

Analysis of suicide attempts due to drug poisoning during the Covid-19 pandemic in the State of Paraíba, Brazil, between 2020 and 2022

Análise das tentativas de suicídio por intoxicação medicamentosa durante a pandemia da Covid-19 no Estado da Paraíba, Brasil, entre os anos de 2020 e 2022

George Soares de Mesquita¹, Ana Karina Holanda Leite Maia², Rafael Gomes Firmino³, Pierre Bezerra Pereira⁴, Bruno Tavares Terto de Lima⁵, Francisco de Assis Medeiros Maia⁶, Wesleyne Nunes de Sousa⁷, André Luiz Araújo Caetano⁸, Francisco Patricio de Andrade Júnior⁹

ABSTRACT

This study aimed to analyze the profile of medication-related poisonings with suicidal intent in the state of Paraíba during the COVID-19 pandemic, covering the period from 2020 to 2022. It is an epidemiological, descriptive, and analytical study based on data collected from the National Notification of Diseases Information System (SINAN). Variables such as year, gender, age group, ethnicity, education level, and clinical outcome were analyzed. The chi-square test for independence was used, with $p < 0.05$ considered statistically significant. A total of 2,924 cases of medication-related poisoning associated with suicide attempts were reported, with 2022 being the most prevalent year (43.91%). The profile of these poisonings was predominantly female (80%), aged 20 to 39 years (51.70%), with average schooling (18%), and of mixed race (80%). A statistically significant association was found between gender and age group ($p = 0.001$). Most cases resolved with no sequelae (80%), with a mortality rate of 0.6%. Awareness of risk factors and promoting access to mental health services are essential to mitigate the negative impacts on public health and prevent suicide-related tragedies.

Keywords: Suicide. Exogenous poisoning. Medications. COVID-19. Paraíba.

RESUMO

O presente estudo teve como objetivo analisar o perfil das intoxicações medicamentosas com motivação suicida no Estado da Paraíba durante a pandemia de Covid-19, abrangendo o período de 2020 a 2022. Trata-se de um estudo epidemiológico, descritivo e analítico, baseado em dados coletados pelo Sistema de Informação de Agravos de Notificação (SINAN). Foram analisadas variáveis como ano, gênero, faixa etária, etnia, escolaridade e desfecho clínico. Utilizou-se o teste qui-quadrado de independência, considerando $p < 0,05$ como estatisticamente significativo. Foram notificados 2.924 casos de intoxicação medicamentosa associados a tentativas de suicídio, com o ano de 2022 apresentando a maior prevalência (43,91%). O perfil das intoxicações foi predominantemente feminino (80%), com idades entre 20 e 39 anos (51,70%), escolaridade média (18%) e etnia parda (80%). Foi encontrada uma associação estatística significativa entre sexo e faixa etária ($p = 0,001$). A maioria dos casos evoluiu para a cura sem sequelas (80%), com uma taxa de óbitos de 0,6%. A conscientização sobre os fatores de risco e a promoção do acesso a serviços de saúde mental são fundamentais para mitigar os impactos negativos na saúde da população e prevenir tragédias relacionadas ao suicídio.

Palavras-chave: Suicídio. Intoxicação exógena. Medicamentos. Covid-19. Paraíba.

¹ Farmacêutico, Hospital Regional de Guarabira-PB. Orcid: 0009-0006-8045-1419

² Doutora em Farmacologia, Universidade Federal da Paraíba. Orcid: 0000-0003-4094-7218

³ Doutorando em Neurociência Cognitiva e Comportamental, Universidade Federal da Paraíba. Orcid: 0000-0002-6144-8445

⁴ Médico de Família e Comunidade, Mestrando em Saúde da Família, Fiocruz. Orcid: 0009-0006-6979-8374

⁵ Farmacêutico, Escola de Ensino Superior do Agreste Paraibano. Orcid: 0009-0002-5030-7580

⁶ Mestre em Psicologia em Saúde, Universidade Federal da Paraíba. Orcid: 0009-0000-4469-0988

⁷ Psicóloga, Centro Universitário FIS. Orcid: 0009-0002-5191-7030

⁸ Doutor em Ciência e Engenharia de Materiais, Universidade Federal da Paraíba. Orcid: 0009-0005-6849-2616

⁹ Graduando em Medicina, Doutor em Farmacologia, Universidade Estadual do Piauí. Orcid: 0000-0003-0681-8439

E-mail:
juniorfarmacia.ufcg@outlook.com

1. INTRODUCTION

Suicide is defined as the act of violence against oneself, where an individual intentionally causes their own death with full awareness of the final outcome. Many who commit such acts suffer from Central Nervous System disorders, such as depression. The victim opts for death believing there is no escape or help for their various problems, whether physical or emotional. They feel incapable of coping with their suffering and pain, leading to the cessation of their own life (ALVES; SILVA; VEDANA, 2020).

Self-harm is considered a serious public health issue affecting not only the individual but also their family and the broader community, resulting in economic, financial, and social impacts. It may be associated with factors such as stress, violence, economic crises, inequality, unemployment, social isolation, and mental health issues (CORDEIRO et al., 2020).

It is important to highlight that the first year of the COVID-19 pandemic saw an increase of approximately 25% in the prevalence of depression and anxiety (OPAS, 2022). According to Prevedello (2017), the most common mental disorders are depression and anxiety disorders, affecting 10% to 15% of the population.

Thus, the pandemic, caused by the SARS-CoV-2 virus, brought about the need for social isolation, along with economic impacts and the loss of loved ones, significantly affecting mental health and resulting in higher rates of anxiety, depression, and suicide (SOARES et al., 2024).

In this context, individuals with psychiatric disorders may experience worsened symptoms or develop new mental health issues, such as depression, anxiety, and post-traumatic stress, contributing to an increased risk of suicide. Although COVID-19 is not the sole factor, physical isolation combined with social disconnection and psychological distress can create a harmful combination (AMMERMAN et al., 2021). Therefore, the pandemic causes suffering and susceptibility to psychiatric disorders, and its mental health consequences may persist and peak after the pandemic period (LEVI-BELZ; AISENBERG, 2020).

Globally, estimates suggest that approximately 700,000 people die by suicide each year, making it one of the leading causes of death worldwide, surpassing deaths from diseases such as malaria, HIV/AIDS, breast cancer, wars, and homicides (OPAS, 2021).

Among the methods of suicide attempts, exogenous poisonings are among the most common (RIBAS et al., 2018) and cause harmful effects on the body due to interaction with one or more toxic agents. Medications are one of the primary determinants of poisonings in the country, occurring through ingestion, inhalation, or contact with the skin, eyes, and mucous membranes in concentrations exceeding therapeutic levels (SOUSA et al., 2020).

Rangel and Francelino (2018) note that most poisonings in Brazil over several years involved medications, representing 27.75% of cases and being the leading cause of deaths in the country. When a medication is administered in doses exceeding the recommended limit, the body may experience various clinical manifestations that, depending on the administration, can even lead to death. These effects can be classified as acute or chronic, with each drug presenting a specific set of signs and symptoms.

Considering the significant number of cases of exogenous poisonings by medications in suicide situations during the COVID-19 pandemic in the state of Paraíba, it is relevant to explore this issue to better understand the local situation and, consequently, to promote public policies and institutional strategies that can effectively alter suicide rates associated with medication use.

The aim of this work was to survey occurrences of exogenous poisonings by medications in suicide circumstances during the COVID-19 pandemic in the state of Paraíba, for the years 2020 and 2022.

2. MATERIALS AND METHODS

This is an epidemiological, quantitative, and descriptive study that utilized secondary data from the National Notification of Diseases Information System (SINAN) and the database of the Department of Informatics of the Unified Health System (DATASUS) (ANDRADE JÚNIOR et al., 2021; SILVA et al., 2024).

The state of Paraíba is located in the Northeast region of Brazil, with an area of 56,467.242 km², an estimated population of 4,059,905 people in 2021, and a population density of 66.70 inhabitants/km². Socially, it has a Human Development Index (HDI) of 0.658 and a per capita household income of 1,096 (IBGE, 2023).

The study population consisted of all cases of exogenous poisoning by medications for suicidal purposes reported in the state of Paraíba between 2020 and 2022. The following sociodemographic variables were analyzed: year, age group, sex, education level, ethnicity,

and clinical outcome. The obtained data were compiled into a spreadsheet using Microsoft Office Excel and analyzed through simple descriptive statistics. Additionally, the chi-square test for independence was calculated using the Statistical Package for the Social Sciences (SPSS), version 13.0, with $p < 0.05$ considered statistically significant. Adjusted residuals (r) were considered positive when equal to or greater than 1.96.

As this study involved secondary data from publicly available computerized sources, it was not required to be submitted for review by the Research Ethics Committee, in accordance with Resolution CNS 466/2012, which regulates research and testing involving human subjects.

3. RESULTS AND DISCUSSION

The analysis of the results reveals that during the COVID-19 pandemic period, from 2020 to 2022, there were 2,924 cases of medication-related poisoning reported in the state of Paraíba associated with suicide attempts. The highest number of poisonings was observed in 2022 (43.9%), followed by 2021 (32.5%) and 2020 (23.6%).

The COVID-19 pandemic had a significant impact on the emotional well-being of many people. Over time, it is natural that fears about the virus, uncertainties about the future, social isolation, and loneliness contributed to an increase in mental health issues such as anxiety, depression, and suicidal thoughts. However, it is important to note that the relationship between the pandemic and the increase in suicidal behaviors is complex and multifaceted (ANJOS et al., 2021).

In this context, social isolation can heighten feelings of loneliness and hopelessness, while socioeconomic stress can lead to additional pressures such as financial difficulties, unemployment, and housing instability, all of which can contribute to an increased risk of suicide during a pandemic (LENNON, 2020; CUNHA et al., 2022).

The most affected gender was female, accounting for 80% of the cases. Regarding age groups, the highest prevalence was observed among individuals aged 20 to 39 years ($n=1,512$), followed by those aged 15 to 19 years ($n=615$), 40 to 59 years ($n=465$), 10 to 14 years ($n=226$), up to 9 years ($n=54$), 60 to 64 years ($n=30$), 65 to 69 years ($n=12$), 70 to 79 years ($n=9$), and over 80 years ($n=1$). Below, it is possible to highlight the association between gender and age group for cases of suicide attempts by medication from 2020 to 2022 in the state of Paraíba (Table 1).

Table 1. Cross-tabulation of gender and age group for cases of suicide attempts by medication, from 2020 to 2022, in the state of Paraíba.

Age group	Female gender		Male gender		Total		p
	N	%	N	%	N	%	
Up to 19 years old	745+	32%	150	25%	895	30 %	0,001
20 to 59 years old	1,537	66%	440+	73%	1,977	68 %	
Above 60 years old	39	2%	13+	2%	52	2%	
Total	2,321	100%	603	100%	2,924	100%	

p = chi-square test of independence; + adjusted residuals ≥ 1.96 . Source: Own author, 2024.

Based on the data reported in Table 1, it was observed that suicide attempts by medication were more prevalent among females and adults aged 20 to 59 years. These findings are consistent with other studies that have reached similar conclusions (ALVIM et al., 2020). Additionally, there was a statistical association between gender and age group ($p=0.001$), with a higher frequency observed among women aged up to 19 years ($r=13.0$) and men aged 20 to 59 years ($n=12.1$) and above 60 years ($r=2.2$).

Regarding the female gender, women tend to seek medical and pharmaceutical treatment more frequently than men, which may facilitate suicide attempts using medications as a method of self-harm. However, it is worth noting that although women make more suicide attempts, men have a significantly higher mortality rate due to the use of more lethal methods such as firearms, hanging, strangulation, and suffocation (BOTTI, 2018). Other factors that should be mentioned, which may contribute to the onset of suicide among females, include childhood sexual abuse, domestic violence, vulnerability to psychosocial stressors such as the pandemic itself, the presence of mental health disorders, and cultural influences related to gender equality (GONDIM et al., 2017). Concerning age groups, adults are typically the most affected, which may be related to the fact that this social segment has greater access to medications (VIEIRA; SANTANA; SUCHARA, 2015; PEREIRA et al., 2021).

In Table 2, it is possible to observe the frequency and relative proportions of ethnicities and educational levels among those affected by suicide attempts using medications in Paraíba.

Table 2. Simple and relative frequencies of medication-related suicide attempts by ethnicity and education level, from 2020 to 2022, in the state of Paraíba.

Variables	Medication-related Suicide Attempts	
	N	%
Ethnicity		
White	232	8.0
Mulatto	2,343	80
Black	61	2
Indigenous	8	0.29
Yellow	21	0.71
Ignored	259	9.0
Total	2,924	100
Schooling		
No schooling	05	0.1
Low education level*	327	11.9
Average schooling**	531	18
Hight schooling***	144	5
Ignored	1,917	65
Total	2,924	100

Source: Prepared by the author, 2024. *Complete and incomplete elementary education; **Complete and incomplete secondary education; ***Complete and incomplete higher education.

Observing the table above, it is noted that the pardo ethnicity is the most affected, with a prevalence of 80%. This finding aligns with the 2021 National Household Sample Survey (PNAD), which revealed that 47% of Brazilians identified as mulatto and 43% identified as white (IBGE, 2021). Additionally, the study's result is consistent with data from IBGE (2010), indicating that 52.7% of the population in Paraíba identified as mulatto.

Regarding educational level, we observe that the majority of those affected have an average level of education (18%), which is similar to data observed in Brazil between 2017 and 2018 (SILVA; MARCOLAN, 2021). However, what stands out is the large number of cases with missing data (65%). The lack of precise data, including omitted variables in monitoring systems, is a result of deficiencies in the data collection and analysis process, which hampers epidemiological understanding (ARAÚJO; ANDRADE JÚNIOR; MAIOR, 2021).

Table 3 provides information on the clinical outcomes of medication-related suicide attempts.

Table 3. Simple and percentage frequency of medication-related suicide attempts by clinical outcome, from 2020 to 2022, in the state of Paraíba.

Clinical outcome	N	%
Recovery without sequelae	2,336	80
Recovery with sequelae	32	1,0
Death due to medication overdose	14	0,6
Death from other causes	03	0,1
No continuation	35	1,1
Ignored	504	17,2
Total	2,924	100

Source: Prepared by the author, 2024.

The evolution of drug poisoning cases reported in the State of Paraíba is similar to that observed in studies carried out in other regions of Brazil. In these cases, despite the high intake of medication, the victims were cured without sequelae. Recovery rates are significantly higher than death rates (DUARTE et al., 2021; RODRIGUES, 2021).

It is worth mentioning that the data that make up the SINAN system notifications, unfortunately, do not provide information on the possible classes of medication and the route through which intoxication occurred, associated with suicide attempts, as they are not included in the databases. However, the literature reports that drugs, benzodiazepines and antidepressants are the most commonly associated (FERREIRA; EGRI; COSTA, 2023).

Medicines are substances intended to cure, treat, diagnose and prevent diseases, in addition to promoting well-being. However, irrational use can lead to exogenous poisoning, which, if not properly managed, can cause serious health problems, including death (BRITO, 2020). Furthermore, easy access to some substances can encourage the use of drugs as a form of suicide (MAIOR et al., 2021). In this context, the COVID-19 pandemic has led to a notable increase in the use of benzodiazepines to treat anxiety, reflecting a rapid response to a global mental health crisis (BRAGA; OLIVEIRA; SANTOS, 2020).

It is certainly important to highlight that the changes in behavior caused by social isolation during the pandemic period resulted in several changes in mental health. Among these changes are anxiety, panic disorder, obsessive-compulsive disorder (OCD), insomnia,

digestive problems, as well as depressive and post-traumatic stress symptoms (ROGERS et al., 2020), which contributes to prescription of psychoactive drugs and possible attempts at self-cide in patients who do not show improvement and have access to these substances (MAIA; DIAS, 2020).

Therefore, the COVID-19 pandemic is considered a biological catastrophe that can have significant impacts on people's mental health, leading to an increased risk of suicide. According to the World Health Organization (WHO, 2020), the pandemic experienced between 2020 and 2022 contributed to the resurgence of this dismal scenario.

4. FINAL CONSIDERATIONS

A total of 2,924 cases of medication-related poisoning with the intent to commit suicide were recorded during the COVID-19 pandemic in the state of Paraíba. There were 14 recorded deaths, with the year 2022 having the highest number of cases.

Regarding the profile of those affected, there was a predominance of women aged between 20 and 39 years, with average education levels and identifying as mulatto. It is important to note that many individuals who attempted suicide by medication poisoning managed to recover without severe sequelae.

These results highlight the urgent need for policies and interventions aimed at the prevention and treatment of mental health issues, especially during crises such as the COVID-19 pandemic. Raising awareness about risk factors and promoting access to mental health services are essential to mitigating the negative impacts on public health and preventing suicide-related tragedies.

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