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ANALYSIS OF RISK FACTORS AND EPIDEMIOLOGICAL PROFILE OF SUICIDE ATTEMPTS IN BRAZIL

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Abstract: Suicide represents a serious global public health problem, with significant and devastating impacts on individuals, families and communities. In Brazil, there has been a significant increase in suicide attempts, especially among adolescents, young adults and women. Given this scenario, it is essential to identify the factors that contribute to this behavior and to understand the profile of the most vulnerable populations. This study aims to analyze the epidemiological profile of suicide attempts in Brazil and compare it with the profile of completed cases, in order to highlight the main associated risk factors. This is a descriptive epidemiological study based on secondary data obtained from official sources such as DATASUS and SINAN, as well as scientific articles selected from SciELO, PubMed and Google Scholar. Studies published in the last five years in Portuguese, English and Spanish were included. The data reveals two distinct profiles between suicide cases and attempts. Suicide attempts are more frequent among women, while consummated cases are mostly male, but in both cases there are individuals aged between 20 and 39. The majority of individuals declare themselves to be brown and around 45% of attempts are repeated. There is a strong association with mental disorders, especially bipolar disorder and schizophrenia. The stigma attached to these conditions hinders both prevention and adequate treatment. These findings reinforce the need for integrated, multidisciplinary strategies to tackle the problem. The study highlights the urgent need to strengthen public policies aimed at suicide prevention, with an emphasis on promoting mental health, facilitating access to psychological and psychiatric support services and early identification of risk factors. Targeting vulnerable groups is key to reducing the number of attempts and avoiding fatal outcomes.

Keywords: Suicide; Suicide attempts; Mental health; Risk factors; Epidemiology.

INTRODUCTION

Suicide is an intentional action to end one's own life, characterized by being complex and multifactorial[1]. This act results in a set of biological, genetic, psychological, sociological, cultural and environmental interactions. On the other hand, suicide attempts are self-mutilation behaviors aimed at ending one's life, but which do not lead to death[2].

According to data from the Cidacs/Fiocruz survey, between 2011 and 2022, the suicide rate grew by 3.7% a year. Taken together, the number of attempted suicides in Brazil over the same period rose by 21% a year, with equal growth in all regions of the country[3]. Globally, it is estimated that for every suicide there have been between 20 and 30 previous attempts, thus highlighting the importance of the issue[4].

Identifying individuals who attempt suicide and their risk factors is a crucial tool for developing strategies to prevent further attempts and deaths. Among the most relevant factors for suicide are: history of previous attempts, presence of mental disorders, alcohol and other substance abuse, barriers to accessing the health system, discrimination, lack of emotional support, chronic illness, loss of employment, family history of suicide and genetic predisposition.[2]

Analysis of risk groups requires consideration of demographic identifiers, such as gender and age, as well as the biopsychosocial profile.[2] This method makes it possible to identify common characteristics between individuals, acting as an important warning for intervention and generating early identification which, together with targeted actions, can reduce suffering and the risk of further attempts.[5]

Furthermore, knowledge of risk factors and the profile of these individuals are essential for recognition in primary health care. Research shows that approximately 80% of suicide cases had contact with the primary care service one year before the act, 54% in the previous six months, 41% in the last three months, 44% in the last month and 16% in the week that the death occurred. This data highlights the importance of general health professionals having access to how to identify these vulnerable individuals and act preventively.[6]

Therefore, this study seeks to provide essential data to understand the risk factors and profile of attempted suicide in Brazil. To analyze aspects of demographic profile, social context and behavioral patterns, in order to create effective preventive strategies. In addition, the results will contribute to the implementation of more appropriate public policies and highlight the importance of health professionals identifying and approaching at-risk patients more efficiently, in order to combat suicide and suicide attempts.[7]

METHODOLOGY

This is a quantitative, descriptive study based on the analysis of secondary epidemiological data on suicide and suicide attempts in Brazil. The research was generated using secondary data collected from official sources of the Brazilian Ministry of Health through the DATASUS website, as well as a bibliographic review of articles indexed in the PubMed, SciELO and Google Scholar databases. Through this method, it was possible to generate a consistent and comprehensible overview of the health problems that are relevant to society.

The secondary database used is from the Department of Information Technology of the Unified Health System (DATASUS) and is available on the TabNet health information platform. The data portrayed refers to the Mortality Information System (SIM)/ ICD-10 mortality monitoring panel to analyze deaths from intentional self-inflicted injuries (X60-X84 refers to the code used to access specific data on deaths from intentional self-inflicted injuries) and the timely notification category, which analyzed suicide attempts,

using the national territory as a whole and variables such as gender, age, race and location. Ages were stratified according to the age groups available on DATASUS: 10 to 14, 15 to 19, 20 to 29, 30 to 39, 40 to 49, 50 to 59, 60 to 69, and 70 upwards. We chose to include data from 2020 to 2024, which was accessed in November 2024. Data from years prior to 2020 and numbers of deaths from unintentional injuries and diseases were excluded. The data was organized and tabulated in Microsoft Excel software, allowing the information to be categorized, seeking to identify trends, patterns and variables over these four years to differentiate the prevalence of suicide and attempts. The data was analyzed using a comparative and relational approach based on scientific literature, in order to contextualize the figures presented and associate possible increases and decreases in cases. For data on suicide attempts, the Interpersonal/Autoprovoked Violence Panel (SINAN) was also used, which only included data on self-inflicted injuries between 2022 and 2023. Interpersonal violence and years after 2022 were excluded.

To complement and underpin the study, a review of scientifically-based bibliographies was carried out for a greater analysis and understanding of the factors associated with suicide and suicide attempts. The databases used were PubMed, SciELO and Google Scholar, collected in November 2024. Inclusion criteria were articles published in the last five years (2019-2024) that addressed risk factors, mental disorders related to suicide, recurrence of attempts and prevention strategies, published in English, Portuguese or Spanish, with only one article published in 2017 being considered due to its relevance to the subject. Articles more than five years old and those in thesis format were excluded. A total of 45 articles were analyzed, of which 29 were excluded according to the established criteria and 15 were reviewed and included in this study.

The guiding question was: What are the main risk factors for suicide and suicide attempts? The descriptors used were: Suicide, Suicide Attempt (SA), Epidemiology (EP), Mental Disorders (F03) and Risk Factors (RF). The articles were identified, numbered and organized into a document, and the information extracted was systematized to support and interpret the epidemiological data.

Data analysis followed the following methodology: reading the abstracts according to the inclusion and exclusion criteria, carefully reading the selected articles to extract relevant information, exploring the data and critically analyzing the risk factors, associated disorders and the most effective prevention strategies, as well as correlating the evidence found in the literature with the epidemiological data obtained from DATASUS.

RESULTS

According to a comparative analysis of international studies, there are some common factors associated with suicide attempts, highlighting mental disorders as the main risk factor.

Thus, according to Ribeiro's study, carried out with a systematic review with meta-analysis, it was observed that factors of previous attempts and suicidal ideation are directly linked to substance use and trauma, bringing a significant increase in new attempts, generating a great prominence as a risk factor.[8]

In addition, Svedberg's studies, through a population-based study, identified that 45% of patients had a recurrence of suicide attempts and around 80% of individuals who consummated the act of suicide had accessed primary health care in the previous year, suggesting a key point for intervention and prevention of these cases. The study also highlights a strong relationship with the individual's socioeconomic context, highlighting a direct influence.[9]

Another study by Mehanovic, using a sample of young Italians aged between 12 and 29, revealed a recidivism rate of 20.6%, 24.8% among females and around 90% of the participants had psychiatric diagnoses such as depression, bipolar disorder, schizophrenia and eating disorders, reinforcing the crucial impact of these psychiatric disorders.[10]

In general, the studies pointed out that the greatest influence among cases of suicide and suicide attempts is highly influenced by untreated mental conditions, behavioral dynamics and failure to provide initial care. This highlights the importance of primary care, especially for young people, in order to develop prevention and early detection strategies to reduce the risk of lethal outcomes.

DISCUSSION

Suicide is growing exponentially, significantly alarming public health worldwide. According to the World Health Organization (WHO), more than 700,000 people a year die by suicide, making it the 18th leading cause of death and the second leading cause among people aged 15 to 29.[11]

In Brazil, the situation is no different from the rest of the world, suicide second epidemiological data from the Department of Informatics of the Unified Health System (DATASUS) related to suicide between the years 2022 to 2024 revealed important characteristics about vulnerable individuals, being able to know the trends and related factors. To contextualize the data provided by Datasus, in 2022 there were a total of 10,267 cases of deaths from intentional self-harm, in 2023 there were a total of 11,174 cases and by November 2024 there were 6,211 cases across the country.[12]

As a result of the data obtained by Datasus, it was analyzed that the highest percentage of suicides is carried out by men, in which in the year (Fig.1). In 2024, around 74.48% of reported cases, compared to previous years, remained constant at 77% in 2023 and 77.4% in 2022. On the other hand, females accounted for 22.51% of cases in 2024, a slight reduction when comparing 2023 with around 23% and 2022 with 22.83%. These lower figures for females may be related to their constant search for professional help and health care.[12]

Gender	2020	2021	2022	2023	2024*
Female	2.964	3.431	3.553	3.758	1.877
Male	10.868	12.064	12.908	13.244	6.907
White/ unknown	3	4	1	0	3
All	13.835	15.499	16.462	17.002	8.787

Fig. 1 Data referring to sex and year of suicide cases, taken from the ICD-10 Mortality Monitoring Panel.

With regard to racial factors (Fig. 2), there was greater evidence of white and brown groups being more affected. In 2024, 46.59% of suicides were by white individuals, with a slight decrease in 2023 and 2022 (48.92%; 49.16%). However, there was an increase in the number of brown individuals, who accounted for 45.93% in 2024 compared to 43.83% in 2023 and 43.75% in 2022. These figures can be linked to adverse psychological and social issues.[12]

Race/Color	2020	2021	2022	2023	2024*
White	6.576	7.158	7.805	7.805	4.023
Black	779	857	930	1.005	474
Yellow	53	48	57	54	36
Brown	6.151	7.047	7.352	7.759	4.065
Indigenous	123	161	153	185	98
White/Ignore	153	228	165	141	91
All	13.835	15.499	16.462	17.002	8.787

Fig. 2 Data on race/color and year of suicide cases, taken from the ICD-10 Mortality Monitoring Panel.

In terms of age group (Fig. 3), the highest number of reported cases was concentrated between the ages of 20 and 39. In 2024, 21.22% between 20 and 29 years old and 21.35% be-

tween 30 and 39 years old. This shows the vulnerability of young adults, which may be related to the adversities of work linked to economic difficulties, academic life and mental disorders.[12]

Age group	2020	2021	2022	2023	2024*
10 a 14	164	218	203	169	80
15 a 19	1.004	1.075	1.053	951	435
20 a 29	2.767	3.159	3.404	3.535	1.805
30 a 39	2.68	3.103	3.456	3.632	1.853
40 a 49	2.488	2.787	3.09	3.232	1.743
50 a 59	2.084	2.31	2.384	2.476	1.279
60 a 69	1.42	1.516	1.581	1.656	585
70 a 79	845	896	879	938	511
80 e +	354	399	385	394	206
White/ Unknown	25	30	23	19	13
Total	11.831	13.493	14.458	14.999	7.783

Fig. 3 Data on age group and year of suicide cases, taken from the ICD-10 Monitoring Panel.

As for the geographical location (Fig. 4) of the individuals in Brazil, there is a prevalence in the Southwest region, although when compared to previous years there is a decrease, representing 34.37% in 2023 and 31.35% in 2024. As for the Northeast, although the prevalence is lower, there has been a steady increase from 23.68% (in 2022) to 25.08% (in 2024). These data suggest that in the most vulnerable places, socio-economic factors are essential for the mental health of the population.[1]

Location	2020	2021	2022	2023	2024*
Brazil	13.835	15.499	16.462	17.002	8.787
North	1.119	1.209	1.312	1.438	810
North East	3.239	3.792	3.837	4.151	2.212
Southeast	5.046	5.607	6.022	5.991	2.879
South	3.132	3.479	3.697	3.769	1.977
Center-West	1.299	1.412	1.594	1.653	909

Fig. 4 Data referring to the Brazilian geographic region and year of suicide cases, taken from the ICD-10 Mortality Monitoring Panel.

When it comes to the registered notification of suicide attempts in Brazil, according to the government agency for the Notification of Self-Inflicted Violence, the profile of these individuals may be different when compared to suicide cases. This provides a more targeted warning, especially to health professionals, since 80% of suicide cases had access to the primary health care system a year before committing the act.[13]

Thus, the total number of attempted suicide cases recorded was 308,776 in 2022 and 2023. The most vulnerable sex was female (fig.5), accounting for 70% of notifications in the last three years. And according to race, it was found to be similar to that presented in suicide cases.[13]

Compared to the age group (Fig.6), there was a predominance of people aged between 20 and 29 years old (20.37%) and in second place between 15 and 19 years old (15.54%). In relation to race (Fig.5), as in the case of suicide, there is also a prevalence of white and brown people, 43% and 42% respectively. [13]

With regard to location in Brazil, there is a greater predominance in the south-east of the country, accounting for 84,452 cases, and the south with a significant figure of 33,975 in the last two years.[13]

A significant piece of evidence is the strong relationship between suicide attempts and mental disorders. In Brazil, it has been analyzed that 89% of individuals who have attempted suicide have some mental/behavioral disorder (Fig. 8). According to randomized studies, bipolar disorder and schizophrenia are among the most common disorders globally in cases of suicide attempts, as well as behavioral disorders due to substance use, especially alcohol, leading to a risk analysis among these individuals.[14] Genetic predisposition is considered a major associated point, since it shows an increase in the number of cases when related. Thus, there is a need to alert individuals with this vulnerability.[15]

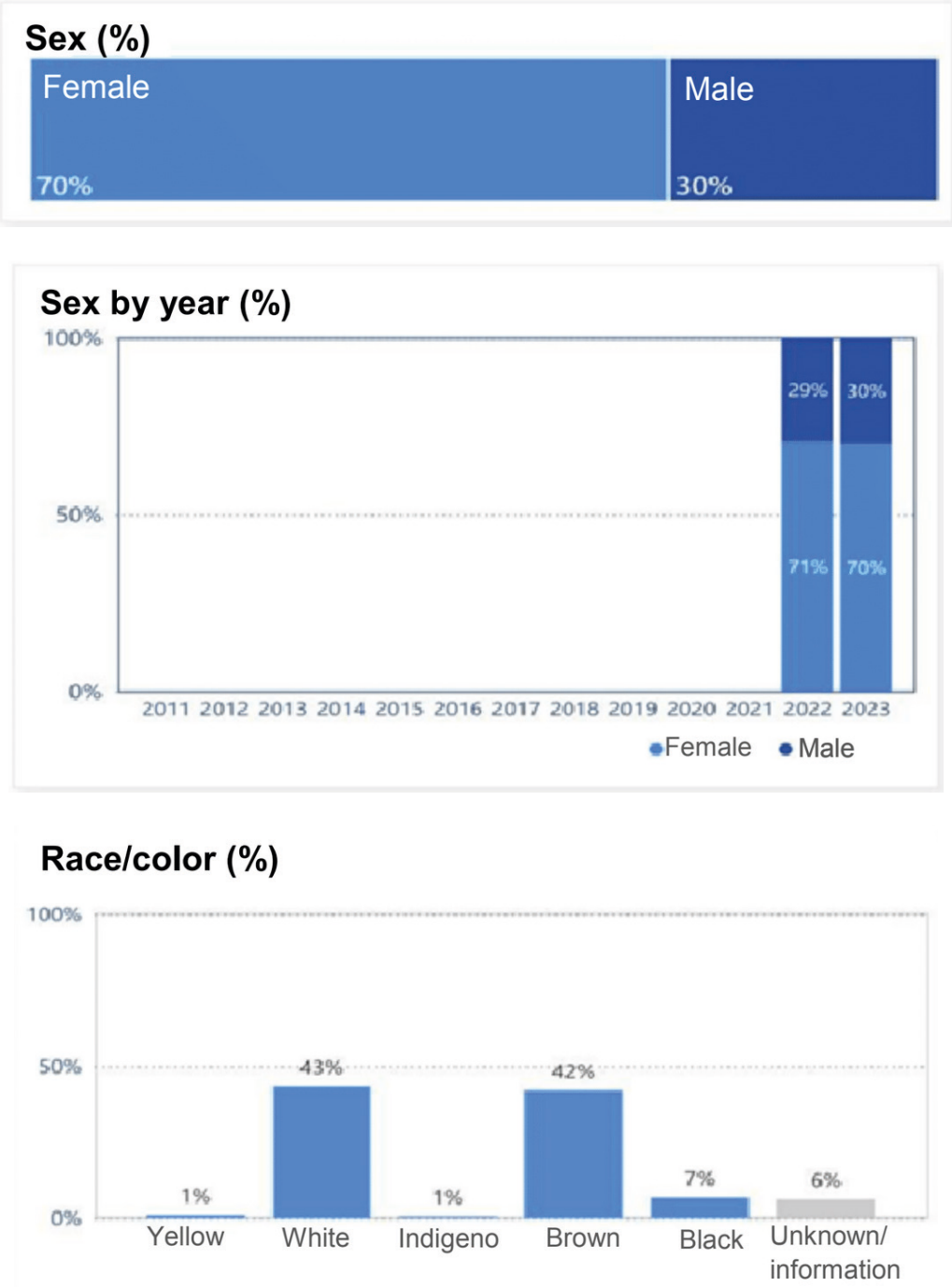

Fig. 5 Refers to sex and race data according to the year of Suicide Attempts, taken from the Interpersonal Violence/Self-harm Panel.

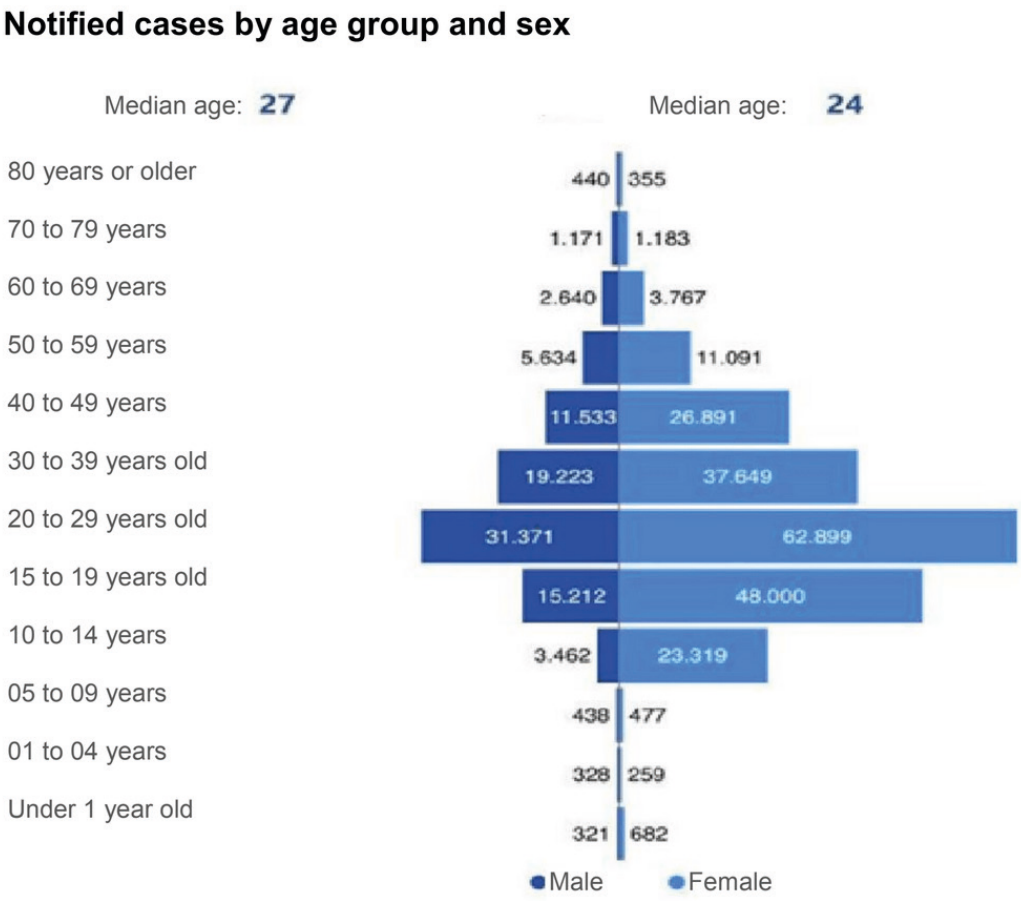

Fig.6 Data on age according to the year of attempted suicide, taken from the Interpersonal/Self-inflicted Violence Panel.

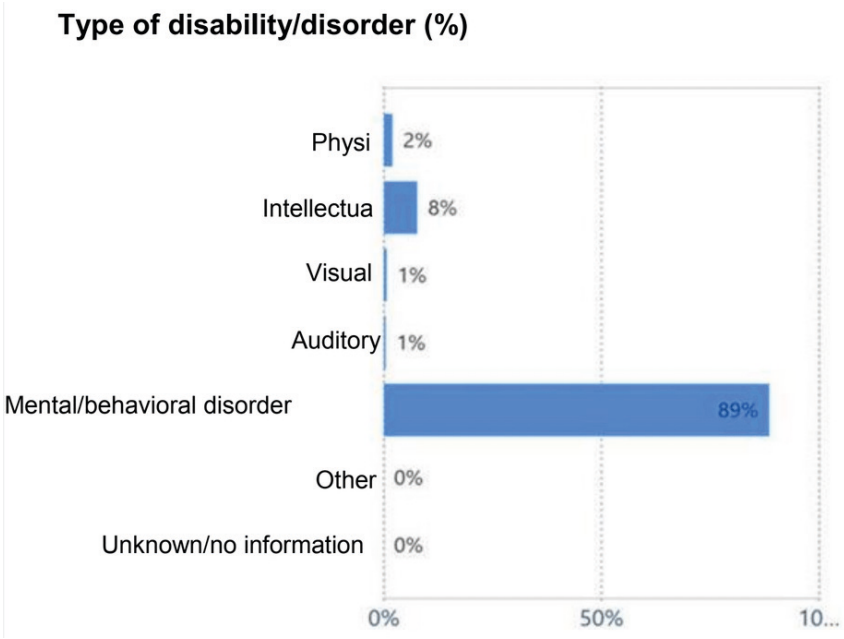

Fig. 8 referring to the number of cases of suicide attempts related to Mental and Behavioral Disorders, taken from the Interpersonal/Self-inflicted Violence Panel.

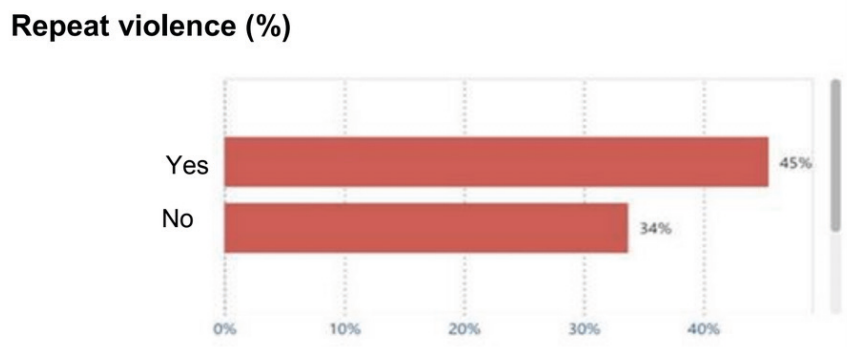

Fig. 9 referring to the recurrence of suicide attempts taken from the Interpersonal/Self-inflicted Violence Panel.

Finally, the data indicates that 45% (Fig. 9) of the individuals who attempted suicide were repeat offenders. This calls for greater attention to be paid to creating more effective prevention and follow-up strategies to reduce the risk of new attempts.[13]

CONCLUSION

According to the data found, suicide and suicide attempts represent a major public health problem in Brazil, requiring evidence-based prevention strategies. In the analysis of suicide, the prevalence of cases in males aged between 20 and 39 suggests the need for a specific approach, taking into account factors such as economic difficulties, social pressure and less seeking of professional care. The comparison with suicide attempts shows a higher number of women, demonstrating a different pattern and reinforcing the importance of differentiating prevention and intervention strategies in these cases.

In addition, according to the analysis by race and geographical location, the most vulnerable social groups include brown people and residents of regions with greater socio-economic challenges, highlighting the influence of social determinants on mental health. With regard to mental and behavioral disorders, there is a strong association with suicide, especially in cases of bipolar disorder, schizophrenia and substance use, which reinforces the need to expand and facilitate access to professional mental health services, with the aim of reducing the incidence of suicide and the recurrence of attempts.

Therefore, the research highlights the importance of strengthening public policies that promote greater support for individuals at risk, with new approaches to accessing treatment. It also highlights the need for better identification of risk factors by all health professionals, not just mental health specialists, but also the training of other professionals, so that they can recognize individuals at risk and refer them appropriately. In this way, it will make a significant contribution to reducing suicide rates in the country, ensuring mental health promotion and prevention for the population.

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