

Epidemiology of deaths due to mental and behavioral disorders in Brazil, from 2014 to 2023

Abstract

Introduction: Psychiatric disorders are disorders that present a set of symptoms or behaviors associated with distress and interference with an individual's personal functions. They can affect anyone, across different age groups, genders, and races/ethnicities. These disorders include conditions such as anxiety, depression, alcohol and drug abuse, eating disorders, schizophrenia, and others. Approximately 1 billion people had one of these disorders in 2019, the majority of which were depression and anxiety disorders, which account for 60% of mental illness cases. These illnesses have been increasing in Brazil since 2019, posing a public health challenge.

Objective: To study the epidemiological profile of mortality from mental and behavioral disorders in Brazil from 2014 to 2023.

Methodology: A descriptive, quantitative, cross-sectional, time-series epidemiological study (2014-2023) was conducted using secondary data from the SUS Information System, TABNET-DATASUS, of the Ministry of Health - Brazil.

Results: In the decade analyzed, there were $n=151991$ deaths from mental and behavioral disorders, with a mean of $15199,1 (\pm 2780,78)$ and a Coefficient of Variation of 18.30%. Males were the most affected ($n=107011$), accounting for approximately 70%. White individuals had the highest number of deaths from these disorders, with $n=68032$ (45%), followed by brown individuals, with $n=62352$ (41% of the sample). Regarding education, deaths were more frequent in individuals with up to seven years of schooling (64%). Those over 30 years of age were much more affected by deaths from these disorders, totaling 146938 deaths.

Final considerations: Mental and behavioral disorders should be a constant public health concern, as they imply a large number of deaths. Therefore, in Brazil, improvements in public health actions are necessary, aiming at prevention, early diagnosis and treatment of such disorders, in order to reduce the number of deaths related to these diseases.

Keywords: mental disorders, public health, epidemiology, deaths

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Introduction

Psychiatric disorders are categorized in Chapter V of the 10th edition of the International Classification of Diseases (ICD-10), among them are mental and behavioral disorders, which indicate disorders that present a set of symptoms or behaviors associated with suffering and interference in the individual's personal functions.¹ These symptoms are variable, generally representing abnormalities in ideas, emotions, and relationships, which lead to functional impairment and harm the person with the abnormalities, with functional and behavioral psychic alterations, usually with a determined and easily detectable onset. It can affect anyone, in various age groups, genders, and races/colors. These disorders include conditions such as anxiety, depression, alcohol and drug abuse, eating disorders, schizophrenia, and others.²

Based on an epidemiological analysis, the World Health Organization (WHO) estimated that nearly one billion people lived with some mental disorder in 2019, with the most prevalent globally being depression and anxiety disorders, which together account for approximately 60% of mental illness cases.³ The impact of these disorders is also reflected in mortality rates, as evidenced by the WHO in recent studies, in which individuals with severe mental disorders tend to die 10 to 20 years earlier than the general population, primarily due to preventable physical illnesses.⁴

Further on the global context and analyzing the Brazilian scenario, the situation is equally critical, as data indicate that 26.8% of Brazilians have received a medical diagnosis of anxiety, and that one in ten individuals reported a diagnosis of depression at some point in their lives.⁵ In recent studies, these disorders are responsible for a considerable portion of hospitalizations and premature mortality, as noted in a survey conducted between 2010 and 2021, in which 60513 deaths from mental and behavioral disorders due to alcohol use were recorded in the country, with a predominance in the Southeast region of the country with 22910 cases.⁶ The same idea is highlighted in another survey conducted in 2023, which indicates that between 2019 and 2020 there was the greatest variation in mortality from mental disorders.⁷

With strong influences from the pandemic period, that the rate of hospitalizations due to mental disorders increased nationwide from 2019 to 2023, highlighting the impact of the COVID-19 pandemic on the mental health of the Brazilian population, a point worth emphasis given its global impact.⁸ Thus, mental disorders represent a significant challenge for Brazilian public health. Therefore, the objective of this research was to study the epidemiological profile of mortality from mental and behavioral disorders in Brazil from 2014 to 2023, taking into account that there is a knowledge gap regarding the recent informations about epidemiological on mental and behavioral disorders.

Methodology

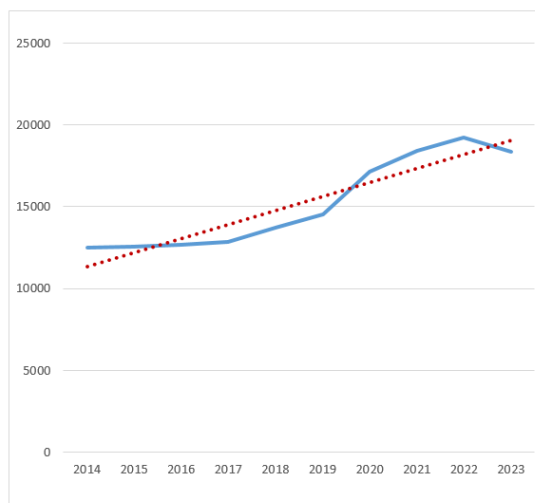
A descriptive, quantitative, cross-sectional, and time series epidemiological study was conducted using secondary data from the SUS/TABNET-DATASUS Information System of the Ministry of Health of Brazil and the Mortality Information System (SIM), which allowed access to vital statistics. The overall mortality in Brazil by place of residence was utilized, from which data were extracted on the following variables: region, year, chapter II of ICD-10, age group, sex, race/ethnicity, education, marital status, place of occurrence, and ICD-10 group, covering the period from 2014 to 2023, regarding Mental and behavioral Disorders.

The data were tabulated in *Excel* and subsequently exported to the statistical program *Bioestat 5.3*, where descriptive statistics were performed, and results were expressed in absolute numbers and frequencies, means, standard deviations, and coefficient of variation (CV), and presented in graphs and tables.

Regarding ethical precepts, this study does not require submission/approval from a Research Ethics Committee, as it uses secondary data available in open access in the official health database of the Brazilian Ministry of Health, with population data that do not allow individual identification, thus ensuring the privacy required by research ethics and therefore being in accordance with the legal and regulatory standards of health research, according to law 14.874/24 that regulates research with human beings in Brazil,⁹ the Nuremberg Code¹⁰ and the Declaration of Helsinki (2001).

Results

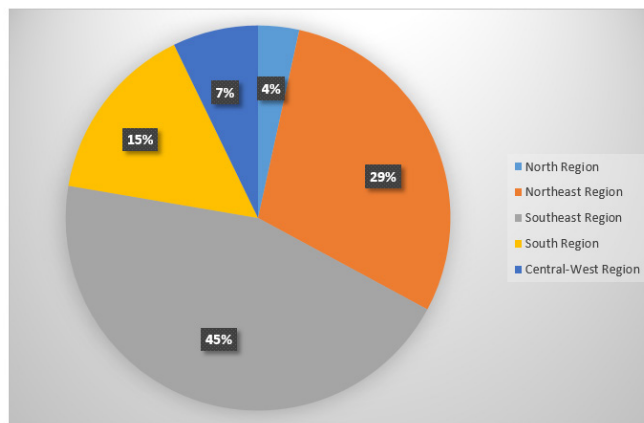
During the decade analyzed, there were $n=151991$ deaths due to mental and behavioral disorders in Brazil, corresponding to the period from 2014 to 2023. These results were distributed as follows: 2014 ($n=12480$), 2015 ($n=12558$), 2016 ($n=12674$), 2017 ($n=12858$), 2018 ($n=13697$), 2019 ($n=14526$), 2020 ($n=17168$), 2021 ($n=18409$), 2022 ($n=19255$), and 2023 ($n=18366$). When observing the trend of this mortality, there was a gradual increasing trend until 2019, which from that year onwards increased abruptly until 2022 and showed a decrease from 2022 onwards, however demonstrating a large number of deaths from these diseases in 2023. Therefore, the years 2015 to 2019 were below the trend line, the years 2020 to 2022 above the trend line and 2023 below the trend line (Graph 1). These data revealed a mean = $15199, 1 (\pm 2780,78)$ and a Coefficient of Variation = $18,30\%$.



Graph 1 Distribution of deaths from mental and behavioral disorders in Brazil, from 2014 to 2023.

Source: Prepared by the authors with data from MS/SVS/CGIAE - Mortality Information System – SIM, TABNET-DATASUS, extracted in 2025.

When investigating the distribution of these deaths by region (Graph 2), it was observed that more deaths occurred in the Southeast Region ($n=68091$), followed by the Northeast Region ($n=44728$), South Region ($n=23001$), Central-West Region ($n=10933$) and finally the North Region ($n=5238$).



Graph 2 Distribution of deaths from mental and behavioral disorders in Brazil by region, from 2014 to 2023.

Source: Prepared by the authors with data from MS/SVS/CGIAE - Mortality Information System – SIM, TABNET-DATASUS, extracted in 2025.

The Southeast Region presented an average= $6809,10 (\pm 1100,80)$ and Coefficient of Variation= $16,17\%$.

The Northeast Region presented an average= $4472,80 (\pm 893,02)$ and Coefficient of Variation= $19,97\%$.

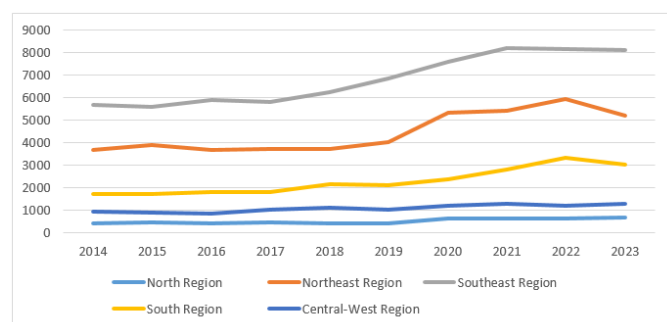
The South Region presented an average= $2300,10 (\pm 579,30)$ and Coefficient of Variation= $25,19\%$.

The Central-West Region presented an average= $1093,30 (\pm 165,34)$ and Coefficient of Variation= $15,12\%$.

And the North Region presented an average= $523,80 (\pm 116,64)$ and Coefficient of Variation= $22,27\%$.

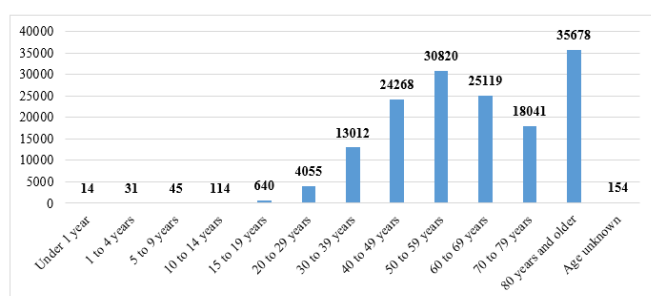
When observing the distribution of deaths due mental and behavioral disorders in Brazil/Region/Year distribution (Graph 3), it can be seen that the Southeast region saw a significant increase in deaths from these pathologies from 2017 to 2021, where they stabilized. The Northeast region showed fluctuations throughout the period, showing a significant increase from 2019 onwards, which then declined from 2022 onwards. The South region demonstrated some stability throughout the period, with slight fluctuations, with an increase from 2019 to 2022, where they began to decrease. The Central-West region also demonstrated stability throughout the period, with slight fluctuations, and the North region also showed some stability in deaths over time, with a slight increase from 2020 onwards.

Regarding the age group (Graph 4), from 40 to 49 years of age there was a large increase in the number of deaths due to these disorders. The age group 80 years and older had the highest number of deaths due to mental and behavioral disorders, followed by the age group 50 to 59 years, and then the age groups 60 to 69 years and 40 to 49 years.



Graph 3 Distribution of deaths from mental and behavioral disorders in Brazil by Region/Year, from 2014 to 2023.

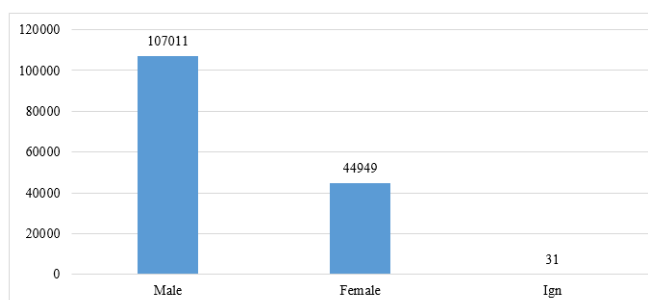
Source: Prepared by the authors with data from MS/SVS/CGIAE - Mortality Information System – SIM, TABNET-DATASUS, extracted in 2025.



Graph 4 Distribution of deaths from mental and behavioral disorders in Brazil by age group, from 2014 to 2023.

Source: Prepared by the authors with data from MS/SVS/CGIAE - Mortality Information System – SIM, TABNET-DATASUS, extracted in 2025.

In relation to sex (Graph 5), it was observed that the number of deaths due to mental and behavioral disorders in Brazil was much higher in males (70%), than in females (30%), and the number of unknowns (1%).



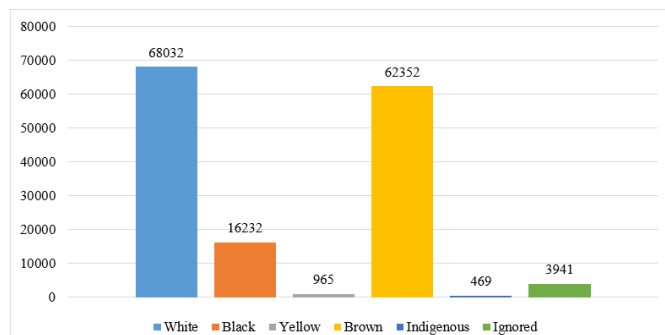
Graph 5 Distribution of deaths from mental and behavioral disorders in Brazil by sex, from 2014 to 2023.

Source: Prepared by the authors with data from MS/SVS/CGIAE - Mortality Information System – SIM, TABNET-DATASUS, extracted in 2025.

Regarding races (Graph 6), it was observed that the white race (45%) was the one that presented the highest number of deaths due to these disorders; followed by the brown race (41%); followed by the black race (11%); followed by the Ignored race (2%); the yellow race (1%) and finally the indigenous race (1%).

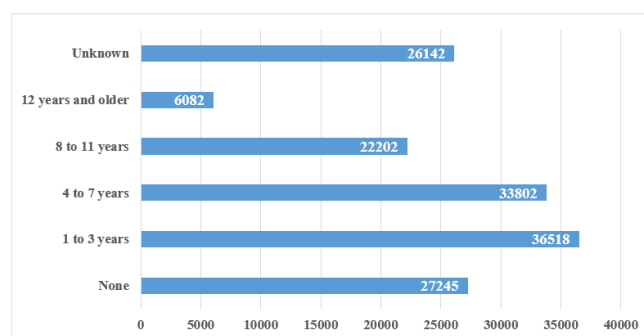
Regarding education (Graph 7), the number of deaths with no education (18%); 1 to 3 years (24%); 4 to 7 years (22%); 8 to 11 years (15%); 12 years and over (4%); and unknown (17%). Therefore, there

was a greater number of deaths with 1 to 3 years of education, and the lowest number of deaths due to mental and behavioral disorders was in people with 12 years of education or more.



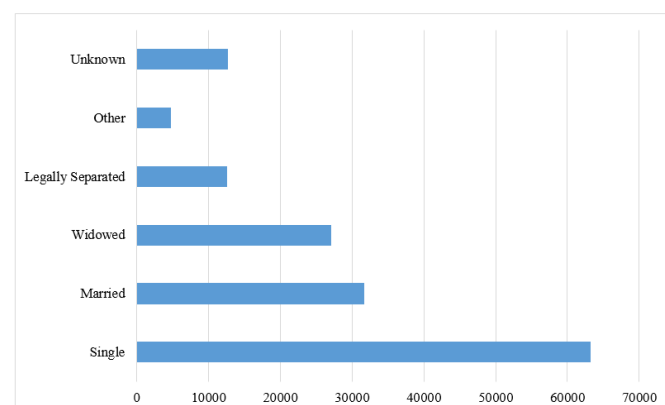
Graph 6 Distribution of deaths from mental and behavioral disorders in Brazil by race, from 2014 to 2023.

Source: Prepared by the authors with data from MS/SVS/CGIAE - Mortality Information System – SIM, TABNET-DATASUS, extracted in 2025.



Graph 7 Distribution of deaths by mental and behavioral disorders in Brazil by education level, from 2014 to 2023. Source: Prepared by the authors with data from MS/SVS/CGIAE - Mortality Information System – SIM, TABNET-DATASUS, extracted in 2025.

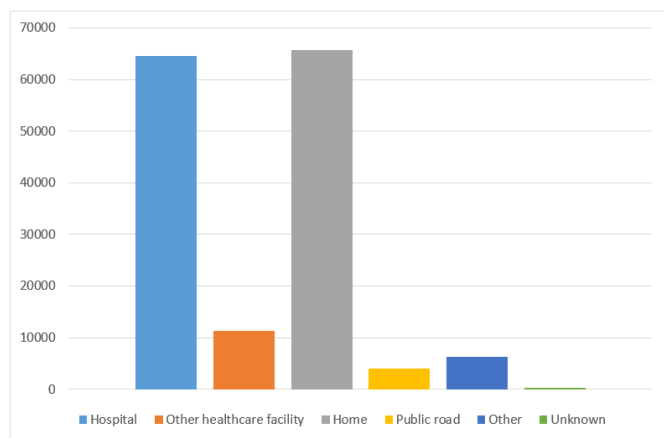
Regarding marital status (Graph 8), deaths due to mental and behavioral disorders were more frequent in single people (42%); followed by married people (21%); widowed people (18%); Unknown (8%); legally separated (8%); and Other (3%).



Graph 8 Distribution of deaths from mental and behavioral disorders in Brazil by marital status, from 2014 to 2023.

Source: Prepared by the authors with data from MS/SVS/CGIAE - Mortality Information System – SIM, TABNET-DATASUS, extracted in 2025.

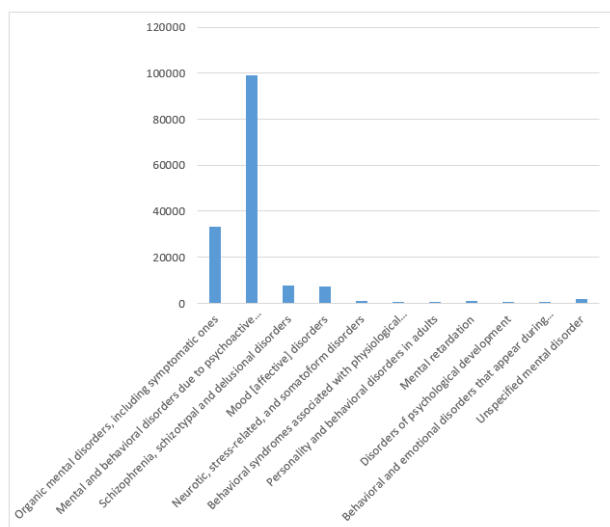
Regarding deaths from mental and behavioral disorders, by place of occurrence, it can be seen in Graph 9 that the majority of deaths occurred at home (43%); followed by deaths in hospital (43%); other health establishment (7%); others (4%); public road (3%); unknown (approximately 0%).



Graph 9 Distribution of deaths from mental and behavioral disorders in Brazil by place of occurrence, from 2014 to 2023.

Source: Prepared by the authors with data from MS/SVS/CGIAE - Mortality Information System – SIM, TABNET-DATASUS, extracted in 2025.

Deaths from mental and behavioral disorders by ICD-10 Group are described in Graph 10, which shows that most deaths occur from behavioral disorders due to the use of psychoactive substances ($n = 99003$) with 65%; followed by deaths from organic mental disorders, including symptomatic ones ($n = 33226$) with 22%; followed by schizophrenia, schizotypal and delusional disorders ($n = 7775$) with 5%; mood (affective) disorders ($n = 7124$) with 5%; unspecified mental disorder ($n = 1802$) with 1%; mental retardation ($n = 1070$) with 0,70%; neurotic, stress-related and somatoform disorders ($n = 1004$) with 0.70%; developmental psychological disorder ($n = 457$) with 0,30%; behavioral syndromes associated with physiological dysfunctions and physical factors ($n=364$) with 0,24%; adult personality and behavior disorders ($n=83$) with approximately 0,5%; behavioral and emotional disorders that appear during childhood ($n=83$), also with approximately 0,5%.



Graph 10 Distribution of deaths from mental and behavioral disorders in Brazil by place of occurrence, from 2014 to 2023.

Source: Prepared by the authors with data from MS/SVS/CGIAE - Mortality Information System – SIM, TABNET-DATASUS, extracted in 2025.

Discussion

Our findings on the epidemiological profile of mortality from mental and behavioral disorders in Brazil from 2014 to 2023 reveal a complex and challenging scenario for Brazilian public health, as they demonstrate a growing increase in the diagnosis of mental disorders. According to the Pan American Health Organization (PAHO),³ people with mental disorders receive less adequate treatment in low- and middle-income countries (80%) compared to the population in rich countries (30%).¹¹ This finding is evident not only in Brazil but also throughout Latin America, where the treatment gap for moderate to severe mental disorders reaches 74.7%.¹²

The high number of deaths found may highlight negligence in the proper treatment and care of those affected, and thus demonstrates difficulties in the health system contributing to the high number of deaths. There was a gradual increase in these deaths until 2019, followed by a sharp increase between 2020 and 2022, with a slight decrease in 2023, but still maintaining a high number of deaths. This pattern of sharply increasing mortality coincides directly with the period of the COVID-19 pandemic: while hospitalization rates for mental disorders were declining—reflecting the scenario described in the WHO global report, which highlighted disruptions in mental health services in 93% of countries—a simultaneous increase in deaths was observed. This worsening is strongly associated with treatment discontinuation and restricted access to specialized care during the health crisis.¹³

Regarding the regional distribution of deaths, significant inequalities were observed throughout the country, with the Southeast region accounting for the largest number of cases, followed by the Northeast and South. Although the Southeast region has the highest absolute volume, its mortality rates showed a significant increase between 2017 and 2021, followed by stabilization. The Northeast region, on the other hand, showed a significant increase starting in 2019, while the South, Central-West, and North regions showed greater stability or more modest increases throughout the analyzed period. Thus, it can be concluded that regional differences in mortality may be related to a series of complex factors, including population access to mental health services, socioeconomic disparities (such as areas of poverty), cultural patterns related to help-seeking, and different prevalence of risk factors (such as substance use and alcoholism). Therefore, there is heterogeneity in the supply and quality of mental health services offered by the SUS between the different regions of Brazil, which can directly impact the prevention and treatment of disorders, and the improvement of patients' quality of life.¹⁴

Regarding deaths by age group, a higher number of deaths was observed beginning between 40 and 49 years of age, with the highest number occurring in the over-80 age group, followed by 50 to 59 years and 60 to 69 years. This finding may reflect the accumulation of risks throughout life, the increased prevalence of organic mental disorders in old age, and mortality associated with physical comorbidities, more common in older populations and individuals with severe mental disorders.

Recent epidemiological studies,¹⁵ have focused on analyzing the prevalence of disorders in older adults, considering vulnerability factors, the presence of chronic diseases, characteristics of the aging process, and situations of social isolation, among other subjective constructs.¹⁶ Our study, due to the use of secondary data, has some limitations, including the restriction of variables to those available

in the system, which prevents us from analyzing factors that may influence deaths by age group.

Regarding gender distribution, there was a significantly higher number of deaths among men, accounting for 70% of deaths. This gender disparity in mortality from mental and behavioral disorders is consistent with previous studies in Brazil and other countries, as several factors may contribute to this difference: distinct patterns of psychoactive substance use (such as alcohol and other drug abuse), greater male involvement in risky behaviors, and less seeking professional help for mental health problems.¹⁷

Regarding race, the study indicated that most deaths occurred among White and Mixed Race individuals, followed by Black individuals. Although these numbers partially reflect the population distribution in Brazil, it is crucial to interpret these data in the context of social and racial inequalities. Therefore, it is necessary to investigate systemic barriers to access to mental health care for Black and Mixed Race individuals, a factor that can lead to delayed diagnoses, inadequate treatment, and worse prognoses for this population. Self-identified race/color may be associated with factors such as discrimination, chronic stress, and limited access to quality health care resources, which influence not only mental health but also mortality.¹⁸

Analyzing education level, it was observed that the highest number of deaths occurred among individuals with low education (1 to 3 years of schooling; and 4 to 7 years), while those with 12 or more years of schooling had the lowest number. This finding reinforces the strong association between educational level, socioeconomic status, and health, including mental health, which often correlates with poorer living conditions, limited access to health information and resources, and greater exposure to chronic stressors.¹⁹

Another variable analyzed was marital status, which also proved to be a relevant factor, with a higher frequency of deaths observed among single individuals. Being single may be associated with different levels of social support, support networks, and lifestyles that can influence mental health, such as a higher risk of isolation, loneliness, and treatment avoidance.²⁰ Regarding the location of deaths, the data indicate that most occurred at home and in hospitals. This distribution suggests that a significant portion of deaths occur within the family environment, possibly in cases of chronic disorders or severe comorbidities, or in hospitals, where the individual may be receiving treatment for the mental disorder or its physical complications. The low percentage of deaths in public spaces and other healthcare facilities reflects the nature of the disorders that led to death.²¹

Finally, the analysis of deaths by ICD-10 groups highlights the most critical aspect of this study: most deaths are related to mental and behavioral disorders resulting from the use of psychoactive substances. Chemical dependency and substance use disorders are known to be chronic conditions often accompanied by high rates of physical and mental comorbidities. They are also a risk behavior that significantly increases mortality, as individuals with chemical dependency are more likely to develop psychiatric disorders compared to those who do not use drugs.²²

Looking at the data on organic mental disorders, this is the second largest group of deaths, encompassing conditions such as dementia and delirium—more prevalent in older age groups, whose mortality often results from complications of the neurological conditions themselves or associated medical comorbidities. Other relevant groups include schizophrenia, schizotypal and delusional disorders, and mood disorders.

Although disorders such as depression and anxiety disorders account for a lower percentage of the deaths analyzed, these disorders are recognized worldwide as the most prevalent among mental disorders. Their lower representation in direct mortality—especially when compared to substance use disorders—does not reflect a lower severity.² On the contrary, these conditions are strongly associated with an increased risk of suicide (which is often coded in other ICD-10 categories, outside Chapter V, as an underlying cause), as well as with increased mortality from physical comorbidities.

The low percentages of deaths observed in other groups—such as neurotic, stress-related, and somatoform disorders, mental retardation, and behavioral syndromes associated with physiological dysfunctions and physical factors—suggest that, due to the way underlying causes of death are recorded, these disorders may be less frequently identified as the primary cause of death.

It is important to note that this study relies on secondary mortality data, the accuracy of which depends on the quality of death certificates, and the classification of underlying cause of death does not always capture the complex interplay between mental disorders, physical comorbidities, and external factors. Therefore, the data analyzed between 2014 and 2023 provide a consistent overview of mortality from mental and behavioral disorders in Brazil, highlighting the main variables and their psychosocial correlations.

Final considerations

Mental and behavioral disorders should be a constant public health concern, as epidemiological alerts have revealed a growing trend in deaths from these pathologies. Although continually neglected and often poorly supported by healthcare professionals, patients, or even society, these disorders are not solely the result of “subjective” aspects of human beings but represent a significant physical cause of pathophysiological damage that culminates in death. The large number of deaths demands urgent improvements in public health, with the need for actions aimed at implementing management measures, planning, investment in prevention, and improvements in diagnosis and treatment. These proposed measures are more than a mere suggested model; they are imperative actions, given the widespread epidemic of mental and behavioral disorders that culminate in deaths that could ultimately be prevented if prevention and treatment were well-managed.

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Conflicts of interest

The authors declare there is no conflict of interest.

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