



## Artículo de revisión

# Suicide in the Indigenous Population of Latin America: A Systematic Review

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### ABSTRACT

**Objective:** Due to the high rates of suicide reported among many ethnic minorities, a systematic review is presented on suicide in indigenous populations of Latin America.

**Methods:** Systematic review in PubMed, Scopus, PsycNET, Scielo and Scholar Google.

**Results:** From an initial total of 1862 articles, 41 were included for data extraction. They include 21 from Brazil, 13 from Colombia, 2 from Chile, 1 from Peru, and 4 articles grouped from different countries. Suicide is a public health issue in many communities. Lifestyle changes, industrialisation, environmental degradation, and alcohol have led the indigenous population experiencing what has been described as “cultural death.”

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## Suicidio en la población indígena latinoamericana: revisión sistemática

### RESUMEN

**Objetivo:** Se han reportado altas tasas de suicidio en algunas minorías étnicas, entre ellas comunidades indígenas en Latinoamérica. Este fenómeno se considera un problema de salud pública. Realizamos una revisión sistemática para describirlo.

**Métodos:** Se realizó una búsqueda sistemática en las bases de datos de PubMed, Scopus, PsycNET, Scielo y Google Scholar.

**Resultados:** Se encontró un total inicial de 1.862 referencias; de estos artículos, se incluyeron 41 para extracción de datos según los criterios de inclusión, de los que 21 hacen referencia

#### Palabras clave:

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a Brasil, 13 a Colombia, 2 a Chile, 1 a Perú y 4 artículos a diferentes países agrupados. Las comunidades indígenas están pasando por un fenómeno de «muerte cultural» en el que los cambios en las culturas, los estilos de vida, la industrialización, la invasión del medio ambiente y el consumo de alcohol se convierten en desencadenantes del suicidio.

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## Introduction

High rates of suicide have been reported among ethnic minorities world-wide, including the Scandinavian Sami in Europe<sup>1</sup>, different North American natives<sup>2,3</sup> as well as Australian aboriginals.<sup>4,5</sup> Despite geographical differences, there are some common risk factors for mental disorders and self-injury, most of them associated with cultural disruption. Several anecdotal cases of suicide among indigenous people of Colombia and Brazil have been reported in the press, one of them the self-immolation of Maobe in 2006, the young leader of the Nukak ethnic group, which has been considered the last Amazonic ethnic group to be “discovered” in Colombia, as recently as 1998.<sup>6</sup>

Mental disorders have not been fully studied in Latin American indigenous groups. Common stressors include high rates of alcoholism,<sup>7-9</sup> or culturally-related dissociation-like syndromes sometimes labeled as “*ataques de nervios*”.<sup>10,11</sup>

Despite some isolated publications on suicide in Latin America,<sup>12,13</sup> we did not find a general review of this topic. The objective of our study was to perform a systematic review of both peer-reviewed articles and grey literature on the incidence, the geographic and ethnic distribution, and the risk factors associated with suicide in indigenous Latin Americans.

## Methods

We performed a systematic review of the literature in PubMed, Scopus, PsycNET and Scielo (the Latin American database), as well as in Scholar Google, using the following high sensitivity and low specificity search strategy which included the free-text terms (“Latin America” OR “Central America” OR “South America” OR any of the countries in the region, individually) AND (indigenous OR Indian OR aboriginal OR ethnic OR ethnia) AND (“suicide” OR suicid\* OR “self-injur\*” OR “self-harm” OR “self-destructive” OR parasuicide OR “self-immolation”).

An additional search for “grey literature” was done in Scholar Google using suicide (and Spanish or Portuguese equivalents) associated with each Latin American country. The first 10 pages (i.e. 100 references) of each search were analyzed. The reference lists of all included articles were reviewed for any additional articles. Searches were carried out on March 2016. Following usual systematic review practice, after eliminating duplicates, a first screening step involved two separate reviewers selecting potentially useful articles and excluding those clearly irrelevant. The remaining articles

were obtained in full text. Articles were eligible for inclusion if they were published in a scholarly journal or if a “Methods” section and reference list were included in a “grey” document. No language or time limits were applied. Only articles centered on or considering indigenous population were used for data extraction. Due to the differences in methodologies used in the articles, and their narrative nature, we did not apply any specific tool to evaluate their quality. Meta-analysis was not attempted due to heterogeneity of study characteristics, including study populations, study designs, and research methodology. Narrative synthesis was therefore used to analyze the extracted data.<sup>14</sup> Data obtained from each included article were geographical location, ethnic group(s) studied, control group (if any), number of subjects considered, type of study, and causes and mechanisms of suicide.

## Results

Figure 1 summarizes the article selection process. Initial searches identified 1862 potential references, of which 75 were selected for full-text review, 2 of which were not available. Reasons for excluding 32 of these articles were: no direct reference to indigenous groups, no figures presented in the text, or not related to any Latin American country. In total, 41 articles published between 1980 and 2015; 21 of the total articles referred to Brazil, 13 to Colombia, 2 to Chile, and 1 to Peru, while 4 additional articles included data from several Latin American countries.

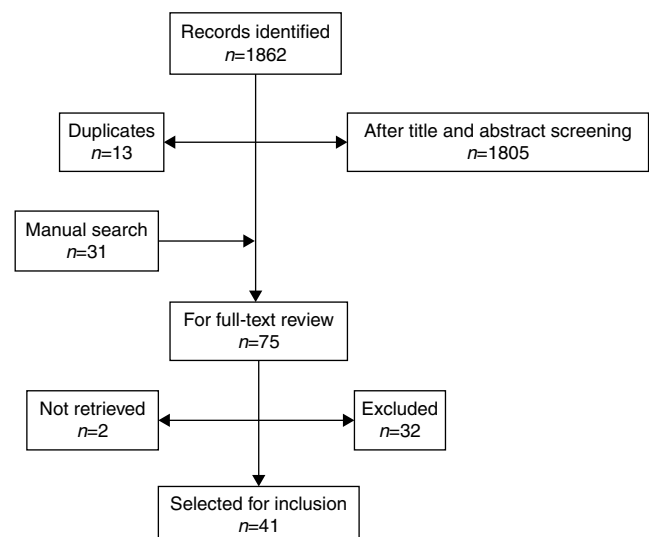


Figure 1 – Search and retrieval process.

## Brazil

Brazil is the most populated Latin American country, and the one with the largest number of indigenous groups. A descriptive literature review by Loiola Ponte de Souza in 2014 identified a total of self-declared indigenous population estimated between 817 963 and 896 917 individuals,<sup>15</sup> divided in 305 different ethnic groups that speak 274 different languages.<sup>10</sup> Most indigenous groups are distributed in the Center-West and North of the country, comprising the regions of Amazonas, Mato Grosso, Mato Grosso do Sul, Rio Negro, Sao Gabriel do Cachoeira, Alto Solimoes, Tabatinga, and Santa Catarina.<sup>15-18</sup>

National Brazilian annual suicide rate in 2005 was estimated in 5.6 per 100 000 inhabitants,<sup>12,19,20</sup> with a progressive increase of 33.5% during the decade 1998-2008.<sup>12</sup> Underreporting has been highlighted.<sup>8,13</sup> There are important variations from one state to the other, with a direct relationship proposed between suicide rates and proportion of indigenous population.<sup>20</sup> The state of Amazonas comprises 30% of the country's indigenous lands; indigenous people are 4.8% of the 3.5 million inhabitants, but account for 19% of all suicides.<sup>18</sup> A retrospective cohort study by Loiola Ponte de Souza in 2013 used data from Brazil's epidemiological institute (Datusus) to evaluate mortality among self-declared indigenous, 4 years and older, and found that suicide represents 25% of all deaths,<sup>18</sup> for a general annual suicide rate of 26.1 per 100 000 inhabitants.<sup>10</sup> In the Central-West Region (which limits with Bolivia and Paraguay), suicide rate is 7 times higher in indigenous population than in non-indigenous.<sup>19</sup>

In 2011, a retrospective study by Evanir analyzed suicide in Mato Grosso do Sul, a Central-West state, using data from Brazil's epidemiological institute Datusus and Funasa between 2004 and 2006, in indigenous people of all ages; suicide rate was estimated to be 76.4 per 100 000 for the natives, most of them males aged 10-24 years, compared with 6.9 for non-indigenous.<sup>13,19</sup> Several ethnic groups inhabit this state, including Guaraní, Kaiowá, Terena, Kadiwéu, Kinikinai, Guató, Ofaié, and Atikum. Between 2000 and 2008, 410 suicides occurred among the Kaiowá/Guaraní, many of them in suicidal waves.<sup>8</sup> A similar situation had occurred between 1987 and 1991, when 52 suicides were described in a population of 7500 individuals. The explanation, coined as "the impossible return hypothesis," attributed suicides to the loss of native homeland and confrontation of modern values with old traditions.<sup>21</sup>

The situation of the Kaiowá/Guaraní, most but not all of them living in Mato Grosso do Sul, has been extensively analyzed. A descriptive study by Brzozowski in 2010, again using Brazil's databases Datusus and Ibge, determined that suicide rate among was 19 to 40 times greater than in the general Brazilian population, and has been increasing in males within the 20-59 years bracket.<sup>20,22</sup> Reports from 1940 to 1980 indicate annual rates of 43 per 100 000 inhabitants, whereas reports from 2006 to 2010 showed a suicide rate of 76.4 per 100 000, compared with 6.9 per 100 000 inhabitants in the non-indigenous people of the region.<sup>19</sup> Data from 2012 established a suicide rate of 14.4 per 100 000 inhabitants per year in this state,<sup>16</sup> a figure similar to that of European countries with the highest incidence of suicide, with rates that range from 15 to 30 per 100 000 inhabitants a year.<sup>23</sup>

In the region of San Gabriel de Cachoeira, which is part of the state of Amazonas limiting with Colombia and Venezuela, the overall suicide rate during the period 2000 to 2007 was estimated to be 16.8 per 100 000; however, another study presents data as high as 96.3 per 100 000 among the 30 000 or so self-declared indigenous individuals. According to a retrospective descriptive study by Loiola Ponte de Souza in 2011, unmarried males 15-34 years old commit suicide mostly by hanging.<sup>9,10</sup>

In the Tikúna, from the Alto Solimoes region, bordering with Colombia and Peru, a high suicide rate has also been described, many of them occurring in clusters, in the villages of Belem de Solimoes, Nova Jutai, Piranha, and Sao Joaquim. With 26 000 individuals scattered in 100 communities, they are one of the larger indigenous groups in the country,<sup>17</sup>; 10 of them committed suicide, on average, every year between 1990 and 1997.<sup>8</sup> Suicide is not only a major public health issue, but required interventions are very probably not from a biomedical perspective, and will need to incorporate anthropologists, and take into account culture, history and, perhaps, genetic factors.<sup>15</sup> In most of the studied tribes suicide shares common triggers. Western culture has invaded the indigenous territories with new agricultural and commercial practices,<sup>8,17,22,24</sup> mining and oil drilling has polluted water sources, large populations have been displaced, prostitution and alcohol consumption have flourished,<sup>8</sup> indigenous people have lost their self-esteem causing a feeling of despair when they witness a rapid process of cultural death.<sup>13,16</sup> Transition from adolescence to adulthood is a particularly vulnerable age.<sup>7,8,18</sup> Suicide would be an escape route from fear or anger.<sup>25</sup>

There is a pattern showing a higher suicide rate in young single or widowed men,<sup>7,8,13,18,26,27</sup> and most deaths occur by hanging, followed by poisoning.<sup>7,8,17-19</sup> Many factors have been causally linked to suicide in these groups. Loss of their original territories, climate changes,<sup>8</sup> new lifestyles (which include high alcohol consumption),<sup>8,13,18,21</sup> as well as cultural and religious invasion<sup>8,28</sup> have all been linked to suicide. The ritual use of psychotropic substances like the *konaha*, which causes hypotension and seizures, and which is supposed to strengthen those that survive its use, in the ritual passage to adulthood, plays an important role among the Sorowaha, another Amazonic group. They share the belief that dying "young, beautiful, and strong" leads to a painless route in the cosmologic transition towards the afterlife. Some groups believe that the spirits of young men who have committed suicide return to haunt other youngsters,<sup>10,26</sup> which would help explain epidemics.<sup>13,29</sup>

## Colombia

In Colombia, self-declared indigenous individuals account for 3.4% of the population, distributed in around 80 ethnic groups. They are usually located in marginalized areas, and their epidemiologic profile, infant and maternal mortality, or life expectancy, correspond to the least developed countries in the world.<sup>30</sup> So called "tropical" and neglected diseases, like malaria, dengue, Chagas disease, tuberculosis, intestinal parasites and malnutrition, are highly prevalent among them.<sup>31</sup> Evidence from different sources points at suicide as a serious public health problem among certain Colombian ethnic groups. An estimation of the psychiatrist Coral Palchucán,

in 2010, gives a figure of 36 suicides per 100 000 among the Camëntsá from Putumayo, near the border with Ecuador.<sup>32</sup> According to medical forensic studies and data from the Amazonic community of Yavaraté, near the border with Brazil, the incidence reached 238 per 100 000 between 2008 and 2011.<sup>33</sup> These figures contrast with the national average of 4.4 per 100 000.<sup>34</sup> As in Brazil, male adolescents and young adults are the main victims.<sup>32</sup> One study in the Embera-Chami ethnic group of Antioquia (northwestern Colombia) reported that 69% had suffered at least one depressive episode and that 13% had had suicidal ideation.<sup>35</sup> In this Embera group, and in the neighboring Wounaan, suicide has been described as a rite of passage towards a better life. In these 2 communities, more than 20 suicides, mostly of young men, occurred by hanging between 2003 and 2006. The Embera, originally from the region of Chocó, but now broadly distributed in other regions of Colombia are another indigenous population that has been the focal point of cultural studies.<sup>36</sup> Their suicidal act starts by a demonic possession called "Jai Tontine", in which the person affected by this possession would begin experiencing myalgia, headaches, social isolation, lack of appetite, and insomnia, frequently attempting suicide afterwards. Because of an increase in the prevalence of suicide in this population, possibly due to stress related to the armed conflict in the region, the government began a program in which they assigned trained psychotherapists to the area with the hope to reduce the incidence of mental diseases related to suicide.<sup>11</sup>

For the U'wa from the northeastern Andean region, suicide is preferable to the profanation of their ancestral lands by the oil industry, and have threatened with committing collective suicide by jumping off a cliff.<sup>37,38</sup> This indigenous group has joined several environmental organizations trying to find a solution to their problems.

### Peru

Around 9.1 of the estimated 31.4 million Peruvians (29%) are self-declared indigenous, and 4.4 million (14%) speak any of the 68 native languages.<sup>39</sup> There are 76 different ethnic groups, 60 of which inhabit the Amazonic Region. One of them is the Aguaruna or Awajún, who live close to the border with Ecuador, in Northeastern Peru. Brown,<sup>40</sup> in a case control study, analyzed 86 suicides among the Aguaruna, which occurred between 1940 and 1981. The author associated these cases with social changes, with suicidal attempt triggered by alcohol, infidelity, or death of a relative. Young women were particularly vulnerable (female:male ratio was 2:1).

Tuesta Cerrón<sup>41</sup> and Luna<sup>42</sup> also studied the Aguaruna, in a case control study with information from 42 young men and women between 10 and 21 years, 13 adult women, 10 health promoters and 5 pro-teachers of communities, and established that the increase in suicide rates over the years could be mainly attributed to high consumption of *ayahuasca*, a psychotropic drug. Studies performed during 1950-1980 registered 86 suicides in this indigenous group. The origin of these suicides was not clear, but was associated with massive colonization, industrial development, oil concessions, and illegal activities that caused stress and exclusion in this ethnic group. The quality of life of indigenous population has been affected, and suicide has become a way to escape from this

perceived domination over them. Nevertheless, suicide can also be related to other factors such as alcohol consumption, infidelity, witchcraft, illness, poor education, marriage issues, and death of relatives.<sup>40,41</sup> A qualitative approach, through interviews with six indigenous women, addressed their own suicidal experiences or that of a close relative, and pointed to a cultural factor, transmitted through generations, with suicide as an accepted way to respond to disturbing phenomena.<sup>41</sup> Women perceive themselves as less powerful, and tend to commit suicide by intoxication (men use firearms or hang themselves).<sup>40</sup>

### Chile

National data from CEPAL (a United Nations agency for Latin America and the Caribbean) and from the Ministry of Health show that suicide in indigenous population is significantly higher than in non-indigenous population in Chile. Particularly in the Alto Bío Bío commune, located in the Bío Bío region, which is one of the 15 administrative divisions of Chile, where 74.1% of the population is indigenous, most of them part of the Pehuenche ethnic group.<sup>43</sup> The Pehuenche are a Mapuche-derived branch, they constitute mountainous community that live on the western and eastern slopes of the Andes in south central Chile and Argentina.<sup>44</sup> In Chile the Pehuenche population includes 4639 individuals.<sup>45</sup> Like many indigenous communities, the Pehuenche believe that the land was given as a loan and they have the duty to take care and protect it, they cannot destroy it nor sell it.

The rise in the suicide rates of the Pehuenche has occurred in places that have been intervened by the state or by international capital, as part of a national project of neoliberal modernization that attempts to incorporate them into the agricultural and cattle raising market.<sup>44</sup> The Mapuche, the largest native population in Chile, represent 93% of the natives. They have suffered an intensive migration process from their Andean highland home to the main cities. Their territory has been permanently reduced because of a land-demanding agrarian society, and a government that has transferred the control of their lands to national and foreign companies.<sup>46</sup> The construction of 2 hydroelectric dams along the river Bío Bío has displaced almost 100 families from their ancestral lands, and they now live in extreme conditions of vulnerability and social exclusion. The imminent risk of extinction of the Mapudungun language is another example of their cultural loss. The main method of suicide of the Pehuenche is by hanging from a tree.<sup>46</sup>

### Discussion

The first unexpected result of our systematic review was the lack of publications on indigenous suicide from the Latin American countries with the highest relative indigenous populations: Bolivia, Guatemala or Mexico. A possible explanation for this absence could be that suicide correlates with being a marginalized minority. An alternative could be that in those countries suicides are not perceived, and hence not reported, as indigenous suicides. Although different in beliefs and origin, indigenous people are facing common

stressors that lead them to a path of despair, helplessness and, frequently, suicidal behavior. The important issue is to address this anthropological phenomenon from a perspective that involves their culture and beliefs. Indigenous self-declared people account for a significant proportion of the Latin American population and represent great source of autochthonous and traditional culture and wisdom. Changes in lifestyles influenced by industrialization, environmental degradation, and invasion have corrupted indigenous souls, making them experience what has been described as “cultural death.” Suicide rates have been increasing for many ethnic groups, and interventions will be particularly difficult in those that regard suicide and death as a transition to a better life. Countries are working to increase reports on indigenous health so more areas can be protected and behavioral suicide followed closely. Limitations exist, as suicide and self-harm underreporting is believed to be high. Few studies have been conducted to evaluate mental illness among these communities to determine if a possible medical intervention would be plausible in preventing premature deaths.

Suicidal behavior has been described in other ethnic minorities. A cross sectional study comprising 516 Swedish Sami indigenous individuals from the Swedish Arctic region studied the group’s attitude and experience towards suicide with the Attitudes Towards Suicide (ATTS) questionnaire. They found an increased occurrence of suicidal ideation/death wishes compared to young Swedes. Some similarities to Latin America were found, such as alcohol consumption, maltreatment due to ethnicity, and industrialization making life more difficult for them. This vast indigenous group has national representation and active political groups. Therefore, individuals can be more closely followed and suicide report can be more accurate.<sup>1</sup> To our knowledge, no similar studies have been performed in Latin America.

In Canada, the Inuits have an abnormally high suicidal rate, and social and family support has been identified as the most important protective factor.<sup>47</sup> Western society suicidal prevention has not been useful in North American minorities. Instead, community based programs have been associated with a steady decline in suicidal tendencies among indigenous people. Programs that include listening to the elderly and practicing cultural activities have been the most accepted by the indigenous communities in Canada.<sup>48</sup>

Alcohol is a major problem related to suicide, since it triggers the event. An American cohort study using logistic regression studied the relationship between acute alcohol intoxication and suicide, comparing different US ethnic and racial groups: American Indians/Alaska Natives and Asians/Pacific Islanders compared with Blacks, Whites and Hispanics. The highest alcohol and suicide rates were found among American Indians/Alaska Natives, possible explanations for this phenomenon included cultural loss, historical trauma, ethnic discrimination, poverty, unemployment, family breakdown and previous history of substance abuse.<sup>2</sup> Apparently this is a global issue that also affects non-indigenous; alcohol educational and/or restrictive policies should be implemented.

Mental health disorders in Latin American indigenous groups have not been studied in depth. Limitations exist with respect to medical interventions, since their understanding of

health and disease, particularly mental illness, usually comes from their own traditions and beliefs. However, an interesting example of how to address this issue would be to establish medical services integrated to their communities, and with appropriate awareness of their history, traditions and culture, where individuals could receive psychological support and medical attention. This model has been applied with American Indians/Alaska Natives in the US, however the effectiveness has been limited primarily due to limited introspection and also due to economic restrictions.<sup>3</sup>

## Conflicts of interest

The authors have no conflicts of interest to declare.

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