

## Indigenous homicide in Brazil: geospatial mapping and secondary data analysis (2010 to 2014)

Homicídios indígenas no Brasil: mapeamento e análise de dados secundários (2010 a 2014)

Clóvis Wanzinack (<https://orcid.org/0000-0002-1859-763X>)<sup>1</sup>

Marcos Claudio Signorelli (<https://orcid.org/0000-0003-0677-0121>)<sup>2</sup>

Silvia Shimakura (<https://orcid.org/0000-0002-5468-2516>)<sup>3</sup>

Pedro Paulo Gomes Pereira (<https://orcid.org/0000-0002-0298-2138>)<sup>4</sup>

Mauricio Polidoro (<https://orcid.org/0000-0002-7278-0718>)<sup>5</sup>

Lilian Blanck de Oliveira (<https://orcid.org/0000-0002-3755-6630>)<sup>6</sup>

Clóvis Reis (<http://orcid.org/0000-0002-8131-9229>)<sup>6</sup>

**Abstract** *This study aimed to describe a panorama of Indigenous homicide in Brazil, analysing the main characteristics and territorial distribution between 2010 and 2014. Demographic study of Indigenous population data obtained from the Brazilian Institute of Geography and Statistics and Indigenous homicide data (2010-2014) from the Ministry of Health. Data were analysed using descriptive statistics, victims' characteristics, type of homicides and geographical distribution, which were then plotted on maps using ArcGIS. Findings revealed: 1) a national estimated average of Indigenous homicide rate of 22.5 per 100,000 Indigenous inhabitants per year; 2) a map showing where homicides were registered and the mean homicide rates for Brazilian regions and states, with highest rates in Roraima and Mato Grosso do Sul; 3) the main homicide method were sharp or penetrating objects; 4) Indigenous male homicide rate was 2.4 times higher than female, but Indigenous female rate was more than double that of non-Indigenous; 5) high homicide rates of Indigenous children (under 1-year-old) in areas of the states of Roraima and Amazonas. We advise careful consideration of Indigenous cultural beliefs to avoid errors of judgement, reflecting how Indigenous populations are at risk of homicide in some areas.*

**Key words** *Indigenous population, Homicide, Health of Indigenous peoples, Brazil, violence*

**Resumo** *Objetivou-se descrever um panorama dos homicídios indígenas no Brasil, analisando suas características e distribuição territorial entre 2010 e 2014. Estudo demográfico com dados da população indígena (Instituto Brasileiro de Geografia e Estatística) e homicídios indígenas (Ministério da Saúde). Os dados foram analisados utilizando estatística descritiva, estabelecendo características das vítimas, tipos de homicídio e distribuição geográfica, que foram então plotados em mapas usando ArcGIS. Os resultados revelaram: 1) uma média nacional de homicídios indígenas de 22,5 por 100.000 habitantes indígenas por ano; 2) um mapa de ocorrência dos homicídios e as taxas médias para regiões e estados brasileiros, com as maiores taxas em Roraima e Mato Grosso do Sul; 3) o principal método de homicídio foi objeto cortante ou penetrante; 4) a taxa de homicídio de homens indígenas foi 2,4 vezes mais alta que de mulheres, mas a taxa relativa às indígenas foi mais que o dobro das não indígenas; 5) elevadas taxas de homicídios de crianças indígenas (menores de 1 ano) em áreas dos estados de Roraima e Amazonas. Recomenda-se cuidadosa consideração dos aspectos culturais indígenas para evitar julgamentos, argumentando-se sobre como essa população enfrenta risco de homicídios em algumas áreas.*

**Palavras-chave** *População indígena, Homicídio, Saúde de povos indígenas, Brasil, Violência*

<sup>1</sup> Curso de Administração Pública, Universidade Federal do Paraná. R. Jaguariaíva 512/06, Balneário Caiobá. 83260-000 Matinhos PR Brasil. [clovisw@gmail.com](mailto:clovisw@gmail.com)

<sup>2</sup> Câmara de Saúde Coletiva, Universidade Federal do Paraná. Matinhos PR Brasil.

<sup>3</sup> Setor de Ciências Exatas, Universidade Federal do Paraná. Curitiba PR Brasil.

<sup>4</sup> Escola Paulista de Medicina, Universidade Federal de São Paulo. São Paulo SP Brasil.

<sup>5</sup> Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Sul. Porto Alegre RS Brasil.

<sup>6</sup> Centro de Ciências da Educação, Universidade Regional de Blumenau. Blumenau SC Brasil.

## Introduction

WHO estimated that there were 475,000 deaths in 2012 as result of homicide worldwide. Sixty percent of these were males aged 15-44 years, making homicide the third leading cause of death for males in this age group. Brazil reported 47,136 homicides in 2012, representing almost 10% of all homicides on the planet<sup>1</sup>.

The highest estimated rates of homicide in the world are in the Americas, with an annual rate of 28.5 deaths per 100,000 people. The problem is more severe particularly in Latin America, with countries like Honduras, El Salvador, Colombia, Guatemala, Trinidad & Tobago and Mexico, together with Brazil, being the most violent for homicides in the world. The 2012 Brazilian homicide rate for the general population was 24.3 per 100,000 inhabitants<sup>1</sup>. Most of these Latin American countries have a traditional American Indigenous population in common, with a wide diversity of Indigenous nations, cultural backgrounds and languages. However national homicide data specific to these population groups in each of these countries are scarce.

Indigenous genocide is extensively reported among histories of colonization around the world<sup>2</sup> and in Brazil<sup>3</sup>. All the colonization processes were characterized by dispossession and exploitation of traditional populations and this issue is still ongoing in many places in Brazil, as denounced in recent local studies<sup>4</sup>. It leads Indigenous populations to many social disadvantages, suffering violence of many kinds. However few studies currently focus on homicides among Indigenous people<sup>5</sup>. In Brazil, few recent publications<sup>6</sup> make this problem visible, but no national study has been conducted to reveal its extent, spatial distribution and main victim characteristics.

Homicides are the most outrageous act of violence, as they deprive the victims of their life and is an indicator of society's inability to develop and maintain non-lethal mechanisms for conflict resolution<sup>7</sup>. Homicide is just the "tip of the (violence) iceberg", but it is one of the most rigorous measures of violence in Brazil, considering it is mandatory to report all cases. The cases are reported to the Mortality Information System (Sistema de Informação de Mortalidade - SIM). These data are recorded and available for free access through the Health Informatics Department of the Brazilian Public Health System (Departamento de Informática do Sistema Único de Saúde - DATASUS), a broad database platform from the Brazilian Ministry of Health. Despite there being

many limitations related to SIM data, particularly related to Indigenous people, as some groups live in isolated areas, it is still the most recognized national database for mortality records.

Considering this challenging scenario, a country with vast territorial area and many Indigenous nations, this study aimed to describe a panorama of Indigenous homicides in Brazil, as an indicator of the many forms of violence faced by this population group and bringing visibility to this issue. Our objective was to provide a snapshot of this problem, revealing the extent of reported Indigenous homicides between 2010 and 2014, its territorial distribution around the country, as well as victim characteristics and the types of homicides, comparing these data with non-Indigenous population.

## Methodology

We conducted a demographic study, using official National Indigenous homicide data for the period between 2010 and 2014. We collected data from two Brazilian open databases: 1) Brazilian Institute of Geography and Statistics (Instituto Brasileiro de Geografia e Estatística - IBGE)<sup>8</sup>; and 2) Mortality Information System (SIM) from DATASUS<sup>9</sup>. Mortality data were collected according to place of occurrence and 2014 was the last year with consolidated data about homicide when data were collected.

Data from IBGE consisted of the Indigenous population identified in the 2010 population census (self-declaration as Indigenous in the category 'colour or race'), conducted in all 5565 Brazilian municipalities, as well as the estimates of population for the years between 2011 and 2014. This study did not include data about those who live in Indigenous territories but self-declared as other 'colours or races' for IBGE. It is also important to mention that the IBGE estimates of Indigenous population do not show an yearly increase between 2010-2014, but rather the estimates show two drops, one between 2010 and 2011, and another between 2011 and 2012. Based on these data, we calculated the mean population for the period (2010-2014) for Indigenous (per state, Brazilian region and Brazil) and for non-Indigenous (Brazil) population. IBGE official criteria to consider as Indigenous is based on self-identification. It is worth to mention that data about Indigenous population can be controversial, depending on the consulted database, even in official databases, such as IBGE.

Data on Indigenous and non-Indigenous mortality (2010-2014) were obtained from SIM/DATASUS, considering as homicides all deaths included on the Tenth International Classification of Diseases (ICD-10) as arising from “assault” (X85 to Y09) and “legal intervention” (Y35 to Y36), as adopted in other studies<sup>7</sup>. These included assaults using firearms (X93-X95), assaults with edged weapons (X99) and other acts of violence resulting in death inflicted by another person, by any means. It also included legal interventions (Y35), for example, trauma inflicted by the police or other representatives of the law, military, and those which happen during arrest or imprisonment, or attempts to do so, and other legal actions. Data were also collected from all 5565 Brazilian municipalities. All data collection was between August and September/2016 and reviewed on February/2017, looking for any update of data.

Not every Brazilian municipality has an Indigenous population. From all 5565 Brazilian municipalities, 4027 have an Indigenous population<sup>8</sup>. Between 2010 and 2014, from these 4027 municipalities, only 272 reported Indigenous homicides, which corresponds to 6.75% of municipalities with Indigenous population. It suggests that the problem may be currently under-reported and geographically circumscribed. This should be borne in mind when interpreting our results.

Data on Indigenous and non-Indigenous population and homicide were tabulated in Microsoft Excel and analysed using descriptive statistics methods. Initially, we calculated the annual mean of homicides for Indigenous and non-Indigenous population (2010-2014) per 100,000 inhabitants. Results included reported data on homicides and the Brazilian Indigenous population and were compared to those on the non-Indigenous Brazilian population, considering victims’ characteristics and types of homicides. For the second analysis, we focused on the 272 municipalities that registered Indigenous homicides between 2010 and 2014. We calculated the mean homicide rate for 100,000 Indigenous inhabitants per year for municipalities, states, Brazilian regions and for the country, expressing the annual average for this five-year period. We also analysed the geographical distribution of homicides (by Brazilian regions, states and municipalities) and by victims’ characteristics.

Absolute numbers of Indigenous homicides were plotted on a map, using the program ArcGIS, a Geographic Information System (GIS) used for creating maps, compiling geographic

data, analysing mapped information and managing geographic information in databases. The cartographic bases used in this study were provided by the National Spatial Data Infrastructure (INDE), responsible for gathering metadata produced by the direct and indirect public administration of the federal government. All cartographic databases had their projections adjusted to SIRGAS2000. In the GeoCatalog environment of the ArcGIS software, a database was created that gathered the tabular information of Indigenous homicides containing a column of type “double” compatible with the column of connection in cartographic of Brazilian municipalities. After the bases were established, the digital processing of the information was carried out. The cartographic representation of maps is based on proportional circles since these better represent the quantitative phenomena and they are one of the most used methods in the construction of maps with point implantation<sup>10</sup>.

Finally, a selection was established with the 20 municipalities with the highest number of Indigenous homicides (absolute numbers) reported for given period. Absolute numbers were eligible for this analysis instead of rates, because some municipalities with very small number of Indigenous population reported Indigenous homicides, what could lead to an inconsistent data analysis. Data from these 20 municipalities were analysed according to sex and age group. These data combined with the map revealed a cartography of the most dangerous municipalities for Indigenous people in Brazil.

This study is based on analyses of secondary data from public access databases, so was exempt from approval by an Ethics committee.

## Results

The average Indigenous homicide rate between 2010 and 2014 in Brazil was 22.5 homicides per 100,000 Indigenous inhabitants per year (Table 1). This appears to be lower than the homicide rates of non-Indigenous population in Brazil for the same period (which is 28.3 per 100,000 inhabitants per year). However, Table 1 summarizes some notable characteristics of all the Brazilian Indigenous homicides, compared with all the Brazilian non-Indigenous homicides, between 2010 and 2014. Therefore, this table includes data from homicides reported during this five-year period, including means and rates expressing annual average.

**Table 1.** Characteristics of all reported Indigenous and non-Indigenous homicides in Brazil between 2010 and 2014.

	<b>Indigenous</b>	<b>Non-Indigenous</b>
Mean Brazilian Population (IBGE, 2010-2014)	743,593	197,841,967
Total Homicides between 2010 and 2014	838	279,900
Mean homicide rate 2010-2014 (per 100,000 inhabitants per year)	22.5	28.3
Mean female homicide rate 2010-2014 (per 100,000 females per year)	9.3	3.8
Sex of Victims (%)		
Male	77.7	91.6
Female	21.2	8.3
Ignored	1.1	0.1
Age of victims (%)		
< 1 year old	18.2	0.1
1 to 14 years old	3.7	1.6
15 to 19 years old	11.4	16.2
20 to 29 years old	23.3	37.4
30 to 59 years old	35.3	38.9
> 60 years old	5.4	3.8
Ignored	2.6	2.0
Marital status of victims (%)		
Single	43.4	70.5
Married	12.3	11.0
Widowed	1.3	1.0
Divorced	0.6	2.5
Other	8.6	4.0
Ignored	33.8	11.0
Years of school of victims (%)		
None	14.7	3.4
1-3 years	13.2	17.3
4-7 years	20.6	33.4
8-11 years	7.7	16.1
>12 years	1.2	2.2
Ignored	42.5	27.6
Types of homicide (%)		
Firearms	28.8	70.2
Sharp or penetrating object	31.0	15.6
Blunt object	6.7	5.3
Hanging, strangulation and suffocation	4.2	1.4
Use of body force	3.5	1.1
Other maltreatment syndromes	1.8	0.3
Other specified means	1.4	0.3
Drowning and submersion	0.8	0.1
Neglect and abandonment	0.6	0.0
Non-specified means	19.9	3.4

Source: IBGE<sup>8</sup> and SIM/DATASUS<sup>9</sup>, compiled by the authors.

Table 1 highlights some significant aspects about Indigenous homicides in Brazil. Indigenous women reported a higher rate of homicide than non-Indigenous women. The female rate was 9.3/100,000 for Indigenous and 3.8/100,000 for non-Indigenous women. It estimates that Indigenous female homicide rate was more than the double compared to non-Indigenous.

Table 1 also provides evidence of high levels of homicide of Indigenous children under one year old compared to the non-Indigenous children.

Data on marital status and years of schooling of Indigenous victims were commonly missing. The proportion of missing data is much greater than in the non-Indigenous population, demonstrating gaps in collecting these data. Nevertheless, it seems that Indigenous victims have fewer years of study when compared to the rest of the Brazilian population. The Indigenous group also seems to have a smaller percentage of single victims compared to non-Indigenous, suggesting different patterns of homicides. We observed another dif-

ference in the causes of homicides; while non-Indigenous population are more often victims of gunfire, Indigenous people face more deaths by sharp or penetrating objects, with gun fire in a slightly smaller proportion. Lack of data about the cause of Indigenous homicides also limits our analysis, since almost 1 in 5 Indigenous homicides does not specify the means in the Brazilian official database. This is much higher compared to data obtained from non-Indigenous population, which is around 3%.

When plotted onto a map, Indigenous homicides appear with high incidence in two specific Brazilian regions: North and Midwest. North has the largest Indigenous population in the country, but Midwest is not the second largest, which is Northeast. Maps detailing the number of Indigenous reported homicide incidence be-

tween 2010 and 2014 are plotted on Figure 1. It shows the distribution of Indigenous homicides among Brazilian municipalities, particularly bringing into evidence the states of Roraima (RR) in North and Mato Grosso do Sul (MS) in Midwest. The map suggests that 20 municipalities reported more than half of all the estimated Indigenous homicides of the country between 2010 and 2014. These were: Alto Alegre/RR, Amajari/RR, Amambaí/MS, Barcelos/AM, Boa Vista/RR, Caarapó/MS, Caracá/RR, Coronel Sapucaia/MS, Dourados/MS, Eirunepé/AM, Iracema/RR, Mucajá/RR, Paranhos/MS, Santa Isabel do Rio Negro/AM, São Gabriel da Cachoeira/AM, São João das Missões/MG, Tabatinga/AM, Tacuru/MS, Porto Seguro/BA and Salvador/BA. Detailed data about the Indigenous homicides in these municipalities will be discussed ahead.



**Figure 1.** Map of reported Indigenous homicides in Brazil (2010-2014)

Source: SIM/DATASUS<sup>9</sup>, compiled by the authors. (RN=Rio Grande do Norte)

Table 2 summarizes the reported Indigenous homicide rates (annual average between 2010 and 2014) per region and state. Midwest presents the most concerning scenario with a reported Indigenous homicide rate of 67.8 per 100,000 Indigenous inhabitants per year. This is higher than non-Indigenous Brazilian rates (national average) for the period, which was 28.3 per 100,000 inhabitants per year, indicating that Indigenous from this region face more homicides than the non-Indigenous Brazilian population. The North of Brazil, with the highest Indigenous population concentration of the country, also has a high homicide rate (30.0 per 100,000 Indigenous inhabitants per year). Northeast, with the second largest Indigenous population among the five Brazilian

regions, has the lowest homicide rate (11.5 per 100,000 per year).

Reported Indigenous homicides per year in absolute numbers per Brazilian region are also available in Table 2. The results suggest that the North of the country faced an increase of 543% of Indigenous homicides between 2010 and 2013, with a small drop of 28% in 2014, compared to 2013. Even considering this small drop, as a result North reported an increase of approximately 4 times between 2010 and 2014. South of Brazil also reported an increase of Indigenous homicides of approximately 2.5 times between 2010 and 2014. Despite other Brazilian regions facing a relatively constant pattern of Indigenous homicide incidence for the same period, these data re-

**Table 2.** Indigenous homicides rates per Brazilian region and state (annual average, between 2010 and 2014)

Region	Indigenous homicides/year					Mean indigenous population (2010-2014)	Mean homicide rate (2010-014)	State	Indigenous homicides (2010-2014)	Mean indigenous population (2010-2014)	Mean homicide rate (2010-2014)
	2010	2011	2012	2013	2014						
Midwest	49	48	40	41	44	65,499	67.8	DF	0	8,426	0.0
								GO	12	10,507	22.8
								MS	198	31,259	126.7
								MT	12	15,108	15.9
Southeast	10	9	23	6	12	143,992	8.3	MG	28	53,222	10.5
								RJ	13	17,379	15.0
								ES	4	10,232	7.8
								SP	15	63,159	4.7
South	7	12	11	7	18	68,389	16.1	SC	9	13,208	13.6
								RS	22	35,598	12.4
								PR	24	19,783	24.3
Northeast	25	26	25	22	23	210,538	11.5	AL	7	8,702	16.1
								BA	36	60,876	11.8
								CE	6	15,267	7.9
								PE	22	51,857	8.5
								PB	6	30,230	4.0
								MA	36	33,254	21.6
								PI	1	2,989	6.7
								RN	3	2,919	20.5
								SE	4	4,644	17.2
North	21	43	101	124	91	254,975	30.0	AM	135	130,536	20.7
								AC	5	24,584	4.1
								AP	2	3,482	11.5
								RR	182	26,527	137.2
								TO	6	4,826	24.9
								RO	13	5,403	48.1
								PA	37	59,616	12.4
	Brazil	112	138	200	200			188	743,593	22.5	

Source: IBGE<sup>8</sup> and SIM/DATASUS<sup>9</sup>, compiled by the authors.

veal the extension and escalation of the problem across different areas of the country.

When we focus at the state level, the highest reported rates were respectively: Roraima (137.2 homicides per 100,000 Indigenous per year), Mato Grosso do Sul (126.7 per 100,000/year) and Rondônia (48.1 per 100,000/year). The lowest reported rates were in the Federal District, where no Indigenous homicides were registered, followed by Paraíba (4.0 per 100,000/year) and Acre (4.1 per 100,000/year). Three states (Mato Grosso do Sul, Roraima and Amazonas) concentrated 61% of Indigenous homicides, while they comprise only 25% of the Indigenous population of the country.

Male homicides were 2.4 times more frequent than female homicides amongst Indigenous people. Most of the 272 municipalities that reported Indigenous homicides registered more men's homicides than women's. However, 10 cities demonstrated a 1:1 proportion between male and female homicides, while 23 cities reported more women's homicides rather than men's. In these cities, the rate of female versus male homicides was registered at a ratio of 1:0, 2:1 or maximum 2:0.

After establishing the maps with the highest reported areas for Indigenous homicide, we analysed detailed data of the 20 municipalities with the highest homicide numbers among the group of municipalities. Table 3 summarizes the main characteristics of Indigenous victims from these 20 cities with highest Indigenous homicide numbers in Brazil.

The results also suggest high levels of reported homicide of Indigenous children (under 1-year-old) in areas of the states of Roraima and Amazonas. This was particularly notable in places such as (respectively): Caracá/RR (62 child homicides), Alto Alegre/RR (31), Barcelos/AM (30), Amajari/RR (7), Santa Isabel do Rio Negro/AM (5), Mucajai/RR (4) and Iracema/RR (4).

## Discussion

This study found that the highest rates of Indigenous homicide are in the Midwest and North Brazil, particularly in the states of Roraima and Mato Grosso do Sul, and that Indigenous male homicide rates were up to 2.4 times higher than female homicide rates. However, Indigenous female homicide rate was more than the double compared to non-Indigenous. The victims were mainly adults aged 30 to 59 years old for both In-

igenous males and females, followed by adults between 20 and 29 years old also for both sexes.

The first aspect to be considered for the analysis of these results is that there is a huge diversity of Indigenous people in Brazil. According to data from the census from the Brazilian Institute for Geography and Statistics<sup>8</sup>, there are around 305 ethnic groups within the country, speaking 274 different languages and 57.5% of them live in officially demarcated Indigenous lands. This is a challenging issue for this study, because based on these specificities, we highlight that although this article reports Indigenous homicide data grouped in a set, we do not consider Brazilian Indigenous people as a homogeneous group. Additionally, despite comparing data on homicide with the non-Indigenous population, we do not aim to extrapolate issues from Western culture to Indigenous communities, which are much more complex. Our goal with this demographic study is to bring visibility to this problem so that it can raise questions for further future studies.

The overall reported Indigenous homicide rate was lower than that of non-Indigenous people, but some aspects need to be considered. A critical issue raised by this study is the underreporting, as many data from the Indigenous population were missing in this official database. Considering this underreporting during the report of Indigenous homicides, it is similarly possible that many Indigenous homicides could be documented as non-Indigenous homicides. This represents a potential under-estimation of the scale of this issue. The indigeneity is also a complex issue, because not all Indigenous people self-identify as part of this ethnic group in the census. This also could be evidenced in the Brazilian census, comparing the escalating number of Indigenous population between 1990, 2000 and 2010. The number of Indigenous people significantly increased, but not due to an increase in Indigenous birth rates, but due to an increase in Indigenous identification. This raises other questions for future studies: why does Indigenous data about homicide contain this high percentage of missing information? Does this reflect a general lack of attention to this population group, which has been historically decimated and that this is expressed even in ignoring their indigeneity in their death registration?

The data about homicide against Indigenous women are challenging, because it is almost twice of non-Indigenous. Brazil is already the fifth highest rate of female homicide in the world<sup>11</sup>. It means Brazilian Indigenous women are probably

Table 3. Selection of 20 municipalities with highest number of reported Indigenous homicides between 2010 and 2014.

Order	Municipality	State	Indigenous population (2010)		Homicides (2010-2014)	Homicide Rate (100,000)	% Homicide*		% Age of victims (years old)						
			Male	Female			Male	Female	< 1	1 to 14	15 to 19	20 to 29	30 to 59	> 60	Ignored
1°	Dourados	MS	3412	3418	79	231,3	75,9	24,1	0,0	8,7	22,8	19,0	41,8	7,6	0,0
2°	Caracarái	RR	230	260	64	2612,2	51,6	43,8	96,9	0,0	0,0	0,0	1,6	1,6	0,0
3°	Alto Alegre	RR	3915	3629	48	127,2	70,8	29,2	64,6	2,1	2,1	12,5	14,6	4,2	0,0
4°	Barcelos	AM	4454	3913	33	78,9	51,5	48,5	90,9	0,0	0,0	0,0	3,0	6,1	0,0
5°	Amambai	MS	3600	3625	29	80,3	69,0	31,0	0,0	10,3	10,3	31,0	41,4	6,9	0,0
6°	Boa Vista	RR	4081	4469	27	63,2	88,9	11,1	7,4	0,0	14,8	25,9	37,0	7,4	7,4
7°	São Gabriel da Cachoeira	AM	14676	14341	19	13,1	78,9	21,1	5,3	10,5	21,0	10,5	52,6	0,0	0,0
8°	Caarapó	MS	2159	2211	16	73,2	75,0	25,0	0,0	6,2	18,7	18,7	50,0	6,2	0,0
9°	Tabatinga	AM	7660	7195	15	20,2	80,0	20,0	6,7	6,7	13,3	26,7	33,3	13,3	0,0
10°	Iracema	RR	828	738	13	166,0	61,5	38,5	30,8	23,1	15,4	7,7	23,1	0,0	0,0
11°	Tacuru	MS	1864	1773	12	66,0	75,0	25,0	0,0	0,0	16,7	16,7	58,3	8,3	0,0
12°	Eirunepé	AM	605	552	11	190,1	72,7	27,3	9,1	0,0	18,2	18,2	45,4	9,1	0,0
13°	Amajari	RR	2597	2417	11	43,9	90,9	9,1	63,6	0,0	9,1	9,1	9,1	9,1	0,0
14°	Mucajai	RR	254	282	9	335,8	88,9	11,1	44,4	0,0	11,1	11,1	22,2	0,0	11,1
15°	Santa Isabel do Rio Negro	AM	5512	5237	9	16,7	77,8	22,2	55,6	0,0	11,1	11,1	11,1	11,1	0,0
16°	Coronel Sapucaia	MS	1327	1261	8	61,8	50,0	50,0	0,0	12,5	12,5	25,0	37,5	12,5	0,0
17°	Porto Seguro	BA	2764	2565	8	30,0	75,0	25,0	0,0	12,5	12,5	37,5	37,5	0,0	0,0
18°	Paranhos	MS	2242	2162	7	31,8	85,7	14,3	0,0	0,0	14,3	0,0	71,4	14,3	0,0
19°	Salvador	BA	3478	4085	7	18,5	57,1	42,9	0,0	0,0	0,0	42,9	42,9	14,3	0,0
20°	São João das Missões	MG	4107	3829	7	17,6	85,7	14,3	0,0	0,0	0,0	28,6	71,4	0,0	0,0

Source: IBGE\* and SIM/DATASUS\*, compiled by the authors. For this table, we adopted only population data from the IBGE census of 2010, since the IBGE does not provide estimation of population for municipalities.  
 \* Caracarái/RR reported ignored data related to sex.

amongst the most vulnerable groups of women in the world for female homicide. When adult non-Indigenous women are killed, their partner is often who is responsible<sup>12,13</sup>. In 2013, WHO and others estimated that globally as many as 38% of female homicides were committed by male partners while the corresponding figure for men was 6%<sup>12,13</sup>. Of the statistics on these female homicide victims, 20% were lacking data on perpetrator-victim relationship<sup>13</sup>. Unfortunately, the database used in our study did not contain data on the perpetrator. Considering international studies which have been documenting Intimate Partner Violence (IPV) among Indigenous women<sup>14,15</sup>, we raise this question for future studies: were these Brazilian Indigenous women also victims of IPV?

Violence against Indigenous women from the American continent<sup>15,16</sup> and worldwide<sup>17</sup> has been documented. However, the hegemonic gender rules that non-Indigenous women face in general society are not the same for Indigenous women. Brazilian Indigenous women belong to heterogeneous communities, with particular roles and traditions. From anthropological studies<sup>18</sup> on gender issues in Indigenous populations, gender is presented as a concept that no longer fits the Western dichotomies, revealing social relations built on “other” modes of thought and conceptualizations. They may even involve fluid and mutable conformations of gender that make up certain groups. That is, the concept of gender in Western society cannot simply be translated into Indigenous people without further reflection on their own social constructions<sup>19</sup>.

Analysing the maps of Indigenous homicide, we highlight its potentially high incidence in the state of Mato Grosso do Sul, more specifically the south of the state, with a possible epicentre in the municipality of Dourados. This area was also the focus of recent studies revealing high rates of Indigenous suicides<sup>20,21</sup>. Among ‘Guarani Kaiowá’ and ‘Nhandeva’ groups from Mato Grosso do Sul that live in this area, between 2000 and 2007, the mortality rate due to suicide was 118.4/100,000. This value is about six times higher than that observed in the state, and more than 12 times the national rate<sup>22</sup>. This article does not focus on Indigenous suicide, however the coincidence of high rates of both homicides and suicides in the same areas flags attention for public health and public policies agendas. Since 1996, some cases reported as suicide among Indigenous from this state are thought in fact to be homicides<sup>23</sup>. It is also important to consider the different Indigenous conceptions of death and dying, and the

complex correlation between suicide and homicide in traditional ethnological systems, that cannot be transposed from Western culture<sup>20</sup>.

Indigenous populations in these areas of Mato Grosso do Sul face problems of land disputes, issues related to the demarcation of Indigenous lands. The courts find it difficult to make decisions regarding land tenure due to the time of their occupation by non-Indigenous, often in properties with certification of more than two generations of the same family. At the same time, vestiges of Indigenous lands in archaeological and anthropological findings indicate that, in the same space, there were Indigenous groups living there for centuries<sup>24</sup>.

The massacre against Indigenous people in this region has been denounced for years. Landowners have threatened to kill Indigenous leaders, sent gunmen to kill parents in front of children and young people belonging to these peoples<sup>4</sup>. The appeal of the natives can be summarized in the following letter:

“We ask the Government and the Federal Justice not to decree the eviction/expulsion order, but to decree our collective death and to bury us all here. We ask, once and for all, to decree our extinction/total decimation, in addition to sending several tractors to dig a large hole to throw and bury our bodies.” (Letter from the Guarani-Kaiowá community of Pyelito Kue/Mbarakay, from Iguatemi/MS for the Government and Justice of Brazil, 2012, p.977)<sup>4</sup>.

The letter was related to conflicts with landowners of vast farms and the neglect of Federal Government for demarcation of Indigenous lands. Agrarian conflicts are not exclusive of this region and appear in other areas of the country, also victimizing Indigenous populations. In the state of Maranhão, in the Northeast of the country, it was noticeable during the professionalization of violence of the 1990s, with an organized market of gun shooters. Large properties landowners contributed to tables of escalating price bands for homicides, respectively, of small farmers, trade unionists, priests, farmers and politicians<sup>25</sup>.

Authors<sup>26</sup> explain that the European model of sovereignty, confronted with Indigenous resistance, has led to the social exclusion of traditional Indigenous peoples. Brazilian State and society have limited Indigenous sovereignty by imposing a colonial legal order over many Indigenous groups, weakening traditional leaderships and denying the very existence of the colonised as a political body. The Guarani and Kaiowa peo-

ple in Mato Grosso do Sul configure an extreme case of poverty, exploitation and human rights violations, leading to a humanitarian crisis. Severe land dispossession is followed by high levels of child mortality and malnutrition, alcoholism, insufficient access to water or sanitation, low life expectancy, high suicide rates, and the normalized assassination of Indigenous leaders by hired killers<sup>26</sup>.

While in some specific areas the dispute for land allied to social inequities can be a significant cause of Indigenous homicides, in other areas, a high number of homicide of children was observed. This was reported particularly in some areas from the North of the country, particularly in the states of Roraima and Amazonas.

However, our study highlights the majority of homicides were against young Indigenous males. The high mortality rates from homicide among young Indigenous males found in this study was also noticed in other studies with non-Indigenous men in Brazil. Some studies<sup>27,28</sup> relate the high mortality rates among males to the higher probability of exposure to violence<sup>7</sup>. However, data from general population, again, cannot be simply transposed to Indigenous. Instead of the individualistic ideology of Western society, Indigenous societies operate with a notion of relational person, inasmuch as kinship groups formed by bonds of substance – like blood, semen, milk, etc. – that are responsible for constituting it as a member of their own body<sup>29</sup>.

It is important to mention that the results of this study only highlight the tip of the iceberg, as we previously mentioned. Besides the physical injuries and homicides, it is also persistent other forms of violence against traditional Indigenous people, including the cultural damages caused by colonization. We also highlight the blatant absence of careful recording of Indigenous homicide in official databases. This means that the real scale of this problem and its causes are hidden from view. Authors have been adopting the term Indigenous cultural genocide to describe this other form of contemporary violence<sup>30</sup>. All these other expressions of violence imposed by Western society towards traditional populations are difficult to measure, but can be as dangerous as homicides, because they contribute to break the affective, cultural and community bonds.

This study had many limitations. One of these was the limits of data from SIM and underreporting of homicides, which tends to be more common in remote areas of the country, like some Indigenous areas. Other limitation can

be the criteria of IBGE to determine a person as Indigenous, which is self-identification. For centuries, the Indigenous population was stigmatized in Brazil. So for many people to recognize themselves as Indigenous implies shame due to prejudice imposed by colonisers over traditional people. This produces an underestimation of Indigenous population numbers, and consequently of homicides against them. Underestimation of Indigenous ethnicity may also be present at the moment of death registration. In other words, the problem highlighted in this research with official data could be even more severe.

Overcoming the issue of homicide and violence against Indigenous people is a complex task and requires the formulation of long-term policies in the areas of health, safety, education, environment and economics, including those aimed at raising income levels and reducing inequalities<sup>31</sup>. But first it requires that the scale and detail of the problem be visible to government and to the body politic. Another issue is the resolution of agrarian conflicts associated with lack of demarcation of Indigenous lands. And beyond demarcation, these lands also need surveillance from public security, preventing invasions by farmers, forest extractors and miners, since preservation of natural resources are traditionally essential for these people.

### Final considerations

This study revealed the reported Brazilian Indigenous homicide between 2010 and 2014 and its geographical distribution. The national average of Indigenous homicide rate appeared to be smaller when compared to non-Indigenous population, but was probably under-estimated. Even so, the rates raise some concerning trends even now.

Official homicide data suggested concern in the Midwest and North of Brazil, particularly in the states of Roraima (North) and Mato Grosso do Sul (Midwest). The pattern of homicides between these two areas is not the same, even because ethnicities and cultural aspects are different. Some of these areas coincide with areas with high reports of suicides revealed by other studies that could be related to land conflicts and oppression from non-Indigenous people. Data should also be cautiously analysed, because some of the municipalities that reported high numbers of homicide also have the biggest Indigenous population, thus the importance to examine the rates.

This study also exposed differences between homicide patterns in Indigenous when compared to non-Indigenous population. The most challenging was the generalized lack of detailed information regarding Indigenous homicide, like marital status, years of study of the victims and methods of homicides. The lack of information was not observed in the same proportion in non-Indigenous people. This lack could reflect an ongoing underestimation of such deaths, which were historically perpetrated by colonizers. Some convergences with non-Indigenous Brazilian population were observed, as male homicide rates were higher than female. However, Indigenous female homicide rate was more than

the double of non-Indigenous, demonstrating the vulnerability of these women.

Data of this study should be carefully analysed, considering all the limitations, but they reflect how high rates of Indigenous homicides were reported in some parts of Brazil, as well as some groups inside the Indigenous nations that reported more homicides. Western assumptions are not valid for traditional populations and these people cannot be considered as a homogeneous group. Some of their particularities and cultural aspects should be sensibly better understood with support of future studies that contribute to understanding, avoiding judgemental positions and perpetuation of violence.

### **Collaborations**

C Wanzinack conceived the study. C Wanzinack, S Shimakura and MC Signorelli designed the methodology. CW collected, tabulated and analyzed the data, assisted by S Shimakura and MC Signorelli. PPG Pereira and LB Oliveira contributed with theoretical background and discussion. M Polidoro contributed with geospatial mapping. C Reis supervised the study and revised the methodology. All authors contributed to writing, reviewed and approved the final version of the text.

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