Tendência da mortalidade por homicídios no Estado do Paraná, segundo Regionais de Saúde, 1979 a 2005*

Homicide mortality trend in the state of Paraná, Brazil, per Health District, 1979 to 2005

Elizabeth Mitiko Konno de Lozada[I]

Thais Aidar de Freitas Mathias[II]

Selma Maffei de Andrade[III]

Tirza Aidar[IV]

[I] 11ª Regional de Saúde da Secretaria de Estado da Saúde do Paraná.

[II] Departamento de Enfermagem do Centro de Ciências da Saúde da Universidade Estadual de Maringá

[III] Centro de Ciências da Saúde do Departamento de Saúde Coletiva da Universidade Estadual de Londrina

[IV] Instituto de Filosofia e Ciências Humanas e Núcleo de Estudos de População, Universidade Estadual de Campinas

Resumo

A tendência da mortalidade por homicídios de homens de 15 a 49 anos residentes no Paraná foi analisada no período de 1979 a 2005. Foram calculados coeficientes de mortalidade por homicídio (por 10^5 homens de 15 a 49 anos) por Regionais de Saúde (RS) de residência, agrupados em triênios e analisados por meio de média móvel, da variação percentual anual (VA%) de acordo com os seguintes estratos: **muito baixo**: ≤ 40; **baixo**: de 41 a 55; **médio**: de 56 a 70; **alto**: de 71 a 85; e **muito alto**: ≥ 86. De 1979-1981 a 1995-1997 o Paraná apresentava coeficientes de mortalidade por homicídios considerados **muito baixo** e **baixo** (43,1 e 49,3 respectivamente) e no final do período, 1999-2001 e 2003-2005, os coeficientes passam a **médio** e **alto** (57,4 e 82,3 respectivamente). Houve aumento dos coeficientes para a maioria das RS, principalmente a partir de 2000, destacando Londrina (VA%: 24,9), Metropolitana-Curitiba (VA%: 12,3) e Foz do Iguaçu (VA%: 7,6), além de aumento para as RS do interior do estado como Campo Mourão (VA%: 26,9), Cianorte (VA%: 25,4), Umuarama (VA%: 17,7), Ivaiporã (VA%: 14,1), Pato Branco (VA%: 13,7) e Apucarana (VA%: 11,1). O fenômeno da interiorização da violência e a deterioração das relações sociais nas grandes cidades reforçam necessidade de ações para modificar a tendência ascendente da mortalidade por violências no Estado do Paraná.

Palavras-chave: Homicídio, mortalidade, causas externas, violência, estatísticas de saúde, Epidemiologia.

Abstract

The homicide mortality trend from 1979 to 2005 was analyzed for males aged 15 to 49, living in the State of Paraná, Brazil. Mortality rates (per 10^5 males aged 15 to 49) were calculated per Health District (HD) of residence. The mortality rates were then grouped in three-year periods and analyzed using the moving average, the relative annual variation (VA%) and the following strata: **very low**: ≤ 40; **low**: 41-55; **medium**: 56-70; **high**: 71-85 and **very high**: ≥ 86. For the periods between 1979-1981 to 1995-1997 the rates were considered **very low** and **low** (43.1 and 49.3 respectively) and towards the end of the period analyzed, 1999-2001 and 2003-2005, rates increased to **medium** and **high** (57.4 and 82.3 respectively). The rates increased in most HD, especially as of 2000, and primarily in Londrina (VA%: 24.9), Metropolitan Curitiba (VA%: 13.3) and Foz do Iguaçu (VA%: 7.6). The rates in the interior of the state, in the districts of Campo Mourão (VA%: 26.9), Cianorte (VA%: 25.4) and Umuarama (VA%: 17.7) also increased. The spread of violence towards the interior and the growing deterioration of social relations in large cities demonstrate the need of actions to reverse the upward trend in violence in the State of Paraná.

Keywords: Homicide, mortality, external causes, violence, health statistics, epidemiology.

INTRODUCTION

External causes have been the second or third cause of death in Brazil since the early 1980s[1,2]. Among these causes, homicides and transport accidents have predominated. As of the 1990s, there was an increase in homicides which came to account for 36.7% of the deaths due to external causes in 1999[3]. Between 1980 and 2004, the standardized homicide mortality rate practically doubled (from 14.1 to 27.2 per 100,000 inhabitants), and came to represent 39.1% of the proportional mortality from external causes[1].

The high frequency of homicides, especially in urban settings, has influenced health indicators such as the 'potential years of life lost'[3] due to premature death, since it is primarily adolescents, young people and economically productive adults who die from homicides.

Violence in contemporary society has become part of the public health agenda because it presents evitable factors of mortality and morbidity that imply high cost with treatment and rehabilitation, and affects the victim, his/her family and society as a whole, with a negative impact on social and economic development[4-8]. Fatal violence and accidents do not occur in a homogeneous fashion in the population and across regions within the country, and their specific features have to be analyzed and understood[4].

Just as in all other states, in Paraná male individuals aged 15 to 49 are the most exposed to the risk of homicide by firearm[9]. As regards differences between geographical areas, the decentralization and spreading of economic activities as a result of the creation of new and booming hubs in the interior of the states has impacted Brazil's violence indicators and geographic distribution[8], and this was another fact that prompted the conduction of this study. Therefore, the analysis of violent death trends considering the locations and regions in the interior of states can become a relevant strategy to understand the phenomenon of violence in each location and specific reality, thus

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allowing the identification of risk groups and regions and informing potential forms of intervention. The objective of this study was hence to analyze the homicide trend in the male population aged 15 to 49 in the State of Paraná between 1979 and 2005 per Health District.

METHOD

This is an exploratory study, with an ecological approach, of homicide mortality in the State of Paraná for the period from 1979 to 2005. Paraná had an estimated population of 10,511,862 inhabitants in 2007[10], and has 399 municipalities grouped in 22 Health Districts, administrative units of the State Health Department. These Health Districts in turn are grouped into six Macroregional Districts.

The study analyzed the mortality rates for the period from 1979 to 2005 for the male population aged 15 to 49, which concentrates the vast majority of homicide victims. In Paraná, in 2005, 58,778 deaths were reported to the Mortality Information System and 14.2% (8,354) of these deaths were due to external causes. Of these, 35.9% (3,001) were caused by homicides, 92% (2,760) of the victims were male, and of the male victims, 87.3% (2,409) were between 15 and 49 years of age. The standardization of mortality rates based on age groups did not present significant differences that could change the conclusions of the comparative analyses between periods and Health Districts. In view of this observation, the age-standardized values were not presented. The mortality data was obtained from the Mortality Information System (SIM), by municipality of residence (www.datasus.gov.br). In order to calculate the rates, we resorted to population data of the 1980, 1991 and 2000 Demographic Censuses, to the 1996 population count and to population projections developed by IBGE (Brazilian Statistics and Geographical Institute) published by the Health Ministry at the DATASUS site (www.datasus.gov.br).

The study used the groups of the International Statistical Classification of Diseases and Related Health Problems (ICD-9 and ICD-10). To the deaths caused by homicide (ICD-9: E960 to E969 and ICD-10: X85 to Y09) we added those deaths classified under legal intervention (ICD-9: E970 to E977, E978 and ICD-10: Y35), in addition to events where the intention was undetermined and the injury was caused by firearms (ICD-9: E985 and ICD-10: Y22 to Y24) or by sharp objects (ICD-9: E986 and ICD-10: Y28). The use of this enlarged category allows the inclusion of deaths that could have been classified as homicide but instead have been classified as injuries where it is not known whether they were accidental or intentional, in addition to those deaths in connection with legal intervention which, according to recent studies, when they are examined from a closer range, come to be classified as homicides[11,12]. Mortality rates were estimated per three-year period according to the Health Districts of residence.

In order to organize the Health Districts according to the magnitude of the homicide mortality rate, the rates were classified in strata following three criteria: there should be a maximum of five strata which should include districts with fairly similar values, and their limits should consider the national and regional circumstances (the most recent average patterns). Thus, this last criterion also defined the classification that varied from very low to very high: rates per 100,000 males ≤ 40 (very low); from 41 to 55 (low); from 56 to 70 (medium); from 71 to 85 (high) and ≥ 86 deaths per 100,000 males (very high). The reference rates were the mortality rates for the South Region of Brazil, the State of Paraná, Brazil and the Southeast Region in 2004 (60.4; 82.3; 85.8 and 100.1 deaths per 100,000 males aged 15 to 49, respectively) (www.datasus.gov.br). That is, the 'very low' and 'low' classifications are relative to the regional levels and are well above the levels observed for the population in general in developed countries (14.4 per 100,000 inhabitants) or the world average (8.8 per 100,000 inhabitants)[13].

The annual rates were calculated using

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the moving average for three-year cycles, from 1979 to 2005, in that the first cycle (1979 to 1981) was represented by the year 1980; the second (1984 to 1986) by the year 1985 and so forth, until the last cycle (2003 to 2005), which was represented by the year 2004. The moving average was also used to reduce the rate random variability shown during the period, since it is an efficient and easy-to-use filter[14].

In addition to the graph representing the rate moving average, the mortality trend was also analyzed by means of the relative annual variation (VA%) of the rates between the three-year periods:

$$VA \% = \frac{\dfrac{C_{t_f} - C_{t_i}}{C_{t_i}} \times 100}{t_f - t_i}$$

Where C_t is the mortality rate for the three-year period t; t_f and t_i are the first and last three-year periods, respectively. In order to use, whenever possible, the census and population count years, the annual variation was calculated between the following three-year periods: from 1979-1981 to 1984-1986; from 1984-1986 to 1990-1992; from 1990-1992 to 1995-1997; from 1995-1997 to 1999-2001; and from 1999-2001 to 2003-2005. These periods were chosen based on the criterion that at least one of the three-year periods contained data from census or population count years. The project was approved by the Permanent Research Ethics Committee of the State University of Maringá (Opinion nº 350/2004).

RESULTS

In the first two three-year periods, the homicide mortality rates in the State of Paraná were 43.1 and 38.7 deaths per 100,000, which were classified as low and very low, according to the classification adopted in this study, and this pattern held until the three-year period 1995-1997, when the rate rose to 49.3. In the last three-year period, it reached 82.3 deaths per 100,000 males aged 15 to 49, which places the rate in the high stratum (Table 1).

Figure 1 shows the curves for homicide mortality trends per Health District. These curves run upward for almost all HD, especially from 2000 onwards, with Foz do Iguaçu ranking first (West Macro-Region), followed by Metropolitan-Curitiba (East Macro-Region) and Londrina (North Macro-Region). The East and West Macro-Regions had the highest rates in the period studied (106.1 and 103.4) recorded in the three-year period 2003-2005. The Guarapuava Health District stood out, with high rates during all the period, always above 80 deaths per 100,000 males, with a small relative variation between the three-year periods (Table 1).

The annual variation was positive between the three-year periods 1999-2001 and 2003-2005 for most macro-regions and health districts except Paranaguá, União da Vitória and Jacarezinho HD, where variations were negative (Table 2). In HD with high rates in the last three-year period (Metropolitan-Curitiba, Foz do Iguaçu and Londrina), rates started to rise in different periods. In the Metropolitan-Curitiba HD, there was a 10.4% annual variation between 1984-1986 and 1990-1992 and a 12.3% variation between the three-year periods 1999-2001 and 2003-2005. In the Foz do Iguaçu HD, rates began to rise in the period from 1990-1992 to 1995-1997 (VA%: 7.5%) and rose more sharply from 1995-1997 to 1999-2001 (VA%: 10.0%). In the Londrina HD the rise started in the period from 1995-1997 to 1999-2001 (VA%: 13%) and the annual variation reached 24.9% between the two last three-year periods analyzed (Table 2).

In the last period, there was substantial growth in HD rates in the interior of the state, such as Campo Mourão (VA%: 26.9%), Cianorte (VA%: 25.4%), Londrina (VA%: 24.9%), Umuarama (VA%: 17.7%), Ivaiporã (VA%: 14.1%), Pato Branco (VA%: 13.7%) and Apucarana (VA%: 11.1) (Table 2). Figure 2 illustrates the spread of violence towards the interior of the state, with a rise in homicides in HD. Rates remained very low in 2003-2005 in only five Health Districts:

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Table 1 – Homicide mortality rates (per 100,000 males) for males aged 15 to 49, per Health District, and three-year periods. Paraná State, Brazil, 1979 to 2005.

Macro-Region / Health District	Three-year period					
	1979-81	1984-86	1990-92	1995-97	1999-01	2003-05
East	34.0	32.9	51.1	61.5	72.8	106.1
1 Paranaguá	38.2	45.1	42.5	44.7	53.1	46.1
2 Metropolitana	33.7	31.9	51.8	62.9	74.4	110.9
Campos Gerais	43.9	44.8	38.4	44.2	44.2	53.5
3 Ponta Grossa	38.9	40.8	40.0	41.8	47.1	57.1
4 Irati	41.7	32.1	31.2	27.3	32.9	43.1
6 União da Vitória	46.4	33.3	33.7	44.6	43.7	41.3
21 Telêmaco Borba	54.2	75.6	44.8	67.3	46.2	63.9
Central	72.3	65.1	70.6	67.9	66.5	74.5
5 Guarapuava	87.9	81.7	78.3	82.1	79.3	83.2
22 Ivaiporã	33.8	28.5	49.7	27.4	30.0	46.9
Northwest	29.4	28.4	33.3	28.6	26.7	42.4
11 Campo Mourão	49.3	44.1	53.5	36.8	32.2	66.9
12 Umuarama	23.5	26.8	28.8	32.9	39.6	67.7
13 Cianorte	15.5	18.8	24.2	10.4	16.9	34.0
14 Paranavaí	23.3	20.3	22.0	28.0	25.0	35.4
15 Maringá	23.8	23.3	28.3	25.9	21.2	26.0
North	32.9	26.5	26.3	30.7	40.6	68.9
16 Apucarana	32.8	24.4	30.2	28.6	30.1	43.4
17 Londrina	36.3	25.8	28.8	32.5	49.4	98.7
18 Cornélio Procópio	37.9	35.2	24.6	30.1	35.0	46.4
19 Jacarezinho	20.5	22.2	17.4	28.9	32.6	30.2
West	65.2	54.6	56.2	60.8	77.3	103.4
7 Pato Branco	95.4	74.6	74.8	58.6	52.6	81.4
8 Francisco Beltrão	65.6	48.0	37.9	29.0	31.0	34.9
9 Foz do Iguaçu	78.3	86.1	89.2	122.9	171.8	224.0
10 Cascavel	61.7	52.4	52.9	49.6	64.9	79.4
20 Toledo	38.2	24.9	36.0	41.0	44.6	63.6
Paraná	43.1	38.7	44.4	49.3	57.4	82.3

Maringá, Jacarezinho, Cianorte, Francisco Beltrão and Paranavaí (26.0; 30.2; 34.0; 34.9; 35.4 deaths per 100,000 males aged 15 to 49, respectively).

DISCUSSION

The analysis of homicide mortality for the period 1979 to 2005 showed an increase in the risk of death in the 1990s in Paraná, with a sharper upward trend as of 2000, which increased concern in the State and was a warning sign. According to the Violence Map of Brazilian Municipalities[8], in 2004, Paraná ranked 11th in the general classification of states for homicide mortality, whereas ten years before, in 1994, it ranked 16th.

According to a study presented by the National Council of Health Departments (CONASS)[15] the states of Pernambuco, Es-

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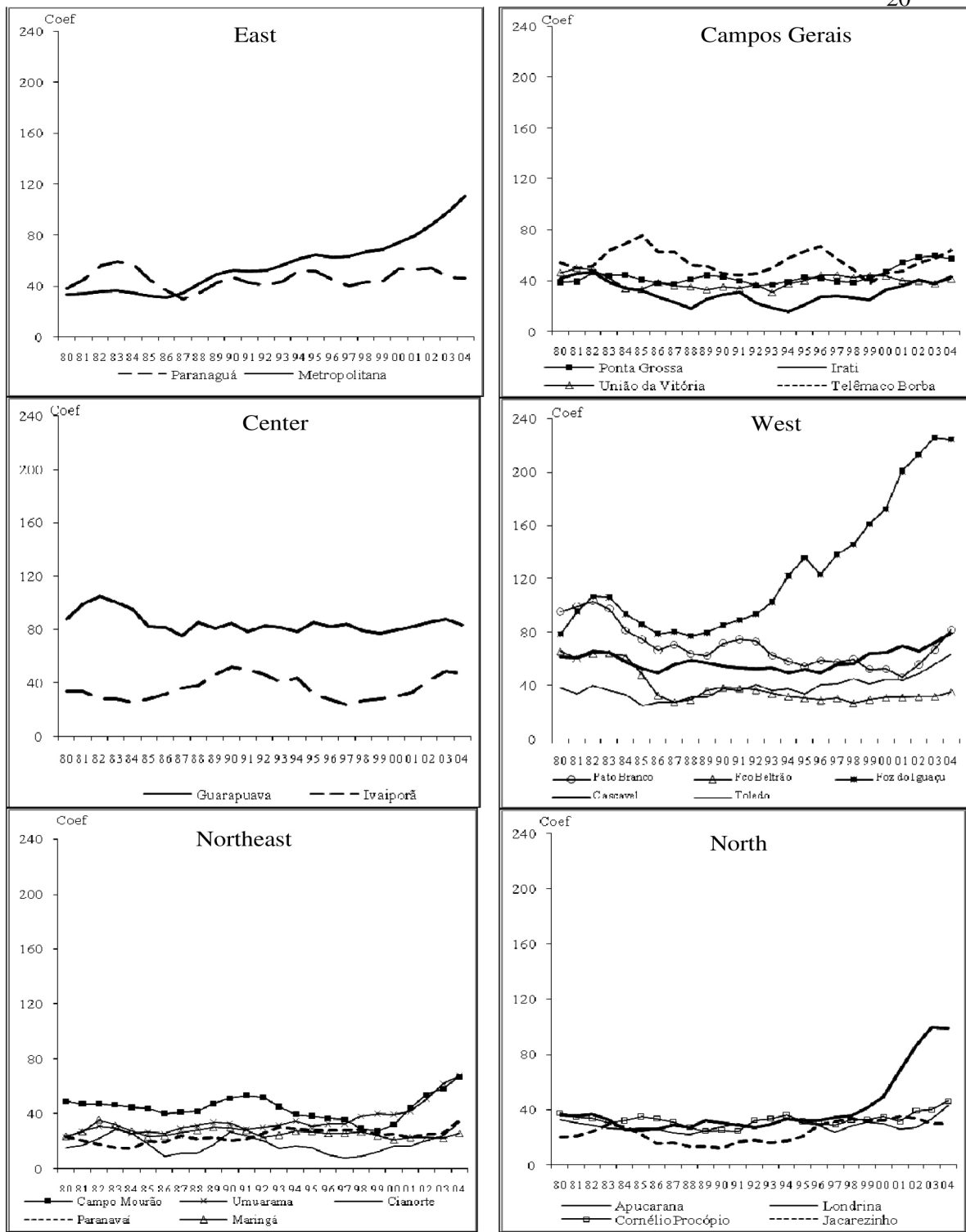
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Figura 1 - Coeficientes de mortalidade por homicídios (por 100 mil homens) em homens de 15 a 49 anos, segundo Regional e Macro Regional de Saúde. Paraná, 1980 a 2004.
Figure 1 – Homicide mortality rates (per 100,000 males) for males aged 15 to 49, per Health District and Macro-Region, in Paraná State, Brazil, 1980 to 2004.

Table 2 - The relative annual variation of homicide mortality rates in males aged 15 to 49, per Health District and period, Paraná State, Brazil, 1979 to 2005.

Macro-Region / Health District	Period				
	1979-1981 to 1984-1986	1984-1986 to 1990-1992	1990-1992 to 1995-1997	1995-1997 to 1999-2001	1999-2001 to 2003-2005
East	-0.7	11.1	4.1	3.7	9.1
1 Paranaguá	3.6	-1.0	1.0	4.7	-3.3
2 Metropolitana	-1.1	10.4	4.3	4.5	12.3
Campos Gerais	0.4	-2.9	3.1	0.0	4.2
3 Ponta Grossa	1.0	-0.4	0.9	3.1	5.3
4 Irati	-4.6	-0.5	-2.5	5.1	7.8
6 União da Vitória	-5.7	0.2	6.5	-0.5	-1.4
21 Telêmaco Borba	7.9	-6.8	10.1	-7.9	9.6
Central	-2.0	1.7	-0.8	-0.4	2.4
5 Guarapuava	-1.4	-0.7	1.0	-0.8	1.2
22 Ivaiporã	-3.1	12.5	-9.0	2.4	14.1
Northwest	-0.7	3.4	-2.9	-1.3	11.8
11 Campo Mourão	-2.1	3.6	-6.3	-3.1	26.9
12 Umuarama	2.7	1.3	2.8	5.1	17.7
13 Cianorte	4.2	4.9	-11.4	15.4	25.4
14 Paranavaí	-2.6	1.4	5.4	-2.6	10.3
15 Maringá	-0.4	3.6	-1.7	-4.5	5.6
North	-3.9	-0.2	3.3	6.4	14.0
16 Apucarana	-5.2	4.0	-1.1	1.3	11.1
17 Londrina	-5.8	1.9	2.6	13.0	24.9
18 Cornélio Procópio	-1.5	-5.0	4.5	4.1	8.2
19 Jacarezinho	1.7	-3.6	13.2	3.2	-1.8
West	-3.3	0.6	1.6	5.4	6.7
7 Pato Branco	-4.3	-	-4.3	-2.6	13.7
8 Francisco Beltrão	-5.4	-3.5	-4.7	1.7	3.2
9 Foz do Iguaçu	2.0	0.6	7.5	10.0	7.6
10 Cascavel	-3.0	0.2	-1.2	7.7	5.6
20 Toledo	-7.0	7.5	2.7	2.2	10.6
Paraná	-2.1	2.5	2.2	4.1	10.9

pírito Santo and Rio de Janeiro were those with the highest homicide mortality rates in 2005, that is, 51.5, 47.0 and 46.0 deaths per 100,000 inhabitants, respectively, whereas the South region had the lowest rate (20.8 deaths per 100,000 inhabitants). Of the states of the South region, Paraná had the highest rate, followed by Rio Grande do Sul and Santa Catarina (28.9, 18.6, and 10.7 deaths per 100,000 inhabitants, respectively). In our study, the mortality rate for the three-year period 2003-2005, for males aged 15 to 49, was 82.3 deaths, almost three times the mortality rate for the whole of the state population in 2005[15].

In the State of São Paulo, in turn, the trend is the opposite: homicide mortality rates have been decreasing as of 1999, when

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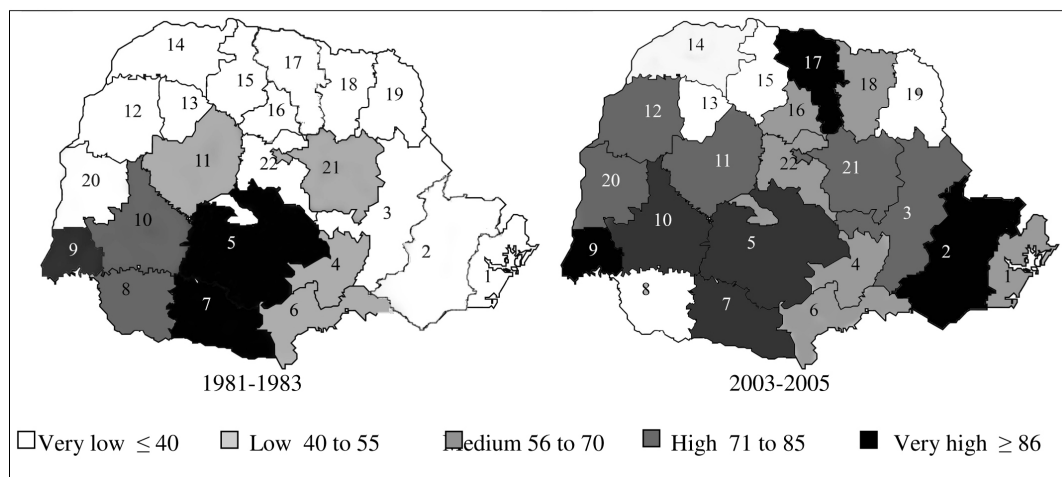*Rev Bras Epidemiol*
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Figura 2 - Regionais de Saúde, segundo estrato dos coeficientes de mortalidade por homicídios entre homens de 15 a 49 anos. Paraná, 1981- 1983 e 2003-2005.
Figure 2 – Health Districts according to homicide mortality rate strata for males aged 15 to 49, State of Paraná, Brazil, in three-year periods from 1981 to 1983 and 2003 to 2005.

there were 43.9 deaths per 100,000 inhabitants, a rate that dropped to 22.5 in 2005, a 48.7% reduction. This reduction has been attributed to the implementation of the Disarmament Statute, concurrently with an intensive campaign and collection of firearms, initiatives to better equip the police and stronger repression efforts which included a rise in seizure of firearms and detentions. More specific actions at the local level, such as restrictions for sale of alcoholic beverages ("dry law") at certain times and cities and projects designed to foster the social inclusion of youth have also contributed to reduce mortality rates[16].

Homicide mortality rates in the last three-year period (2003-2005) for the East and West Macro-regions were the highest in the state (106.1 and 103.4) and were impacted by the health districts of Metropolitan Curitiba and Foz do Iguaçu. Londrina, Metropolitan Curitiba and Foz do Iguaçu HDs had very high homicide mortality rates probably due to the impact of the rates of the seats of the municipalities (the cities of Londrina, Curitiba and Foz do Iguaçu), and these rates were well above the national average which was 85.8 per 100,000 males aged 15 to 49. The Maringá HD, with a rate of 26 deaths and Foz do Iguaçu HD with 224,0

for the three-year period 2000-2005, reflect the marked heterogeneity that exists across the regions of the state as concerns the risk of homicide.

The homicide mortality rate for males aged 15 to 49 reached, in the last three-year period of this study, 82.3 deaths per 100,000 males in Paraná, with a positive relative annual variation of 10.9%, which is a reason for concern. The situation observed in Foz do Iguaçu HD can be considered alarming. It is above the average of Paraná and has been considered very high since the three-year period 1984-1986. This situation was evidenced in the Violence Map of Brazilian Municipalities[8], where the municipality of Foz do Iguaçu has the highest homicide mortality rate of Brazil for young people between 15 and 24 years of age, with a rate of 223.3 deaths per 100,000 males for the three-year period 2002-2004.

It is important to highlight that the municipality of Foz do Iguaçu is in the area of the triple border (Paraguay, Argentina and Brazil), where tourism is intense because of the Iguazu Falls. The area is also served by a major highway network that allows national and international tourism and the transportation of goods. Its population rose from 136,352 inhabitants in 1980 to 301,408

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in 2005 (www.datasus.gov.br).

With the growing consumption of cocaine in the 1980s, Brazil became part of the trafficking route both as a consuming country and as a link between producing and consuming countries. Some factors may have contributed to this situation: the fact that Brazil shares borders with major cocaine producing countries; the existence of a communication and transportation infrastructure, and the close contact with European and North American countries[17]. Within this context, new factors arise that breed violence such as organized crime relating to drug trafficking and illegal trade of weapons, both of which are typical of border areas.

The Health Districts within the Macroregions presented relatively homogeneous homicide mortality rates for males aged 15 to 49 both in terms of magnitude and variation of such rates as is the case of the Northwest, Campos Gerais and North Macro-regions, with the exception of Londrina Heath District (part of the North macro-region), where rates increased sharply as of 1998. In the other Macro-regions, some Health Districts were worthy of notice because of their high rates in the period studied such as Guarapuava HD (Central Macro-region), Metropolitan Curitiba HD (East Macro-region), and Foz do Iguaçu HD (West Macro-region).

The upward trend of the rates evidenced by the relative annual variation especially in the Metropolitan HD (Curitiba) and Londrina HD, and the high rates of Foz do Iguaçu since the 1980s reflect deteriorating social relations in large cities. In the major cities of Brazil, migration has been pointed out as a factor that aggravates the social situation of municipalities, and is considered as another factor that can account for increasing violence in cities[18].

For the Social and Economic Development Institute of Paraná (IPARDES), between 1991 and 2000, the Curitiba metropolitan area had an annual population growth rate of 3.1%, and had grown at a similar rate in the previous decade. In the same period,

the annual rate of Paraná was 1.4%[19]. The Curitiba metropolitan area accounts for one third of the formal jobs of the State of Paraná, although in relative terms its growth does not reflect the increase in the economically active population, since the area had the State's highest unemployment rate (14,7%)[19]. A study that analyzed the homicides of young men per municipality in Paraná shows the importance of urban clusters in homicide mortality, whose rates correlated more strongly with the size of the population, with the proportion of youth between 15 and 24 years of age, with the proportion of enrollments in higher education and with the Gini index (an indicator of social inequality), which, according to some authors, could result from the fact that people are confronted with social inequality in large cities, and are excluded from production processes and from consumption. Additionally, there is greater availability of firearms and illegal drugs in larger cities[20].

The rise in homicide rates for males aged 15 to 49 in the Health Districts in the interior of the state, where the population density is lower should also be noted. Campo Mourão HD had an annual variation of 26.9%, the highest rate variation among the HDs of Paraná in recent years, and the HDs of Cascavel, Guarapuava and Pato Branco, where mortality rates were above the average for the state, suggest yet another phenomenon: the spreading of homicides into the interior of the state, at least in some specific regions.

A study carried out in Cascavel[21] demonstrated that the homicides committed in that municipality were concentrated in certain areas and were strongly associated with poor urban infrastructure and social and economic inequalities. Those scenarios where there was "overlapping of needs" were more favorable to the occurrence of violent crimes resulting in deaths.

The dynamics of rising violence in the interior can be partly due to the route of illegal drugs, as many cities located in the interior of the state are on the trafficking route[18,20]. Another important factor is the social, economic and demographic deve-

lopment of the state which concentrates around some regional hubs, thus enlarging the gap between regions and between municipalities within a same region.

Poor living conditions, lack of opportunity for young people to have access to quality education and hence their difficulty in finding formal jobs reflect great social and economic inequality and unequal access to basic services. These factors have been associated to the expansion of drug trafficking and consumption beyond cities and into the interior of the state and smaller cities and have been considered the drivers of rising homicide mortality indicators[22,23].

According to IPARDES data, the HDs of Guarapuava, Pato Branco and Campo Mourão had more than 30% of the total families living in poverty[19]. Income gaps among the population can also be another determinant or another social aspect of social development that can account for the greatest differences between municipalities and regions within Paraná.

In Brazil and in other South American countries, the 1980s saw a process of economic stagnation with hiking inflation which led to income concentration, greater social contradictions and higher levels of poverty and extreme poverty. Concurrently with the deterioration of the social and economic situation, the poor performance of public security forces and of the judiciary system, corruption in state institutions and in the legislative branch, in combination with a feeling of injustice and impunity may have contributed to the sharp increase in urban violence in recent decades which was observed in the high homicide mortality rates in the country[24].

As concerns homicide of young people, preventive actions should include massive efforts from the State and society to maintain youth in school. Soares[25] considers that school, in addition to playing a role in the socialization of children, might also function as a "shield" in situations where young people are at risk, and might "shield" them from death by homicide, and protect them from entering into situations that may put them at risk, such as those situations with a high prevalence among groups that consume and distribute illegal drugs.

The magnitude and rising trend of homicide mortality in Paraná place this cause of death as one of the primary health problems and ultimately represent indicators of deteriorating living conditions, social structures and the guarantees that are inherent to citizenship. Future studies should be conducted to better understand the great differences in the risks of homicide found among the Health Districts of the State of Paraná, since the homicide rates tend to be higher in highly urbanized regions, with a high level of social inequality and unemployment among youth[26].

It's worth noting that there are limitations to the use of secondary data from the Mortality Information System. In principle, there is the possibility of undernotification and of variability in the specificity of information across regions, in addition to undetermined-intent mortality from external causes, which impacts the quantity and quality of official information. Therefore, when long periods of time are analyzed and compared across Health Districts, as was done in this study, it is possible that rising death risk trends may, at least in part, reflect the gradual improvement of health services and the efforts of the state health department to better train their staff thus improving the collection of data regarding deaths and the classification of such data in their areas of coverage. However, the inclusion of undetermined-intent-related deaths from firearms or sharp objetcs in this study aimed at mitigating the impact of the potential improvement in information quality in Paraná over the years.

There are many challenges to the inclusion of violence in the health agenda and in the agenda of the managers of the Brazilian public health system (SUS). First, homicides have to be seen not only as issues relating to criminality and the judicial system, but rather in terms of their high impact on society's health and on health services. Some actions can also contribute to reverse

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the upward trend in violence at local level such as those designed to foster accident and violence prevention practices; enhance surveillance and violence prevention capabilities such as surveillance of communicable diseases; improve activities within the scope of the commitments undertaken under the 'Pact for Management' and 'Pact for Life' by the mayors and municipal-level administrators of Paraná, towards the development of actions to promote health.

Authors

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