, is presented by Nivette et al. (2021). For the authors, in many societies, part of homicide crimes is committed in the domestic context; therefore, they would not be affected by measures to restrict the movement of individuals. Another part of these crimes is associated with organized crime, conflicts between gangs, or conflicts related to drug trafficking. The behavior of these groups may be less elastic to changes in individuals' daily routine, which was the main characteristic of COVID-19 containment measures.

### **Crimes That Increased Their Rates**

Notably, the crimes that increased their rates were those favored by isolation measures at home, which favored aggression and domestic abusers. In the United States, several studies have highlighted this trend. Piquero et al. (2020) verified the rates of domestic violence (between partners, the elderly, and children) in the

city of Dallas, Texas, USA, in the first weeks of lockdown. Initially, there was an increase in rates that returned to the previous level after the relaxation of security measures and isolation.

Another Texan study by Jetelina et al. (2021) found a change in rates of intimate partner violence, demonstrating an increase in sexual and physical violence during the first months of isolation and social distancing orders. Research by Hsu and Henke (2021) collected data from 36 police departments in the USA, revealing an increase in domestic violence. The authors suggest that these findings are consistent with the exposure reduction theory, which posits that victims and aggressors in closed environments tend to experience increased conflicts.

Evans et al. (2020) also highlighted the increase in domestic violence as a result of isolation measures in Atlanta, Georgia, USA. Similarly, Boman and Gallupe (2020) conducted an American national study that showed an increase in aggressions by intimate partners. The authors attribute this rise in violence to restrictive measures on the movement of people and the possibility that minor offenders have found opportunities to commit more serious crimes, such as assaults and homicides.

The Peruvian study by Renzo and Calderon-Anyosa (2021) highlighted greater risks for women living in situations of domestic violence with measures to restrict movement and isolation, as victims would be isolated with their aggressors. Similarly, the literature review by Piqueiro et al. (2021) analyzed studies carried out in several countries that showed an increase in domestic violence due to isolation and social distancing policies. According to the authors, stay-at-home orders, despite being well-intentioned, increased stress, anxiety, and caused separation from friends and family, which favored the aggressor.

Despite the findings in several studies of the increase in domestic violence, violence against women, children, and the elderly during the COVID-19 pandemic, Cheung and Gunby (2021) warn that these cases of violence are also known to be underreported and reported with delays. Therefore, the numbers could be higher.

Campedelli et al. (2020) attribute financial and psychological stress, as consequences of the pandemic, to increased alcohol consumption at home. This hypothesis is also proposed to explain the increase in violent crimes, as the authors suggest a strong relationship between alcohol use/abuse and violence.

In addition to the increase in domestic violence, some researchers have noted a rise in other types of crime. Abrams (2021), in his analysis of 25 large American cities, found an increase in non-residential robberies and car thefts in most cities, suggesting that criminal activity was displaced to places with fewer people. A similar result was demonstrated by Felson et al. (2020) in Detroit, USA, where they observed an increase in robberies in mixed commercial and residential areas of the city.

Kim and Phillips (2021) showed that armed violence (including fatal shootings, all non-fatal shootings, non-fatal shootings with injuries, and non-fatal shootings without injuries) in Buffalo, NY, USA, increased with the restrictive measures on the movement of individuals during COVID-19. The authors attributed the rise in armed violence to the tensions of isolation and changes in routine activities. Esposito and King (2021), in a study of New York City, USA, also showed an increase in armed violence, theft, and automobile-related crimes.

The Indonesian study by Syamsuddin et al. (2021) showed a 42.65% increase in theft crimes in the city of Makassar. However, the study does not follow the evidence found of a decrease in this type of crime in American and European research, which demonstrates that the particularities of regions, countries, and societies affect these analyses. Therefore, the topic should be further explored in local contexts, as suggested by Yang et al. (2021).

Several authors dedicated themselves to the study of cybercrimes, which also saw an increase in their rates during the pandemic period. Lallie et al. (2021) analyzed cyber attacks on a global level and showed that attacks became increasingly frequent as the pandemic progressed. Buil-Gi et al. (2021) analyzed cybercrime in the United Kingdom and found that crimes increased during periods of isolation, suggesting a shift in the opportunity for crime from the physical to the online environment, harming individuals more than organizations. Naidoo (2020) found in his study that cybercrimes increased during the pandemic and are continually evolving in response to situational factors. Finally, Hawdon et al. (2020) did not find an increase in the cybercrime victimization rate due to changes in routine activity.

### **III. Methodology**

The population studied corresponds to the inhabitants of the State of Santa Catarina, Brazil, during the same period, as per estimates from the Brazilian Institute of Geography and Statistics (IBGE), ranging from 6,894,058 (2016) to 7,252,502 (2020).

The data sources comprised documents from the Intelligence Directorate of the Civil Police of Santa Catarina (Statistics and Criminal Analysis Management), extracted from the database of the Information Technology and Automation Center of the State of Santa Catarina. These data were collected in the first fortnight of July 2021, with authorization for research use granted by the Honorable Chief of Civil Police of Santa Catarina. Initially, the data were intended to support the Legal Department's opinion in requesting the appointment of new civil police officers.

Considering the first part as the literature review already presented, the second part pertains to the analysis of violence indicators. The results of interest encompass six categories of crimes: rape, homicide, robbery, domestic violence, robbery, and drug trafficking. The first four categories involved counting the number of victims, while the last two focused on the number of reported incidents. The study was conducted using a sectional, documentary, quantitative, and descriptive approach. Frequency distributions in the time series were demonstrated, with the period of analysis spanning from 2016 to 2020.

For the third part, which concerns content analysis, responses were collected through questionnaires administered using the tool available through Google Workspace. The questionnaire forms and links were sent via email or WhatsApp and returned via the same Google platform. A total of 132 questionnaires were distributed to the authors' contacts, all of whom were police officers with higher education qualifications. Of these, 62.12% were returned with responses, resulting in 82 samples for analysis.

### Data Analysis

The analysis of violence indicators encompassed six categories of crimes: rape, homicide, robbery, domestic violence, robbery, and drug trafficking. The data were processed and analyzed using a statistical package, with the aim of indicating distributions in the time series and rates per 100,000 inhabitants (crime category/total population x 100,000). The distributions between 2019 and 2020 were analyzed using Pearson's Chi-Square test with a significance level of 5% ( $p < 0.05$ ), to ascertain whether the distributions of each criminal category significantly differed between the periods.

To facilitate comparison across different time periods, crime statistics were standardized to rates per 100,000 inhabitants for each crime category. Rape, homicide, femicide, robbery, and domestic violence rates were estimated based on the number of victims, while robbery and drug trafficking rates were estimated based on the number of reported incidents. Table 1 illustrates the yearly distribution in relation to the absolute values of each criminal category, populations, and rates per 100,000 population.

**Table 1: crime values and rates per 100,000 inhabitants from 2016 to 2020.**

Crimes	2016		2017		2018		2019		2020		Var.
	N	Prev.	N	Prev.	N	Prev.	N	Prev.	N	Prev.	Prev.
Domestic violence	52,793	765.78	58,025	830.74	57,478	812.35	68,970	962.62	72,333	997.35	+30%
Rape	3,185	46.20	3,577	51.21	4,061	57.40	1,906	26.60	1,185	16.34	-65%
Rape of vulnerable	1,174	17.03	1,348	19.30	1,717	24.27	2,216	30.93	2,380	32.82	+93%
Intentional Homicide	842	12.21	937	13.41	733	10.36	645	9.00	633	8.73	-29%
Armed robbery	60	0.87	65	0.93	44	0.62	28	0.39	20	0.28	-68%
Femicide	54	0.78	52	0.74	42	0.59	58	0.81	57	0.79	-0.3%
Theft	18,975	275.24	16,729	239.51	11,598	163.92	11,044	154.14	9,450	130.30	-53%
Drug trafficking	7,098	102.96	8,636	123.64	10,663	150.70	10,147	141.62	10,010	138.02	+34%
Population	6,894,058	100,000	6,984,749	100,000	7,075,494	100,000	7,164,788	100,000	7,252,502	100,000	

In relation to the prevalence of each category per 100,000 inhabitants, the following analysis is provided:

1. The domestic violence category is the most prevalent, showing a growing trend throughout the time series, with a total increase of 30%.
2. The rape category initially displayed an increasing trend in the time series until 2018, followed by a sharp decrease from 2019 to 2020, resulting in a 65% decrease.
3. Rapes involving vulnerable individuals exhibit an increasing trend every year, amounting to a 93% increase.
4. Homicides and robberies have demonstrated a decreasing trend since 2018, resulting in respective decreases of 29% and 68%.
5. Femicides increased by 0.34%, following an upward trend from 2018.
6. Thefts have decreased throughout the time series by 53%.
7. Drug trafficking experienced an initial upward trend until reaching a peak in 2018, followed by a decline from 2019 to 2020. However, it maintained a considerably higher level from the beginning to the end of the time series, with a 34% increase.

The comparative analysis of the total number of cases in relation to the population, specifically between the years 2019 and 2020, revealed significant differences for the following categories:

1. Domestic violence [ $\chi^2=43.92$  ( $p=0.000$ )], with a 5% increase in prevalence.
2. Rape [ $\chi^2=177.0349$  ( $p=0.000$ )], showing a 65% decrease in prevalence.
3. Rape of vulnerable people [ $\chi^2=4.0255$  ( $p=0.000$ )], exhibiting an 11% increase in prevalence.

4. Robbery [ $\chi^2=143.9342$  ( $p=0.000$ )], indicating a 9% decrease in prevalence.

An isolated analysis of the first four-month period was conducted, specifically aimed at observing the period with the highest implementation of social isolation measures in 2020. Table 1 illustrates the annual distribution in the first four-month period from 2016 to 2020, detailing the absolute values of each criminal category, populations, and rates per 100,000 inhabitants.

**Table 2: crime values and rates per 100,000 inhabitants in the 1st quarter of 2016 to 2020.**

Crimes	2016		2017		2018		2019		2020		Var. Prev.
	N	Prev.	N	Prev.	N	Prev.	N	Prev.	N	Prev.	
Domestic violence	19,404	281.46	20,399	292.05	20,822	294.28	24,558	342.76	24,560	338.64	+20%
Rape	681	9.88	723	10.35	818	11.56	699	9.76	389	5.36	-46%
Rape of vulnerable	404	5.86	406	5.81	565	7.99	701	9.78	839	11.57	+97%
Intentional Homicide	301	4.37	340	4.87	299	4.23	219	3.06	267	3.68	-16%
Femicide	27	0.39	15	0.21	10	0.14	24	0.33	19	0.26	-33%
Armed robbery	23	0.33	22	0.31	18	0.25	13	0.18	5	0.07	-79%
Theft	6,567	95.26	6,337	90.73	4,529	64.01	3,650	50.94	3,252	44.84	-53%
Drug trafficking	2,396	34.75	2,893	41.42	3,804	53.76	4,077	56.90	3,423	47.20	+36%
Population	6,894,058	100,000	6,984,749	100,000	7,075,494	100,000	7,164,788	100,000	7,252,502	100,000	

The analysis of the time series corresponds to the previous one conducted on complete years (as shown in Table 1), encompassing all twelve months, except for the results of femicides, which exhibit a decrease of 33% when considering only the first four months.

Table 3 below presents a comparison of the percentage differences in the prevalence of each crime category between the years 2019 and 2020 from two perspectives: the analysis of the entire year and the analysis focusing solely on the first four months.

Table 3: Difference in the prevalence of crimes per 100,000 inhabitants between 2019 and 2020, viewed annually and for the first four months.

**Table 3: difference between the prevalence of crimes per 100,000 inhabitants between 2019 and 2020, from an annual perspective and only for the first four months.**

Crime	Annual period (2019-2020)	First quarter (2019-2020)
	difference %	difference %
Domestic violence	4.54	-1.46
Rape	-22.21	-44.47
Rape of vulnerable	11.08	30.45
Intentional Homicide	-2.25	14.31
Armed robbery	-13.22	-33.72
Femicide	-3.01	-18.64
Theft	-8.66	-6.41
Drug trafficking	-3.50	-27.93

The analysis of the first four months of the year reveals significant deviations from the total annual analysis when observing the period between 2019 and 2020:

1. The prevalence of domestic violence decreases by 1% instead of increasing by 5%.
2. Rape exhibits a doubled decrease (44%) compared to the annual analysis (22%).
3. Rape of vulnerable people increases by 30% instead of the 11% observed in the annual analysis.
4. Intentional homicides increase by 14% instead of decreasing by 2%.
5. Robberies decrease by 34% instead of 13%.
6. Femicides decrease by 19% instead of 3%.
7. Robberies decrease by 6% compared to 9% for the entire year.
8. Drug trafficking records fall by 28% compared to 3% for the entire year.

For the third part, responses from 82 questionnaires were analyzed, as outlined below.

**1st Question:** "In the period of isolation and social distancing (COVID-19), there was a decrease in the movement of people. In your opinion, this fact:

<b>In the period of isolation and social distancing (COVID-19), there was a decrease in the circulation of people. In your opinion, the fact: (you can select more than one answer)</b>	
Contributed to the decrease in the practice of drug trafficking and theft and robbery of motor vehicles.	51,2%
Contributed to the decrease in the practice of robbery crimes against individuals and cargo theft.	53,7%
Could become a permanent administrative measure, for example, at certain times, as a way to reduce crime.	17,1%
Is unconstitutional and inadequate to decrease crime.	18,3%
None of the above.	22%

According to 53.7% of respondents, social isolation contributes to reducing the occurrence of robberies, while 51.2% believe it also reduces drug trafficking and infanticide.

On the contrary, 17.10% of respondents view the administrative measure of enforced social isolation as potentially becoming a permanent measure during certain times, while 18.3% believe that the mandate was in some way unconstitutional.

**2nd. Question:** In the period of isolation and social distancing (COVID-19), the crime of rape in Santa Catarina/BR decreased by 65%. In your opinion, the fact may have occurred because: (you can mark more than one answer)

<b>In the period of isolation and social distancing (COVID-19), the crime of rape in Santa Catarina, Brazil, decreased by 65%. In your opinion, this could have occurred because: (you can select more than one answer)</b>	
Mandatory confinement led to a decrease in the circulation of people.	69,5%
There were no rave parties or nightclub events.	36,6%
The police cracked down on this particular crime more vigorously.	3,7%
Rape will always have a tendency to decrease in occurrence rates due to the response from the justice system, police, and society.	8,5%
None of the above.	12,2%

According to 69.5% of respondents, the reduction in the movement of people contributed to a decrease in rape rates, while 36.5% attribute the decrease to the prohibition of parties and social events.

In contrast, 3.7% of respondents attribute the decrease in rape incidents to police repression, while 8.5% credit the judicial system.

**3rd. Question:** In the period of isolation and social distancing (COVID-19), the crime of rape of vulnerable people in Santa Catarina/BR increased by 93%. In your opinion the fact he can to have occurred why:

<b>In the period of isolation and social distancing (COVID-19), the crime of rape of vulnerable individuals in Santa Catarina, Brazil, increased by 93%. In your opinion, this could have occurred because: (you can select more than one answer)</b>	
Mandatory confinement led to men spending more time at home, increasing the possibility of contact with vulnerable individuals.	92,7%
The police stopped responding to calls on the emergency number 190 or closed police stations.	6,1%
Rape of vulnerable individuals will always have a tendency to increase in occurrence rates.	11%
There was a decrease in public awareness campaigns regarding the possibilities of this type of crime occurring.	3,7%
None of the above	3,7%

In response to this question, 92.7% of respondents stated that men spent more time at home due to social isolation, thereby providing greater opportunities for committing the crime of raping a vulnerable person.

Additionally, 6.1% of respondents believe that the closure of police stations or reduced telephone services were responsible for the increase in these incidents, while 3.7% attribute the increase to the reduction in information campaigns.

**4th. Question:** In the period of isolation and social distancing (COVID-19), domestic violence in Santa Catarina/BR showed a 30% growth trend. In your opinion, this may have occurred because:

<b>In the period of isolation and social distancing (COVID-19), domestic violence in Santa Catarina, Brazil, showed a growth trend of 30%. In your opinion, this could have occurred because: (you can select more than one answer)</b>	
There was a decrease in campaigns to educate and protect women during the pandemic.	8,5%
Mandatory confinement led people to spend more time at home, making women even more vulnerable to domestic violence.	95,1%
The police stopped responding to calls on the emergency number 190 or closed police stations.	4,9%



Domestic violence will always have a tendency to increase in occurrence rates.	13,4%
None of the above	1,2%

For 95.1%, the compulsory confinement resulted in individuals spending more time at home, exacerbating the vulnerability of women to domestic violence. Interestingly, 13.4% believe that there will always be a tendency for this type of crime to grow.

#### **IV. Discussion**

This work is supported by Ashby (2020) and Payne et al. (2021), indicating that social distancing measures and lockdown periods significantly impacted certain types of crime in the State of Santa Catarina, Brazil. The impact varied, with an increase observed in some crimes and a decrease in others. For instance, domestic violence exhibited a 30% growth trend, while rapes of vulnerable people showed an increasing trend of around 93%. Homicides increased by 0.34%, and drug trafficking saw a rise of 34%. Conversely, rape experienced a decrease of 65%, and homicides and robberies displayed a tendency to decrease by 68% and 53%, respectively.

Similarly, the literature review presented also highlights fluctuations in crime rates during the pandemic. Ertan et al. (2020) reported a 40-50% increase in calls to the emergency number 190 to report domestic violence during the pandemic. Piqueiro et al. (2020) found elevated rates of domestic violence in the city of Dallas, Texas, USA, while Hsu and Henke (2021) observed an increase in domestic violence across 36 police departments in the US. Esposito and King (2021) documented a significant drop in rape crimes in New York City, USA. Regarding homicides, Ribeiro-Júnior et al. (2021) noted a decrease in firearm and bladed weapon crimes in São Paulo, Brazil, following the emergence of the pandemic. Additionally, Payne et al. (2021), Payne (2020), and Andresen et al. (2020) reported a significant drop in property crimes in Australia, while Sun et al. (2021) documented decreases in robbery, burglary, and theft in London, UK, associated with higher rates of COVID-19 infection and containment policies.

The questionnaire administered to police officers corroborated the statistical data and literature review findings presented in this work. Notably, 95.1% of respondents acknowledged that the reduction in the movement of people or social isolation impacted crime rates. Interestingly, 73.2% of respondents indicated that the closure of police stations and the restriction of overt policing via emergency telephones did not affect the quality of service provided to the population. Moreover, this administrative measure facilitated new forms of communication between police stations and the population via the Internet, according to 73.2% of respondents.

Domestic violence emerged as one of the most affected crimes during the pandemic, primarily attributed to confinement measures, as highlighted by 95.1% of respondents. However, it is noteworthy that 39% of respondents identified domestic violence as a cultural issue, and 13.4% expressed concerns about a potential upward trend in this type of crime.

Another notable finding is that 80.7% of respondents believed that the civil and military police misused their functions when enforcing government rules related to COVID-19, leading to public antipathy. Furthermore, 57% of respondents expressed skepticism about the effectiveness of preventive campaigns to combat crime. Notably, 41.5% of respondents, despite being police officers, did not find adequate answers to questions regarding the role of the administrative police in enforcing COVID-19 regulations and the causes of femicide, a concerning trend observed during the pandemic and directly linked to social confinement.

#### **V. Conclusion**

Throughout the period under study, isolation measures were implemented as a consequence of various restrictions on public and private services, resulting in a significant lockdown in some regions of the country. The trade sector was profoundly affected by restrictions on people's movement, sectoral prohibitions, and widespread adoption of remote work practices. Consequently, there was a notable impact on public security in the State of Santa Catarina, where ostentatious policing decreased in conflict-prone or deemed hazardous areas. Police stations primarily focused on responding to flagrant crimes, while police patrols restricted their movements to crime scenes and monitored potential violations of state-imposed restrictions, leading to a reduction in visible preventive policing efforts.

It's important to consider the presented statistics within the context of reduced mobility, which resulted in fewer opportunities for robberies (including vehicle and cargo theft), burglaries, and rapes—crimes directly linked to personal contact and opportunity. Moreover, the decrease in narcotics trafficking can be attributed to both reduced supply and demand, stemming from uncertainties surrounding contagion risks through interpersonal contact. Conversely, the increase in domestic violence can be attributed to prolonged periods of confinement, leading to heightened tensions and conflicts within households.

The COVID-19 pandemic has undoubtedly reshaped the landscape of crime analysis and public security management. It necessitates a reevaluation of existing paradigms regarding the causes and consequences of crime,

along with the emergence of new challenges requiring innovative solutions across different contexts.

While this study provides valuable insights into violence indicators during the pandemic period, it's important to acknowledge its limitations, particularly in exploring factors such as gender, age, ethnicity, and economic conditions of those involved. Future research endeavors should expand the dataset and leverage geospatial analysis to draw more comprehensive conclusions and offer actionable recommendations for enhancing public safety.

There are valuable lessons to be learned from the pandemic experience, and proactive measures must be taken to address emerging challenges and opportunities in the realm of public security.

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