Estrabão
Vol(3): 91–102

DOI: 10.53455/re.v3i.22

TREND OF HOMICIDE RATES IN SANTA CATARINA, BY MICROREGIONS: 1996 TO 2019

Daniel Bando[1], Mariana Garcia[2] and Jane Friestino[2]

Abstract

Background: homicide is a health and security public problem. The objective of this work was to evaluate trends in homicide rates by microregions in the state of Santa Catarina, Brazil. This is an ecological time series study. Data were collected by the Informatics Department of the Unified Health System and by the National Census. The segmented linear regression technique was used to estimate the annual percentage changes (APC), with a 95% confidence interval and possible inflection points by the joinpoint software. Results: in the period studied, there were 16,408 homicides in Santa Catarina, corresponding to a rate of 11.3 cases per 100,000 inhabitants. From 2003 to 2017, there was an upward trend of homicide with APC of +1.28. The following areas showed an upward trend in more than half of the study period: Ararangua, Blumenau, Chapeco, Criciuma, Itajai - Ituporanga - Tijucas, Tabuleiro. In contrast, the microregions of Florianopolis, Curitibanos, Canoinhas showed a decreasing trend; the others remained stable. Conclusions: 38.9% of the study areas showed an upward trend in homicide rates, 16.7% showed a downward trend and 44.4% remained stable.

Keywords

spatial-temporal analysis, public health, violence, homicide

INTRODUCTION

Homicide is a well-known health and public safety problem (Cardoso, Cecchetto, Corrêa, & Souza, 2016). It is a complex and multifactorial phenomenon. It has emotional and social costs of great

[1] Universidade Federal de Alfenas, Alfenas, Minas Gerais, Brazil
[2] Universidade Federal da Fronteira Sul, Chapecó, Santa Catarina, Brazi
Emails: marianarangel01@gmail.com (Mariana Garcia), jane.friestino@uffs.edu.br (Jane Friestino)

Corresponding author:
Daniel Bando, Universidade Federal de Alfenas, Alfenas, Minas Gerais, Brazil
Email: daniel.bando@unifal-mg.edu.br

magnitude, can lead to the breakup of families, affect friends of the victims, and cause suffering, anger, fear and despair (Reichenheim et al., 2011). According to the World Health Organization (WHO), in 2019 there were 477,000 homicides in the world, which corresponds to a global rate of 6.2 per 100,000 inhabitants (WHO, 2019). However, the average hides deep variations. While El Salvador, Honduras and Venezuela have rates ranging from 63.6 to 85.0 per 100,000, Portugal, Slovenia and China have rates below 1.0 per 100,000. Brazil ranks 11^{th}, with 32.6 homicides per 100,000 inhabitants (WHO, 2019). In Brazil, the homicide rates of the 27 states ranged from 13.0 in Santa Catarina to 68.9 in Alagoas (Bando & Lester, 2014).

The firearm was the main means used in the world. In 2016, there were 251,000 firearm homicides, with Brazil, the United States, Mexico, Colombia, Venezuela and Guatemala accounting for 50.5% of these deaths (The Global Burden of Disease Injury Collaborators, 2018). According to estimates by the United Nations Office on Drugs and Crime (UNODC, 2019), about 90% of homicide victims worldwide are male, with the highest risk in the 15-29 age group, and about 19% of the total homicide burden was related to organized crime in 2017. A review study on homicide in Brazil revealed that Brazil seems to follow the global pattern. The epidemiological profile of homicidal violence in the country corresponded to young males, in the age group of 15 to 29 years, black, living in the peripheries of the cities or favelas. Regarding living conditions, the population with a high level of vulnerability stood out due to the lack of social opportunity and territorial disputes linked to drug trafficking (Oliveira, Luna, & Silva, 2020; Reichenheim et al., 2011). In Brazil, homicide is also related to agricultural frontier areas and land tenure conflicts (Reichenheim et al., 2011). In the city of Sao Paulo, an ecological study also suggests an association of homicides with police violence (M. F. T. Peres, Cardia, Neto, Santos, & Adorno, 2008). As for individual risk factors, they include drug use disorders, personality disorders and lack of adherence to psychiatric treatment (Valença & Moraes, 2006).

The global homicide rate from 1993 to 2017 decreased from 7.4 to 6.1 per 100,000 (UNODC, 2019). However, this global downward trend may again hide different temporal trends in various locations around the globe. In Brazil, rates increased from 11.7 per 100,000 in 1980, to 28.9 per 100,000 in 2003. Subsequently, there was an oscillation: it reached the 26.2 per 100,000 score in 2010 and increased again in recent years, reaching 32.6 per 100,000 (WHO, 2019) (Murray, Cerqueira, & Kahn, 2013). An ecological study on homicide trends in Brazil revealed that from 2000 to 2015 there was a 6% increase in rates. This study also analyzed the trends according to the population size of the municipalities, and in the state of Santa Catarina there was an increase in the three groups analyzed: small, medium, and large municipalities (Soares Filho et al., 2020). This study aims to verify the trend of homicide rates by microregion in the state of Santa Catarina.

METHODOLOGY

Study area

The state of Santa Catarina is part of the southern region of Brazil (Figure 1A), with 295 municipalities grouped into 20 microregions (Figure 1B). It had predominantly European colonization, especially German, Italian and Azorean, however, this was part of a process of re-appropriation of the territory, making it important to remember that in certain regions such as western Santa Catarina, it is worth mentioning the presence of caboclos and indigenous people (Souza, Bernardi, & Santos, 2020). The state has a territorial area of 95,730.7 km^2, the smallest in the southern region of Brazil. The estimated

population of the state for 2020 was 7,252,502 inhabitants (84% rural) and demographic density of 65.27 inhabitants/km^2 (Ibge, 2021).

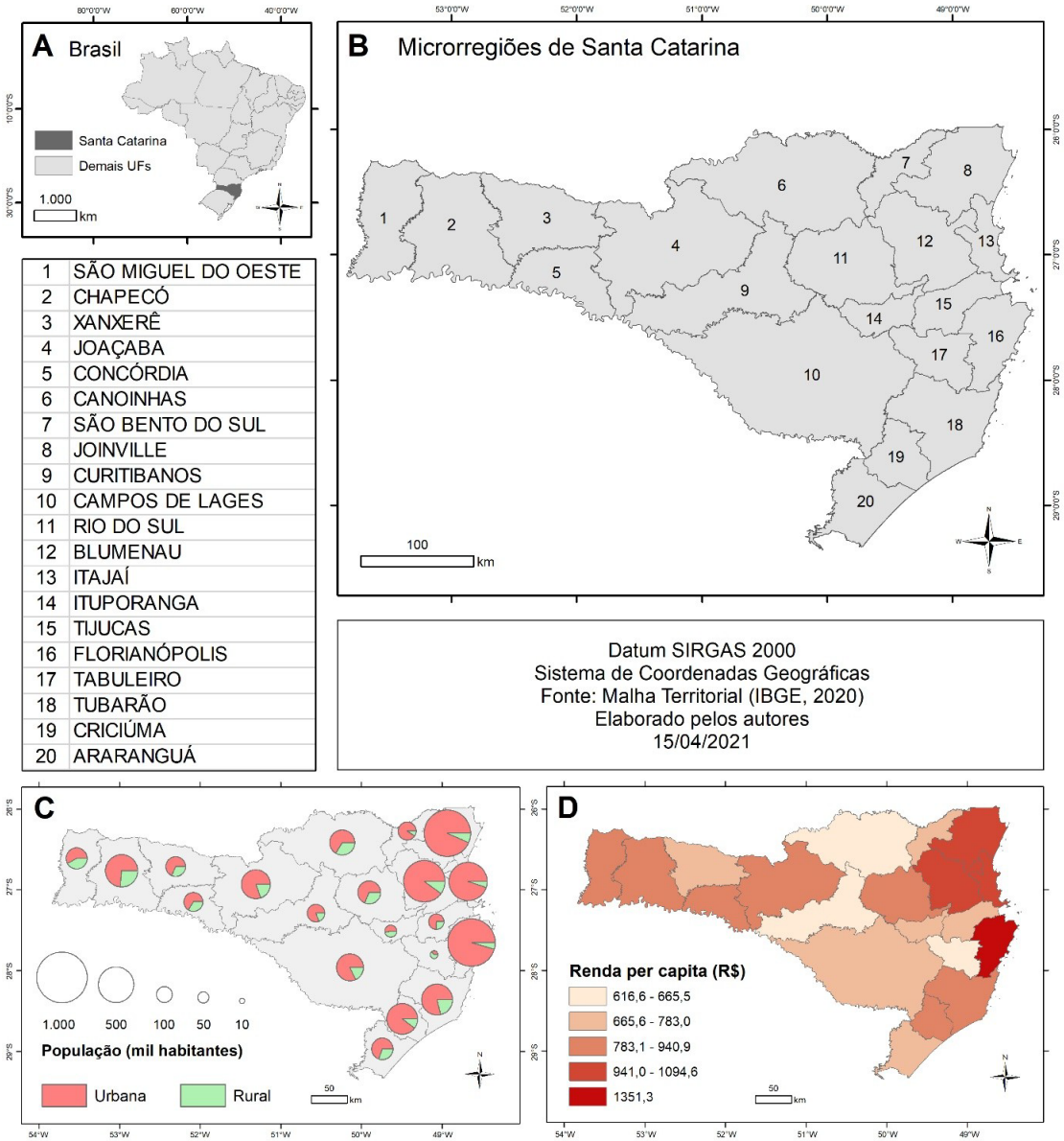

Figure 1. Map of location of the state of Santa Catarina by microregions and socio-demographic characteristics

The most populated microregions are located in the northeast, on the coast of Santa Catarina, such as Florianopolis and Joinville, with populations above 840 thousand inhabitants each, followed by Blumenau and Itajai. We note that the urban population in these areas is high, above 90% (Figure 1C). Tabuleiro and Ituporanga, the least populated microregions, also presented the lowest percentages of urban population, 35.6 and 52.5%, respectively. Apart from the extremes, the other microregions presented on average 74.8% of the population in urban situations. The per capita income in Santa Catarina in the last census was R$ 967. As to the distribution of this indicator, we note that the concentration is greater in the most populated microregions, with the maximum in Florianopolis (R$ 1,351), followed by Blumenau, Joinville and Itajai, with income higher than R$ 1,000 (Figure 1D). Tabuleiro, which borders Florianopolis, contrasts with the income of R$ 665. Canoinhas and Curitibanos in the central region make up the microregions with the lowest incomes. In the western region areas (Sao Miguel Oeste, Chapeco, Concordia), as well as in the southeast (Criciuma and Tubarao), incomes are close to the state average, ranging from R$783 to R$940.

Study design

This is an ecological time series study on homicide in the state of Santa Catarina, where data aggregated by microregion were used. Mortality data were extracted from the Mortality Information System (SIM), made available by the Department of Informatics of the Unified Health System, being an official data of the Ministry of Health (Datasus, 2021). Homicide deaths correspond to codes "X85 to Y09 – assaults" according to the Tenth International Classification of Diseases (ICD-10). Sociodemographic data were extracted from the IBGE national census (Ibge, 2010). Age-adjusted homicide rates were calculated by the direct method. The reference population was that of the World Health Organization (Ahmad et al., 2001). All of the data used are freely accessible.

Analysis

Trend analysis was performed by calculating the annual percent change (APC) using the Joinpoint Regression Program 4.7.0 (National Cancer Institute, 2019). The program uses the log-linear Poisson regression method that applies the Monte Carlo permutation test to identify points where the trend line changes significantly in magnitude or direction. Joinpoint has been used in epidemiological studies to assess temporal trends of various outcomes such as suicide (Bando, Jorge, Waldman, Volpe, & Lester, 2021) and homicide (Cardoso et al., 2016). The analysis starts with the minimum number of junction points (zero, which is a straight line) and tests whether one or more junction points are statistically significant and should be added to the model. For this study, the selected parameters were: Grid Search method (the junction points occur exactly at the observations), two minimum observations between junction points, and a maximum of five junction points per analysis. The APC and 95% confidence interval (CI) were estimated for the time segments on both sides of the inflection points. Joinpoint does not process the analysis when the dependent variable is null in any year of the series. The microregions of Ituporanga, Tijucas and Tabuleiro are the least populated (2.8% of the total) and had no cases of homicide in 1998. Tabuleiro presented null values in other six years of the series. For this reason and because they are adjacent areas, these three microregions were grouped together and the analysis period was from 1999 to 2019. Thematic maps were prepared to characterize the study area with the corochromatic, coroplastic

and proportional geometric figures methods (Martinelli, 2013). The ArcGIS 10.6 geographic information system was used for the elaboration of the maps.

RESULTS AND DISCUSSION

In the reference period, 16,408 homicides occurred in Santa Catarina, corresponding to a rate of 11.3 cases per 100,000 inhabitants. From 2003 to 2017, there was a significant increase in the homicide rate, with an annual percentage change (APC) of +1.28.This interval corresponds to 60% of the reference period. The following graphs represent the trend analysis of homicide rates (Figures 2-4). The dots represent the observed data, the bold line represents the increasing or decreasing trend, and the gray line represent stability. The microregions of Blumenau, Tubarao, Araranguа and Ituporanga-Tijucas-Tabuleiro presented an increasing trend in the whole period. The speed of increase was higher in Ituporanga-Tijucas-Tabuleiro, with APC = +5.4, followed by Tubarao (Table 1). Chapeco showed an increasing trend until 2016, and a sharp drop until 2019. Criciuma showed an upward trend until 2015 (APC = +7.4), and subsequently remained stable.

The following charts show the trends in homicide rates for six microregions (Figure 3). Canoinhas and Curitibanos showed a decreasing tendency throughout the period, with APC of -1.5 and -2.3 (Table 1), respectively. Joinville showed a downward trend at the end of the period, starting in 2016. Itajai showed an upward trend with a peak in 2010, followed by a downward trend with less intensity. Florianopolis showed an abrupt increase with a peak in 2003, followed by a decrease until 2015 and a sharp decrease at the end of the period.

The following map summarizes the main results of the trend analysis in the microregions of Santa Catarina (Figure 5). The microregions that presented APV statistically different from zero, during at least 50% of the study period, were considered an increase or decrease trend. An upward trend was identified in 38.8% of the areas, including Chapeco and the coastal microregions of Santa Catarina, with the exception of Joinville and Florianopolis. The latter, Canoinhas and Curitibanos showed a tendency to decrease (16.6% of the microregions). The other microregions (44.4%) showed stability.

Therefore, in Santa Catarina 83.2% of the microregions presented a tendency to increase or remained stable. What initially draws attention is the association of the tendencies to increase with the most populated microregions, with a higher percentage of urban population and higher income, such as Blumenau and Itajai. However, the relationship is not so simple, the microregions of Tabuleiro, Ituporanga and Tabuleiro have on average 45.6% of the population in rural areas and presented an increase trend above the average (VPN=+5.4). Florianopolis, despite the predominance of decrease, presented a strong oscillation and an abrupt drop in the last years. According to data from the IBGE demographic census, between 2000 and 2010, the percentage of the population in urban situation increased in all microregions of Santa Catarina, in different amplitudes (Ibge, 2010). The average increase was 5.8%, with the minimum of 0.3% in Florianopolis and the maximum in Tijucas (12.2%). In the three microregions that showed a downward trend in homicide (Florianopolis, Canoinhas, Curitibanos), the increase in the urban population in the intercensal period was below average. Among the microregions that presented a tendency to increase homicide, in 71.4% there was an increase of the urban population above the average. This information suggests a possible association of homicide with

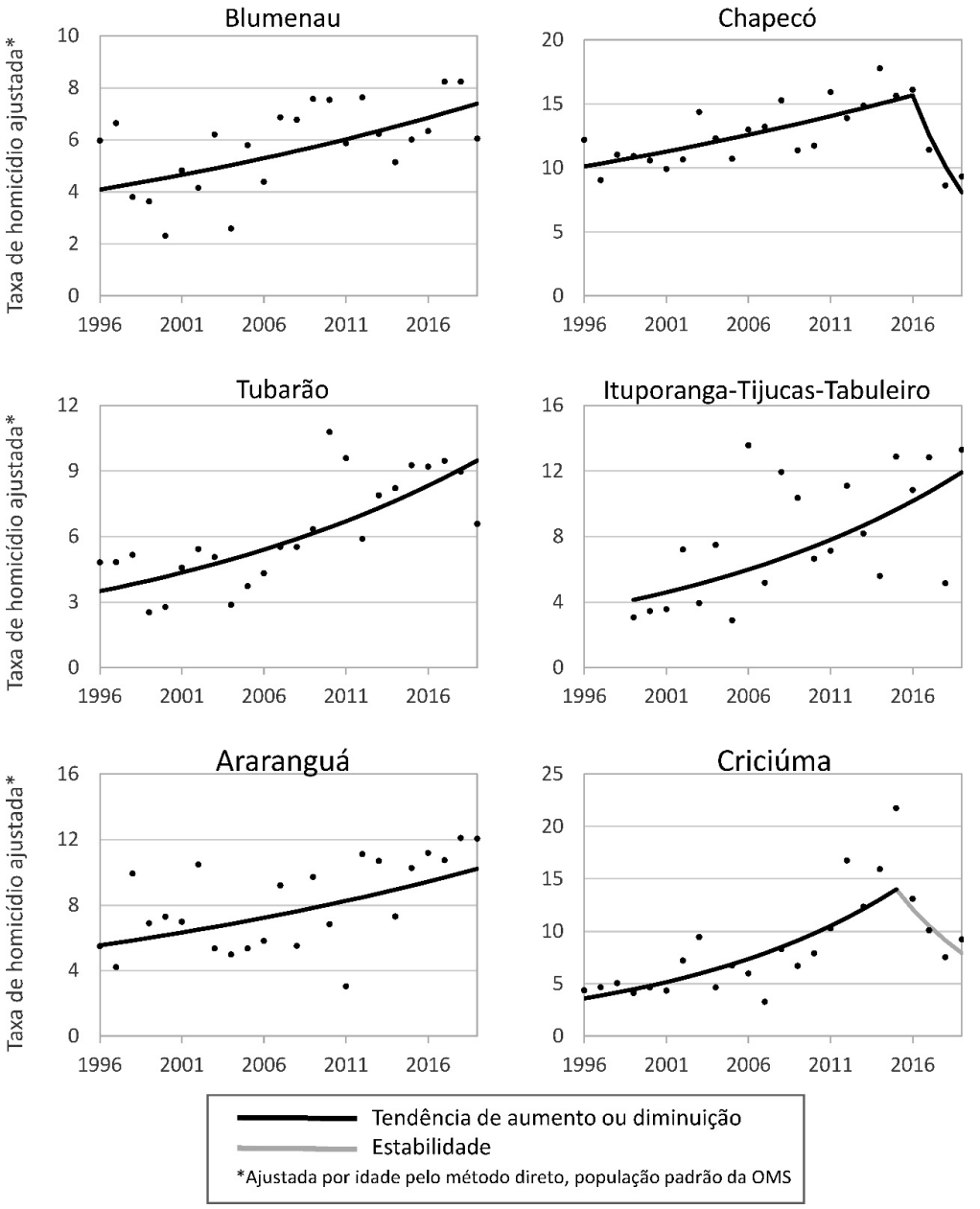
Blumenau
Chapecó
Tubarão
Ituporanga-Tijucas-Tabuleiro
Araranguá
Criciúma
Taxa de homicídio ajustada*
1996
2001
2006
2011
2016
Tendência de aumento ou diminuição
Estabilidade
*Ajustada por idade pelo método direto, população padrão da OMS

Figure 2.

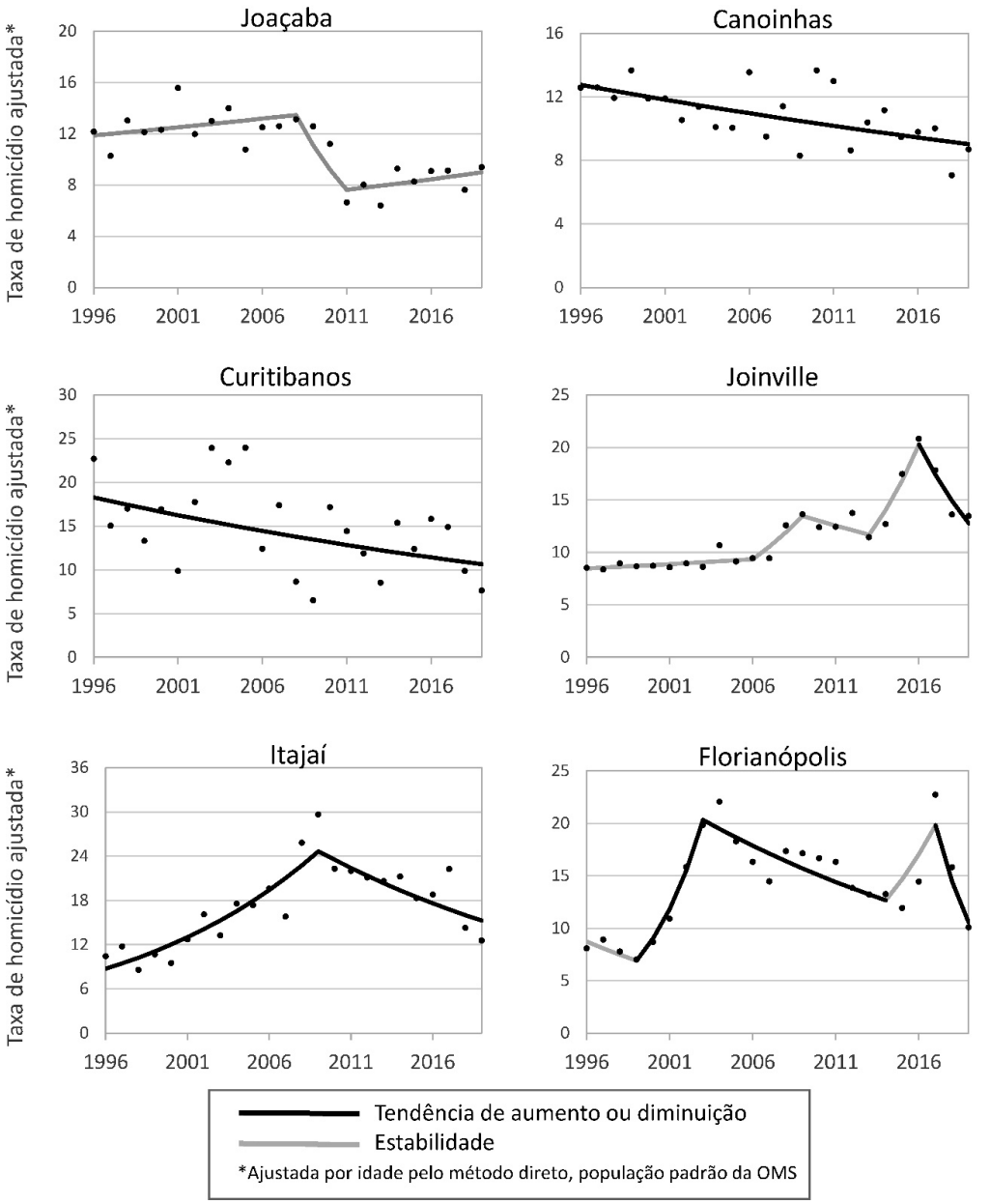

Figure 3. Trend of homicide rates in the microregions of: Joaçaba, Canoinhas, Curitibanos, Joinville, Itajai, Florianopolis

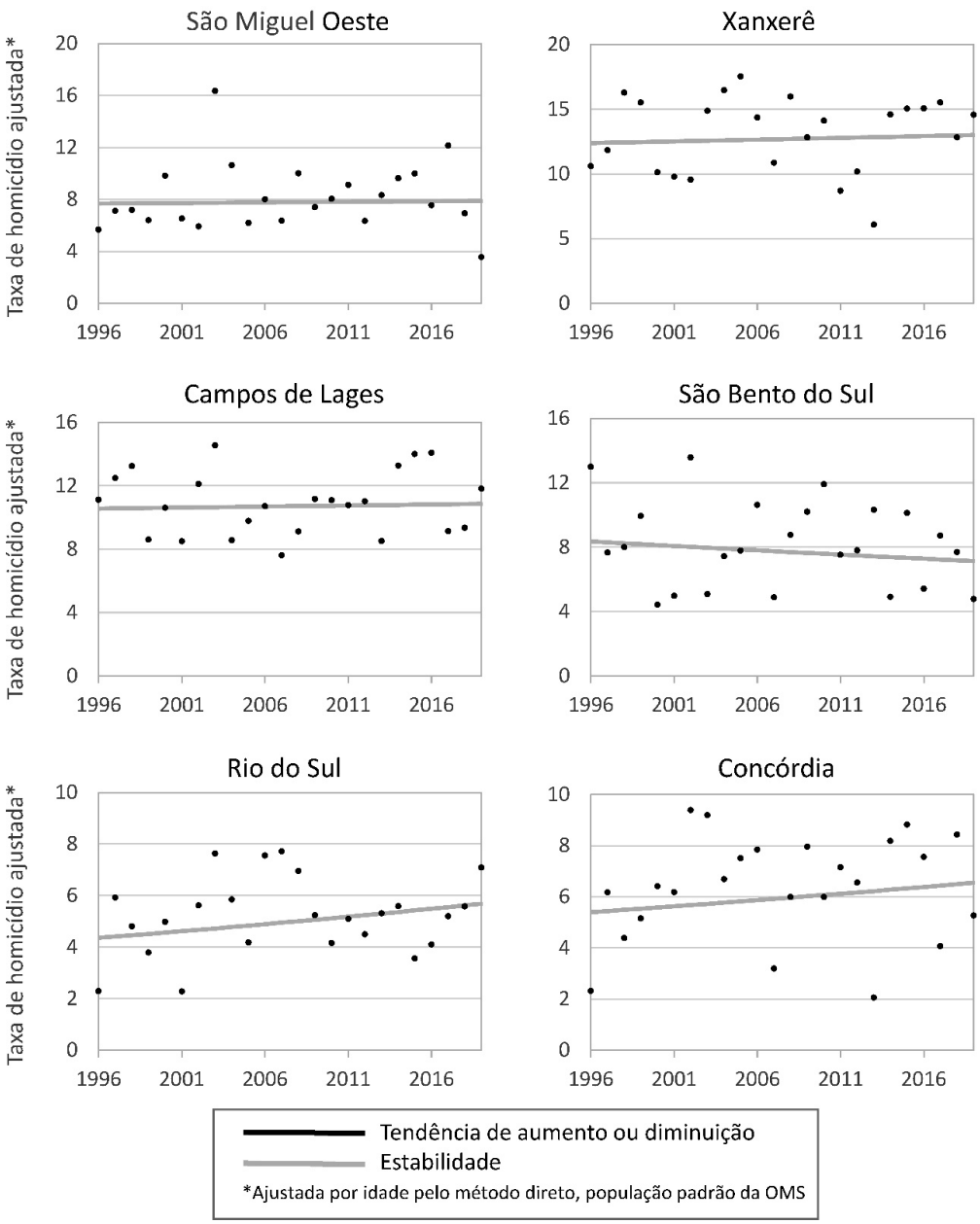

Figure 4. Trend of homicide rates in the microregions of: Sao Miguel Oeste, Xanxere, Campos de Lages, Sao Bento do Sul, Rio do Sul, Concordia

Table 1. Trend of homicide rates in Santa Catarina, by microregions

Area	Period	APC +	95% CI
Santa Catarina	1996 - 2000	-2,4	(-8.2 to 3.7)
	2000 - 2003	+11.7	(-7.9 to 35.6)
	2003 - 2017	**+1.3***	(0.3 to 2.3)
	2017 - 2019	-13.6	(-28.8 to 4.9)
Sao Miguel Oeste	1996 - 2019	+0.1	(-1.8 to 2)
Chapeco	1996 - 2016	**+2.2***	(1.2 to 3.2)
	2016 - 2019	**-19.7***	(-33 to -3.9)
Xanxere	1996 - 2019	+0.2	(-1.4 to 1.8)
Joaçaba	1996 - 2008	+1.1	(-1 to 3.2)
	2008 - 2011	-17.3	(-41.9 to 17.8)
	2011 - 2019	+2.1	(-1.8 to 6.1)
Concordia	1996 - 2019	+0.8	(-1.7 to 3.4)
Canoinhas	1996 - 2019	**-1.5***	(-2.3 to -0.6)
Sao Bento do Sul	1996 - 2019	-0.7	(-2.8 to 1.4)
Joinville	1996 - 2006	1.0	(-0.6 to 2.6)
	2006 - 2009	13.0	(-7.6 to 38.1)
	2009 - 2013	-3.5	(-12.7 to 6.7)
	2013 - 2016	+20.2	(-1.7 to 47)
	2016 - 2019	**-14.3***	(-22.5 to -5.2)
Curitibanos	1996 - 2019	**-2.3***	(-4.3 to -0.3)
Campos de Lages	1996 - 2019	+0.1	(-1 to 1.3)
Rio do Sul	1996 - 2019	+1.2	(-0.8 to 3.2)
Blumenau	1996 - 2019	**+2.6***	(0.8 to 4.5)
Itajai	1996 - 2009	**+8.3***	(5.8 to 10.9)
	2009 - 2019	**-4.7***	(-8 to -1.3)
Ituporanga, Tijucas and Tabuleiro	1999 - 2019	**+5.4***	(2.2 to 8.8)
Florianopolis	1996 - 1999	-7.5	(-20.6 to 7.9)
	1999 - 2003	**+31.0***	(12.3 to 52.7)
	2003 - 2014	**-4.2***	(-6.5 to -1.9)
	2014 - 2017	+16.1	(-14.6 to 57.8)
	2017 - 2019	**-27.1***	(-46.4 to -0.9)
Tubarao	1996 - 2019	**+4.4***	(2.6 to 6.2)
Criciuma	1996 - 2015	**+7.4***	(4.6 to 10.3)
	2015 - 2019	-13.3	(-34.6 to 15)
Ararangua	1996 - 2019	**+2.7***	(0.6 to 4.8)

+ Annual Percentage Variation

*Statistically different from zero

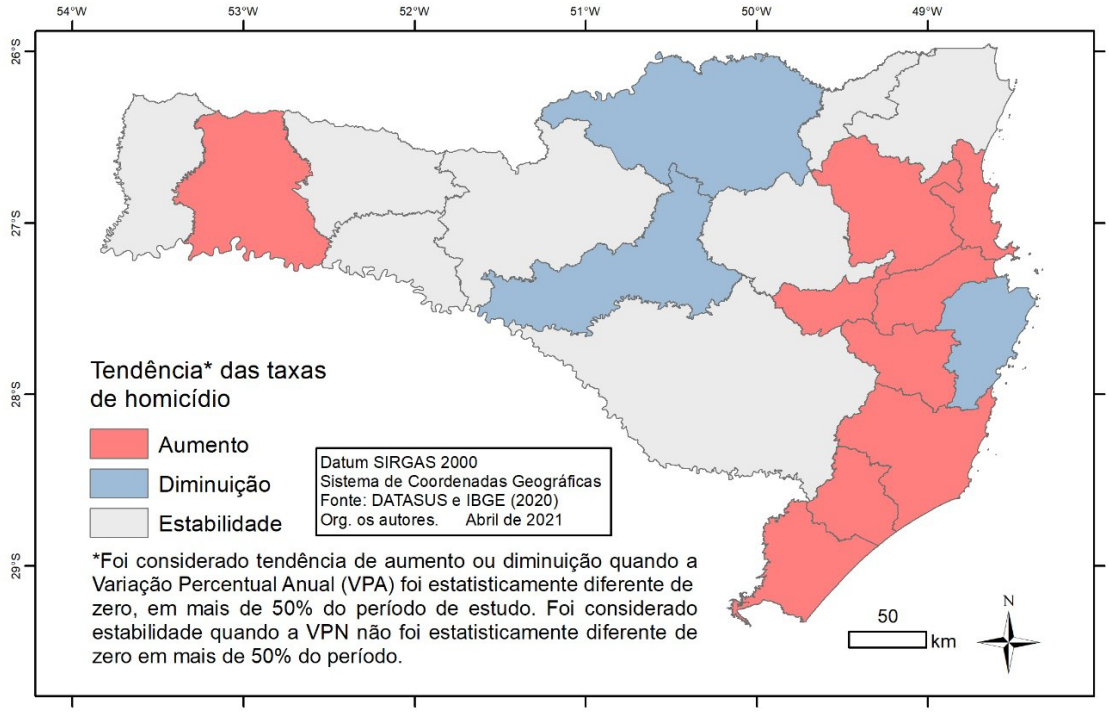

Figure 5. Trend of homicide rates in Santa Catarina, by microregion

the urban population, a hypothesis that could be tested further in smaller areas, such as by municipality. A UNODC report analyzed the association of homicide with urban population in 68 cities around the world from 2005 to 2016, and no positive correlation was identified. The report highlights that each city, even each neighborhood, may have specific risk factors, so caution is needed in interpreting these results (UNODC, 2019).

Using data from Brazilian municipalities, Waiselfisz (2011) identified in the mid-2000s a process of deconcentration of homicides in capital cities and metropolitan regions, and at the same time an increase in smaller municipalities. According to the author, this internalization or dissemination of homicides would be related to the emergence of new economic centers in places that did not have available security apparatuses. Sao Paulo and Rio de Janeiro, the two largest metropolises in Brazil, showed a downward trend in homicide rates starting in 2000 (Cardoso et al., 2016; M. F. Peres et al., 2011). In the city of Sao Paulo, social groups were identified where the drop was more intense: men aged 15 to 34, residents of areas of social exclusion, homicides committed by firearms. This information suggests that this drop is associated with a change in the pattern of community and criminal violence, such as drug trafficking and illegal activities (M. F. Peres et al., 2011). Investments in public safety, such as policing and enforcement of gun control legislation (Goertzel & Kahn, 2009), as well as increased incarceration (Nadanovsky, 2009) were also listed as possible explanatory factors. The decrease in social inequalities, investment in education and culture are also included (M. F. Peres et al., 2011). And last but not least, control

mechanisms of organized crime, such as the hegemonic faction First Command of the Capital (PCC) that acts in a coordinated manner inside and outside prisons. Feltran (2012) suggests the relationship of the implementation of policies to interdict violent acts such as rape and homicide with the drop in homicides in Sao Paulo. In Rio de Janeiro, Cardoso et al. (2016) suggest a possible association of the drop in homicide with the implementation of the Integrated Goals System (SIM) by the state government, and the implementation of the Pacifying Police Units (UPP) in some localities of the municipality. The authors also highlight a significant increase in the rates of missing persons, both in the municipality and in the state of Rio de Janeiro.

The capital city of Recife also showed a drop in homicides after a few years, in the mid-2000s, with a peculiar spatial pattern. In some years, homicides were concentrated in 2.32% of the streets in the municipality (Pereira, Mota, & Andresen, 2017). The study also identified that the decrease was more intense in the streets where the concentration of homicides was higher. Among the related factors, the authors cite the Pact for Life, a public safety policy of the state of Pernambuco implemented in 2007, which resulted in a series of projects aimed at decreasing homicide. However, the study did not make an in-depth analysis, with empirical basis, about this hypothesis. In the municipality of Itabuna, in Bahia, Costa, Trindade, and Santos (2014) identified an increase in the homicide rate from 2000 to 2012, however they did not test whether it was statistically significant. The authors suggest that this increase may be related to the crisis of the cocoa plantations in the region, which generated migratory flow of workers to the city of Itabuna, especially to the outskirts of the urban area, where homicides are concentrated. Therefore, homicide presents specific patterns in different scales of time and space.

Just as the upward trend in homicide in Santa Catarina from 2003 to 2017 masked important regional differences, each microregion can also mask differences between municipalities, neighborhoods, census tracts, and streets. In the municipality of Chapeco, for example, a study identified that all homicides were concentrated in 1/3 of the neighborhoods, in the period from 2008 to 2015 (Monteiro & Constante, 2018). It is likely that the homicide charge in the municipality of Chapeco has influenced the upward trend in the microregion. There is an interesting piece of information revealed in our study. In recent years, the microregions of Chapeco, Joinville, and Florianopolis showed a trend of a sharp drop in homicide, making us think of different hypotheses for this trend, such as: reduction of social inequality, reflection of the inclusion of public educational institutions and universities, investment in culture and leisure, promotion of a culture of peace, and disarmament campaigns. What are other possible outcomes of the results found? One of the paths would be a more detailed analysis of the phenomenon itself, that is, to also analyze the separate rates by gender, age group, color/race, and method of homicide used. Another path would be to cross these trends with explanatory variables, coming from secondary data, such as income, unemployment, and synthetic indicators such as social vulnerability and social disorganization (M. F. T. Peres & Nivette, 2017). Different methodologies can also offer knowledge gain, such as information collected in the field, in ethnographic studies.

This study has limitations, the first being inherent to the ecological study design. The ecological fallacy consists in attributing associations found in populations to the individual. The ecological study has low cost and can be the starting point for new research and hypotheses (Szklo & Nieto, 2007). Another limitation is related to data recording and possible misclassification errors in death certificates. However, this type of bias is inevitable in studies on mortality from external causes.

FINAL CONSIDERATIONS

Our study identified a significant increase in homicide rates in Santa Catarina from 2003 to 2017. Differences occurred in the dynamics of homicides in the state according to the microregions. Of the total areas studied, 38.9% showed an increasing trend in homicide rates, 16.7% showed a decreasing trend, and 44.4% remained stable. The results indicate the need for further research on this scenario, thus favoring an effective monitoring of events, and contributing to the formulation of intersectoral public policies that benefit the population.

References

Ahmad, O. B., Boschi-Pinto, C., Lopez, A., Murray, C., Lozano, R., & Inoue, M. (2001). Age standardization of rates: a new WHO standard. *GPE Discussion Paper Series*.

Bando, D. H., Jorge, M. H. P. M., Waldman, E. A., Volpe, F. M., & Lester, D. (2021). Secular Trends of Suicide in the City of São Paulo. *Crisis*, 1904-2017.

Bando, D. H., & Lester, D. (2014). An ecological study on suicide and homicide in Brazil. *Cien Saude Colet*, *19*(4), 1179-1189.

Cardoso, F. L. M. G., Cecchetto, F. R., Corrêa, J. S., & Souza, T. O. (2016). Homicídios no Rio de Janeiro, Brasil: uma análise da violência letal. *Ciência & Saúde Coletiva*, *21*, 1277-1288.

Costa, F. A. D. M. M., Trindade, R. F. C., & Santos, C. B. (2014). Deaths from homicides: a historical series. *Revista Latino-Americana de Enfermagem*, *22*, 1017-1025.

Datasus. (2021). Retrieved from `http://www2.datasus.gov.br/DATASUS/index.php`

Feltran, G. D. S. (1992). Governo que produz crime, crime que produz governo: o dispositivo de gestão do homicídio em São Paulo. *Revista Brasileira de Segurança Pública*, *6*(2), 232-255.

Filho, A. M. S., Duarte, E. C., & Merchan-Hamann, E. (2000). Trend and distribution of the homicide mortality rate in accordance with the size of the population of Brazilian municipalities. *Tendência e distribuição da taxa de mortalidade por homicídios segundo porte populacional dos municípios do Brasil*, *25*, 1147-1156.

The Global Burden of Disease Injury Collaborators. (1990). *JAMA*, *320*(8), 792-814.

Goertzel, T., & Kahn, T. (2009). The Great São Paulo Homicide Drop. *Homicide Studies*, *13*(4), 398-410.

(2019). Retrieved from `http://surveillance.cancer.gov/joinpoint/`

Ibge. (2010). Retrieved from `www.ibge.gov.br/`

Ibge. (2021). Retrieved from `https://www.ibge.gov.br`

Martinelli, M. (2013).

Monteiro, F. M., & Constante, V. (2015). Violência e Segurança Pública em Chapecó: uma análise espacial e temporal das taxas de homicídios no período de 1980 a. *Políticas públicas, descentralização e participação social: contribuições ao estudo da trajetória em Chapecó/SC*, 320-320.

Murray, J., Cerqueira, D. R., & Kahn, T. (2013). Crime and violence in Brazil: Systematic review of time trends, prevalence rates and risk factors. *Aggress Violent Behav*, *18*(5), 471-483.

Nadanovsky, P. (1996). O aumento no encarceramento e a redução nos homicídios em São Paulo, Brasil. *Cadernos de Saúde Pública*, *25*, 1859-1864.

Oliveira, A. L. S., Luna, C. F., & Silva, M. (2020).

Homicídios do Brasil na última década: uma revisão integrativa, *25*, 1925-1934.

Pereira, D. V. S., Mota, C. M. M., & Andresen, M. A. (2017). The Homicide Drop in Recife, Brazil: A Study of Crime Concentrations and Spatial Patterns. *Homicide Studies*, *21*(1), 21-38.

Peres, M. F., Vicentin, D., Nery, M. B., Lima, R. S. D., Souza, E. R. D., Cerda, M., … S (2011). Decline in homicide rates in. In (Vol. 29, p. 17-26).

Peres, M. F. T., Cardia, N., Neto, P. D. M., Santos, P. C., & Adorno, S. (2008). Homicídios, desenvolvimento socioeconômico e violência policial no Município de São Paulo. *Brasil. Revista Panamericana de Salud Pública*, *23*, 268-276.

Peres, M. F. T., & Nivette, A. (2017). Social disorganization and homicide mortality rate trajectories in Brazil between 1991 and 2010. *Soc Sci Med*, *190*, 92-100.

Reichenheim, M. E., Souza, E. R. D., Moraes, C. L., Jorge, M. H. D. M., Silva, C. M. D., Souza, D., & Minayo, M. C. (2011). Violence and injuries in Brazil: the effect, progress made, and challenges ahead. *Lancet*, *377*(9781), 60053-60059.

Souza, M. D., Bernardi, L. D. S., & Santos, J. A. (2020). Retrieved from `http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0020-38742020000300088&nrm=iso`

Szklo, M., & Nieto, F. J. (2007). Jones and Bartlett Publishers. Retrieved from `http://books.google.com.br/books?id=knc2tJa1NR0C`

United Nations Office on Drugs and Crime. Global Study on Homicide. (2019). *UNODC*.

Valença, A. M., & Moraes, T. M. D. (2006).
Braz J Psychiatry, *28*.

Waiselfisz, J. J. (2011). Retrieved from `http://www.mapadaviolencia.net.br/pdf2011/MapaViolencia2011.pdf`

World Health Organization. World Health Data Platform. The Global Health Observatory. (2019). *WHO*.