



Prevalence of self-reported depression in the Brazilian population: individual and contextual factors

Prevalência de depressão autorelatada na população brasileira: fatores individuais e contextuais

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ABSTRACT

Objective: to analyze the prevalence of self-reported depression in the Brazilian population and its association with individual and contextual characteristics in a multilevel analysis. Methods: Cross-sectional study with a quantitative approach, using data from the National Health Survey. The outcome was developed based on the question: Has a doctor or mental health professional ever diagnosed you with depression? Results: The prevalence of depression in the Brazilian population was 9.9% and is associated with being a woman, aged between 30-59 years, divorced, with higher education, with a per capita income above 3 minimum months, residing in urban areas, self-rated health as fair, bad or very bad, who have another chronic illness, smokers, and with TV screen time equal to or greater than 3 hours. 'Human Development Index (HDI)' and 'primary care coverage' were associated with stage. Conclusion: Our results point to the emergency nature of policy planning.

Keywords: Depression. Health Status Disparities. Health Surveys. Multilevel Analysis. Socioeconomic Factors.

RESUMO

Objetivo: analisar a prevalência de depressão autorreferida na população brasileira e sua associação com características individuais e contextuais em uma análise multinível. Métodos: Estudo transversal de abordagem quantitativa, utilizando dados da Pesquisa Nacional de Saúde. O desfecho foi elaborado com base na questão: Algum médico ou profissional de saúde mental já lhe diagnosticou depressão? Resultados: A prevalência de depressão na população brasileira foi de 9,9% e está associada a ser mulher, idade entre 30-59 anos, divorciada, com ensino superior, com renda per capita acima de 3 salários mínimos, residir na zona urbana, autoavaliação de saúde como regular, ruim ou muito ruim, que tenham outra doença crônica, tabagistas, e com tempo de tela de TV igual ou superior a 3 horas. 'Índice de Desenvolvimento Humano (IDH)' e 'cobertura de atenção primária' foram associados ao desfecho. Conclusão: Nossos resultados apontam para o caráter emergencial do planejamento de políticas.

Palavras-chave: Análise Multinível. Depressão. Disparidades nos Níveis de Saúde. Fatores Socioeconômicos. Inquéritos Epidemiológicos.

INTRODUCTION

Depressive disorders are characterized as mood disorders, including a variety of symptoms, such as emotional (sadness, loss of pleasure); cognitive (hopelessness, low self-esteem, loss of concentration and memory); motivational (passivity, lack of initiative) and physical symptoms (appetite changes, sleep, fatigue, pain and malaise) that often cause disabilities.¹

Depressive disorder is a highly prevalent health condition, causing impacts on the health of the world population, where it is noted that more than 300 million people suffer from depression worldwide. According to the World Health Organization,² the disease grew 18% between the years 2005 and 2015, resulting in a progressive increase in the number of cases in the world context.

The number of people with mental illnesses is growing around the world. Analyzing the prevalence of depression in the world, it is observed that it is higher in low-income countries, since the population is growing and more and more people are living to the age where depression and anxiety occur frequently. Interregional differences in the prevalence of depression are notable. The low prevalence found in Asian countries is noteworthy, especially when compared to the numbers found in Western countries.^{2,3}

Depression affects 11.5 million Brazilians (5.8% of the population),² and is the fourth leading cause of disability.³ The country is at the top of the list of developing nations with the highest prevalence of depression, and the number of Brazilians with the diagnosis is equivalent to 10% of people with depression worldwide.⁵

Depressive disorder is associated with some individual characteristics, such as higher prevalence in adult and elderly citizens, women, those with low economic conditions, less education, who use alcoholic beverages and/or cigarettes and who do not have a social support network, whether it is from a family member and/or friends. These characteristics may vary according to contextual factors and/or regions where these individuals are inserted.⁶

The World Health Organization Report⁷ provides evidence that factors such as urbanization and globalized changes in individuals' lifestyles can increase the morbidity

caused by depression and other chronic non-communicable diseases. Regarding the context of Brazil, the number of depression cases is increasing. With this, more and more Brazilians live with limitations and disabilities due to the symptoms caused by this disorder, which requires greater investments in mental health, with the purpose of boosting the supply of prevention, early detection, and treatment programs, with sufficient quality and quantity.⁴

The difficulty in accessing and treating depression is related to social, economic and geographic inequalities, since those who most need care, such as poor individuals and those who live in regions with limited mental health resources have greater barriers to receiving suitable care.⁸ In addition, Brazil currently invests in mental health less than half of what is defined by the World Health Organization, making it difficult to treat and follow-up individuals with mental disorders.⁹

Discussing the prevalence of depression and its associated factors is relevant to understanding the reality and elaborating efficient action plans with a view to providing integral mental health care to the affected population. Accordingly, the relevance of this research is justified, with the purpose of strengthening the existing public policies on mental health. In addition, based on the knowledge of the individual and contextual factors that are linked to depression, it is possible to establish more effective measures that can minimize illness due to depression in Brazil through prevention actions. In this sense, this study had the objective of analyzing the prevalence of self-reported depression in the Brazilian population and its association with individual and contextual characteristics in a multilevel analysis.

METHODOLOGY

This is a cross-sectional study with a quantitative approach, using data from the National Health Survey – 2019¹⁰ (PNS, as per its Portuguese acronym), carried out between 2019 and 2020, which is a household population survey with the objective of knowing the determinants, conditions and health needs of the Brazilian

population, and thus constituting a database representative of the Brazilian population.

Sample and Participants:

The PNS sampling plan uses the Master Sample of the Integrated Household Survey System (SIPD, as per its Portuguese acronym), which allows for greater territorial coverage and uses a three-stage cluster sampling process with simple random sampling. The first stage is composed of the Primary Sampling Units (census sectors), the second stage is consisted of the selected households, and the third stage is represented by the residents aged 15 years or more who were selected in each household to respond to the survey.^{10,11}

At the end of this process, 108,457 households were selected, of which 100,541 were occupied; and of the latter, 94,114 people chose to voluntarily take part in the survey.

In this study, the sample consisted of people aged 15 years or more selected to respond to the survey (n=94,114) and the dependent variable, or primary outcome of the study, was having self-reported diagnosis of depression. To that end, the responses, affirmative or negative, to question Q092 was considered (Has a physician or mental health professional (such as a psychiatrist or psychologist) ever diagnosed you with depression?).

Regarding the inclusion criteria, selected households and people aged 15 or over who voluntarily agreed to participate in the research participated in the study. Children and households that were not included in the research selection were excluded.

Variables:

Among the individual independent variables, the following were considered: Sex (male or female), age stratified into age groups (15-29 years, 30-59 years, 60 years or more), Ethnicity (white, black – blacks and browns, indigenous or Asians), marital status (married, divorced, widowed, single), education level

(illiterate, elementary school, high school, higher education), household income per capita (up to 1 minimum wage, from 1 to 3 minimum wages, above 3 wages), area of residence (urban or rural) and agglomeration (1 resident; 2-3 residents; > 4 residents).

Regarding lifestyle and health conditions, the following variables were considered: if he/she has coverage by the Family Health Strategy (yes, no), self-assessment of health status (very good/good; regular/poor/very bad), if he/she has diagnosis of another chronic, physical or mental disease, chronic health condition or long-term disease (yes, no), use of tobacco and its derivatives (smoker – he/she currently smokes some tobacco product; ex-smoker – in the past, he/she smoked some tobacco product; he/she never smoked), use of alcoholic beverages (excessive use – five or more daily doses on at least one occasion in the last 30 days, considering the standard dose of 50 mL; moderate use – habitual use regardless of the dose consumed in the last 30 days, but less than excessive use; and he/she does not drink), TV screen time of 3 hours or more, time spent using mobile devices, excluding the time dedicated to work (less than 3 hours, 3 hours or more). All individual independent variables were collected in the PNS database.

The contextual variables selected were Human Development Index (HDI) and primary care coverage, considering the latest information available for each *federative units*. The data on HDI were extracted from the United Nations Development Program, based on data from the Atlas of Human Development in Brazil (<http://atlasbrasil.org.br/2013/pt/consulta/>). The information regarding primary health care coverage was obtained from the website of Information and Management of Primary Health Care (e-Gestor, as per its Portuguese name) of the Brazilian Ministry of Health, considering December/2019 as the reference. Variables were categorized into quartiles, and the conceptual model of dependent and independent variables is shown in Figure 1.

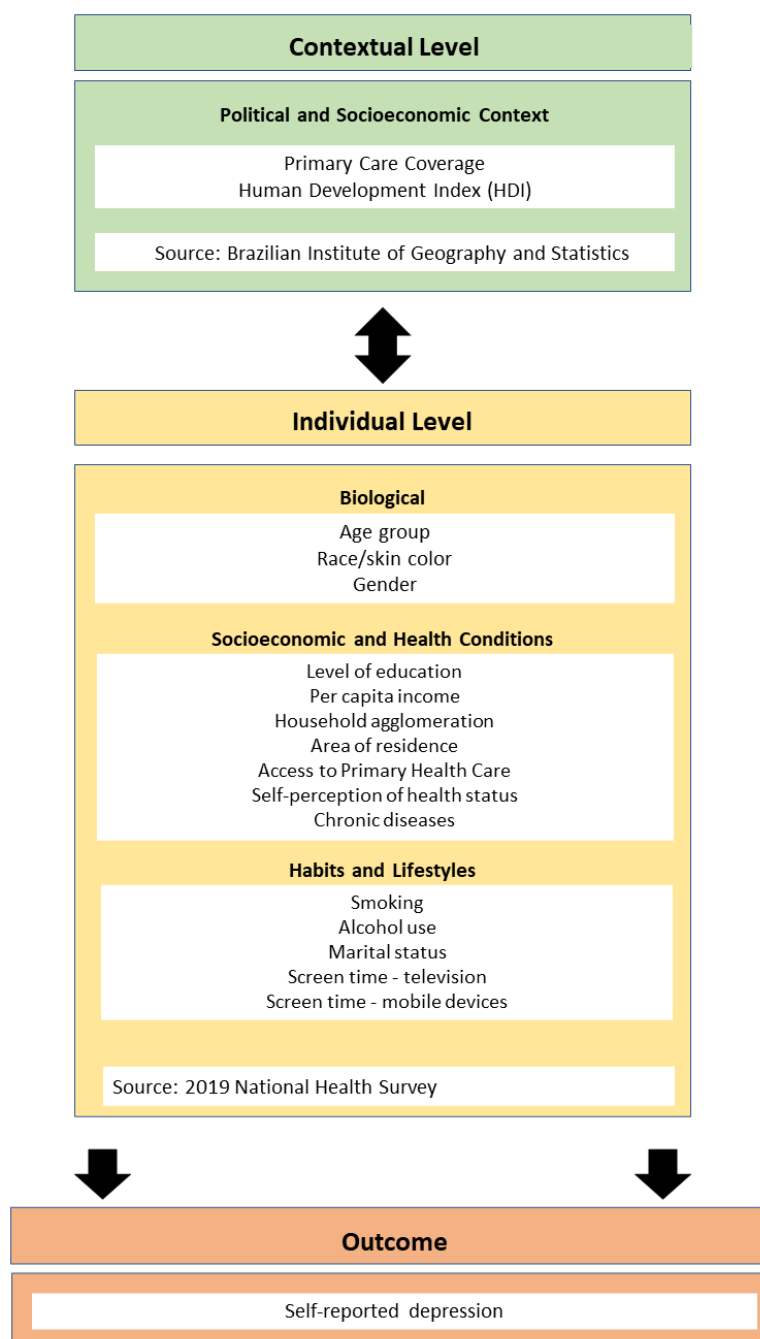


Figure 1. Study framework
Multilevel modeling was chosen because, in this type

Statistical procedures and analyzes:

of analysis, contextual characteristics can be considered as social aggregates, since they have a significant effect on people. Accordingly, individual characteristics were considered as the first level and federative units as the second level.

The outcome prevalence was calculated in relation to individual and contextual variables,

with the presentation of the respective 95% confidence intervals (95% CI). Subsequently, bivariate Poisson Regression analysis was conducted to estimate the crude prevalence ratio (PR) and the respective 95% confidence interval (95% CI). Variables with $p \leq 0.20$ were included in the multilevel analysis model.

Multilevel Poisson Regression was started with null model analysis, in order to identify

random effects, using the likelihood ratio test to check significance.¹² Afterwards, the modeling was performed including the individual and contextual variables. Changes in the quality of fits of each model were analyzed using the likelihood ratio test and the percentage of variance explained by each model and its respective confidence interval. Only the variables that showed statistical significance ($p < 0.05$) remained in the final model. All analyzes were performed using Stata software, version 13 (Stata Corp., College Station, United States).

The 2019 National Health Survey project was approved by the National Research Ethics Commission (CONEP, as per its Portuguese acronym) of the National Health Council (CNS, as per its Portuguese acronym) of the Brazilian Ministry of Health, under Opinion n° 3.529.376, dated August 23, 2019. The results of this research are in the public domain and are available on the website of the Brazilian Institute of Geography and Statistics.

RESULTS

The sample of this study is characterized by 52.4% female, 55.6% people aged 30-59 years old and 24.6% elderly people (60 years old or more), 62% white skin color and 36.5% of black people, 44.9% of singles and 38.6% of married, 39.1% had primary education and 33% had

secondary education, 48.4% had an income of up to 1 minimum wage, 77.2 % lives in urban areas, 63% are covered by the family health strategy, 63.8% rate their health as Good or very good, 52.4% report having been diagnosed with a chronic non-communicable disease, 61.0% report not using alcohol, 12.5% report being smokers, 78.3% report using the TV less than 3 hours a day and 80.0% report using the computer less than 3 hours a day.

Of the 94,114 people who agreed to participate in the research, the prevalence of depression in the Brazilian population was 9.9% (95% CI 9.5-10.3). Considering the Brazilian population over 15 years old (168,426,189 inhabitants), this prevalence indicates that 16,660,665 Brazilians have a diagnosis of depression given by a physician or mental health professional (such as a psychiatrist or psychologist).

In Table 01 and Table 02, it can be seen that the highest prevalences of the outcome are distributed among the elderly individuals, women, widowed and divorced, with higher education level, living in urban areas, white skin color, who do not use alcoholic beverages, those who self-assess their health as fair, bad or very bad, those who live alone, who earn more than 3 minimum wages, who have another CNCD and smokers.

Table 01. Prevalence of self-reported depression and crude prevalence ratio between the outcome and the sociodemographic variables in the Brazilian population. National Health Interview Survey, 2019.

Variables	Prevalence	Bivariate Analysis		
		PR _c	95% CI	p-value
Sex				
Male	4.57	1		
Female	13.27	2.91	2.76-3.06	<0.005
Age				
15-29 years	5.49	1		
30-59 years	10.00	1.81	1.68-1.94	<0.005
60 or +	10.41	1.81	1.68-1.95	<0.005
Ethnicity				
White	11.57	1		
Black	7.79	0.84	0.80-0.89	<0.005

Variables	Prevalence	Bivariate Analysis		
		PR _c	95% CI	p-value
Yellow	7.94	0.73	0.56-0.96	0.028
Indigenous	7.89	0.91	0.70-1.20	0.540
Marital Status				
Married	8.87	1		
Divorced	15.32	1.64	1.53-1.76	<0.005
Widowed	13.25	1.47	1.37-1.58	<0.005
Single	7.52	0.92	0.87-0.96	0.001
Education				
Illiterate	6.86	1		
Elementary School	9.44	1.18	1.08-1.30	<0.005
High School	8.10	1.03	0.94-1.14	0.421
Higher Education	11.45	1.36	1.23-1.50	<0.005
Per capita income				
<1 minimum wage	7.84	1		
1-3 wages	9.78	1.05	1.00-1.11	0.024
>3 wages	12.47	1.27	1.19-1.35	<0.005
Household agglomeration				
1 resident	11.27	1.14	1.08-1.21	<0.005
2-3 resident	9.67	1		
4 or more residents	7.26	0.81	0.77-0.86	<0.005
Area of residence				
Rural	6.61	1		
Urban	9.94	1.36	1.28-1.44	<0.005

PR_c: Crude Prevalence Ratio; 95% CI: 95% Confidence Interval.

Table 02. Prevalence of depression and crude prevalence ratio between the outcome and the lifestyle and health conditions variables of the Brazilian population. National Health Survey, 2019

Variables	Prevalence	Bivariate Analysis		
		PR _c	95% CI	p-value
FHS enrollment				
Yes	9.23	1		
No	9.30	1.01	0.96-1.07	0.506
Health self-assessment				
Very good/good	6.33	1		
Fair/bad/very bad	14.12	2.46	2.35-2.57	<0.005
Have another CNCD				
No	4.01	1		
Yes	15.13	3.6	3.40-3.81	<0.005
Alcohol use				

Variables	Prevalence	Bivariate Analysis		
		PR _c	95% CI	p-value
Do not use	10.16	1		
Moderate use	8.76	0.75	0.71-0.80	<0.005
Excessive use	6.08	0.58	0.54-0.62	<0.005
Smoking				
Do not smoke	8.15	1		
Ex-smoker	10.69	1.26	1.20-1.32	<0.005
Smoker	10.89	1.27	1.19-1.35	<0.005
Screen time – TV				
less than 3 hours	8.79	1		
3 hours or more	10.55	1.19	1.13-1.25	<0.005
Time spent using mobile devices				
less than 3 hours	9.18	1		
3 hours or more	9.14	0.99	0.94-1.05	0.898

PR_c: Crude Prevalence Ratio; 95% CI: 95% Confidence Interval.
 CNCD: Chronic non-communicable diseases; FHS: Family Health Strategy.

Figure 02 shows the distribution of the residuals of the multilevel Poisson Regression for the prevalence of the outcome by federative units (FU). It can be seen that a considerable number of FU have intervals completely above or completely below the line equivalent to zero, indicating a significant variability between the aggregation units. This indicates that it is possible to proceed

with the multilevel analysis, that is, there is a cluster effect on the outcome, when considering its distribution among the *federative units*. Based on the Loglikelihood value and the test significance value (LR $\chi^2(1) = -0.70$; p-value > $\chi^2 = 1.0000$), the model chosen to be applied in this multilevel analysis was the random intercept model.

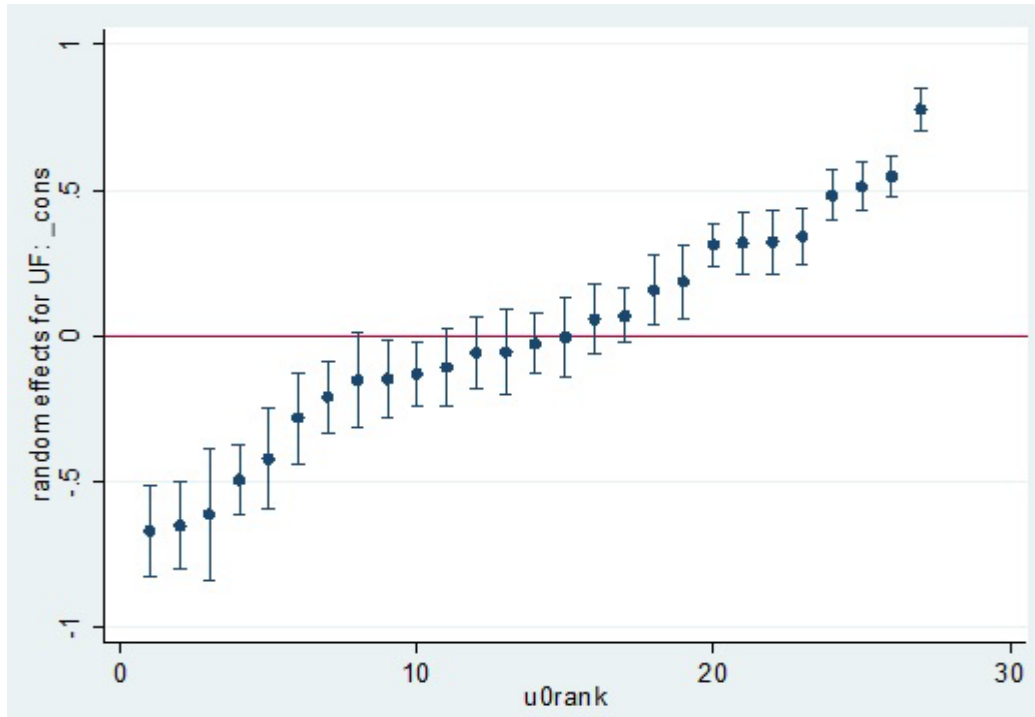


Figure 02. Plot of the residuals of the multilevel Poisson Regression for the prevalence of depression by federation unit.

In the first step of the multilevel analysis, the outcome was tested in a null model to check the contextual effect. In Table 03, it is possible to observe that there was a contextual effect at the level of the *federative units*, since the value of the likelihood ratio was significant, showing the adequacy of the sample to hold the analysis. The second step was related to the execution of the multilevel model, including only individual level variables. In Model 1, the outcome was associated with being woman (PR=2.28), aged 30-59 years (PR=1.14), divorced (PR=1.26), with higher education (PR= 1.70), with per capita income above 3 minimum wages (PR=1.23), who live in the urban area (PR= 1.14), who assess their health as fair, bad or very bad (PR=1.89), who have another CNCD (PR=2.81), smokers (PR=1.49)

and with a TV screen time of 3 hours or more (PR=1.06). The likelihood ratio observed for model 1 in relation to the null model varied from 1073.74 to 570.76, indicating an important effect of the federative units on the outcome and on individual variables (Table 03).

In the final model, all individual variables that showed statistical significance in model 1 remained significant in the final model. The variables 'Human Development Index (HDI)' and 'primary care coverage' were associated with the outcome, showing that depression is less prevalent in areas with less human development and less coverage of primary care. The observed likelihood ratio for the final model shows the adequacy of the analysis to multilevel modeling (Table 03).

Table 03. Multilevel Poisson Regression Analysis for the prevalence of depression according to individual variables and the context of the federative unit. Brazil. 2019.

Variables	Null model PR _a (95% CI)	p-value	Model 1 PR _a (95% CI)	p-value	Final Model PR _a (95% CI)	p-value
Individual level						
Female gender			2.28 (2.16-2.41)	<0.005	2.28 (2.16-2.41)	<0.005
Age: 30-59 years			1.14 (1.05-1.23)	<0.005	1.14 (1.05-1.23)	<0.005
Age: 60 or +			0.77 (0.69-0.84)	<0.005	0.77 (0.70-0.84)	<0.005
Race or skin color: Black			0.86 (0.82-0.90)	<0.005	0.86 (0.82-0.91)	<0.005
Race or skin color: Yellow			0.73 (0.55-0.96)	0.025	0.73 (0.55-0.96)	0.026
Race or skin color: Indigenous			0.95 (0.72-1.25)	0.721	-	
Marital status: Divorced			1.26 (1.17-1.35)	<0.005	1.26 (1.17-1.35)	<0.005
Marital status: Widowed			1.03 (0.96-1.07)	0.407	-	
Marital status: Single			1.02 (0.95-1.06)	0.441	-	
Education: Elementary school			1.28 (1.16-1.41)	<0.005	1.28 (1.16-1.41)	<0.005
Education: High school			1.37 (1.23-1.52)	<0.005	1.37 (1.23-1.52)	<0.005
Education: Higher education			1.70 (1.52-1.91)	<0.005	1.70 (1.52-1.90)	<0.005
Per capita income: 1-3 wages			1.02 (0.97-1.07)	0.404	-	
Per capita income: >3 wages			1.23 (1.13-1.33)	<0.005	1.22 (1.13-1.33)	<0.005
Area of residence: Urban			1.14 (1.07-1.21)	<0.005	1.14 (1.07-1.21)	<0.005
Health self-assessment: Fair/bad/very bad			1.89 (1.80-1.99)	<0.005	1.89 (1.80-1.99)	<0.005
Have another CNCD: Yes			2.81 (2.64-2.98)	<0.005	2.80 (2.64-2.98)	<0.005
Alcohol use: Moderate use			0.81 (0.76-0.86)	<0.005	0.81 (0.76-0.86)	<0.005
Alcohol use: Excessive use			0.78 (0.72-0.84)	<0.005	0.78 (0.72-0.84)	<0.005
Smoking: Ex-smoker			1.23 (1.16-1.30)	<0.005	1.22 (1.16-1.30)	<0.005
Smoking: Smoker			1.49 (1.39-1.60)	<0.005	1.49 (1.39-1.60)	<0.005
Screen time – TV: 3 hours or more			1.06 (1.00-1.11)	<0.005	1.06 (1.00-1.11)	0.022
Contextual level						
HDI						
0.638-0.719					0.52 (0.42-0.65)	<0.005
0.722-0.740					0.57 (0.46-0.70)	<0.005
0.743-0.774					0.71 (0.58-0.87)	0.001
0.787-0.850					1	
Primary care coverage						
58.33-70.22					0.72 (0.59-0.88)	0.001
72.52-76.39					1.00 (0.80-1.24)	0.988

77.12-86.82			0.95 (0.77-1.17)	0.673
87.67-99.60			1	
Random effects	Variance (95%CI)	Variance (95%CI)	Variance (95%CI)	
Department level	0.144 (0.083-0.25)	0.100 (0.055-0.175)	0.027 (0.014-0.051)	
LR test (χ^2 ; p-value)	1073.74	<0.005	570.76	<0.005

CI = Confidence Interval; PR_a = Adjusted Prevalence Ratio.

DISCUSSION

This study highlighted that the prevalence of depression in the Brazilian population was 9.9%. A study with data from the 2013 National Health Survey showed that the prevalence of self-reported depression in adults was 7.6%,¹³ demonstrating an increase in the prevalence of depression in recent years and confirming the World Health Organization's estimates of an increase of the numbers of depressive disorders.²

In a study carried out in 18 countries in 2010, it was pointed out that, among developing countries, Brazil ranked first in the list of countries with the highest prevalence of depression, with a point prevalence of 10.4% and a lifetime prevalence of depression of 18.4%. These data demonstrate that the country maintains high rates of depression over the years, requiring measures to control and prevent the main risk factors for this disorder.¹⁴

As for individual factors, the prevalence of depression demonstrated to be significant in females. Recent studies show that the prevalence of depression and mental suffering in Brazil and other countries is higher among women.^{15,16} Females have risk factors that trigger depressive symptoms, such as physiological and hormonal issues. In addition, women are often divided among the multiple roles of society, such as home and work activities, bringing a high load of stressful factors, which can lead to symptoms of sadness and depression.¹⁷ Women have a greater self-perception of illness, making them more easily seek health services in search of diagnosis and treatment. Therefore, access for women to mental health services also becomes easier.^{15,16}

As for age, individuals aged 30 to 59 years have a higher prevalence of depression. Adults

commonly have an exhausting routine, where they often need to divide their time among different tasks, involving work and even study. On the other hand, some adults also suffer from unemployment or poor work conditions, and these factors can trigger symptoms of stress and suffering. In addition, in recent decades, there has been a significant increase in the number of adults who live alone, isolated and without partners. These people who suffer from loneliness are vulnerable to social isolation and are likely to need psychological care due to depressive feelings.¹⁸

This study demonstrated a lower prevalence of depression in the elderly population. This can be explained by the significant social ties that the elderly citizens create with their relatives, as well as with other elderly people, which, for this stage of life, serves as a protective factor against loneliness and symptoms of sadness, thus generating positive consequences for health;^{19,20} in addition, the elderly person may have difficulty in recognizing the presence of a mental disorder, causing them not to demonstrate importance of the symptoms.²⁰ The fact that the elderly person do not seek health services due to symptoms associated with depression can lead to difficulties in diagnosis.

There was a higher prevalence of depression among divorced individuals. Silva et al. Corroborates²² when it states that having a partner can be considered a psychosocial protection factor, as it improves mutual support and coping with adverse situations. Although the individual factor 'being widowed' had no significant association in the multilevel analysis, widowhood brings symptoms of loneliness and sadness, triggering depression, especially in the elderly population.²³ Loneliness can lead to social exclusion, since the individual who feels

loneliness may show some dissatisfaction with their interpersonal relationships; however, feelings of emptiness can take place even if the individual has people around him/her,²⁰ accordingly, maintaining social relationships becomes a preventive measure.

As for education, the data found in this study show that there is a gradient in the prevalence of depression in Brazil when the level of education of individuals increases. High rates of depression are already present in college students, as well as after their training. This may be related to the fear and insecurity generated by the labor market, which causes these individuals to have an insufficient amount of sleep, unsatisfactory relationships with friends and relatives, as well as a stressful routine, generating symptoms of depression and anxiety.²⁴ In addition, Marasine et al.²⁵ brings in their study that people with higher education become victims of depression when they do not have a job equivalent to their qualification.

Per capita income above 3 minimum wages was also associated with depression. Some studies show that depression is present in individuals with a lower income; however, they have greater difficulties in accessing treatment.^{4,26} Studies conducted in Brazil indicate that individuals who have good economic conditions and a private health plan have better access to health services, which facilitates the diagnosis and treatment of chronic diseases. In addition, these individuals also report having completed higher education, living in urban areas and having a good self-reported health status.^{27,28} Therefore, based on the data found, it can be deduced that having a higher income may have influenced the easier access to health services.

Living in urban areas was associated with a higher prevalence of depression. The regions with the highest number of self-reported diagnoses of depression are the urban regions and the more industrialized regions. These data are associated with the lifestyle in more developed urban centers, which directly impacts the individuals' health, due to conditions related to traffic, urban violence, inefficient public transport, poor housing conditions etc.²⁸ These stressful factors of urban life cause individuals to develop symptoms of stress and consequently, depression.

As for self-assessment of health, assessing health as fair, bad, or very bad was related to higher prevalence of depression. Studies show that a good health assessment is an important indicator of the low impact of depression on the well-being of individuals.^{6,16} Therefore, having depressive symptoms leads individuals to characterize their health negatively.

Depression is also associated with the diagnosis of other chronic non-communicable diseases. A study conducted in Brazil showed that having chronic diseases is associated with symptoms of depression, especially Systemic Arterial Hypertension (SAH) and Diabetes Mellitus (DM), followed by cardiovascular diseases.²² The relationship between depression and chronic diseases can be bidirectional. Due to hormonal and physiological changes in the body, depression can lead to chronic diseases.³⁰ On the other hand, people with chronic diseases have limitations in mobility, food, physical activity, social and daily activities, and that these restrictions can lead to symptoms of sadness and depression.³¹

With regard to the use of alcoholic beverages, this was associated with a lower prevalence of depression. This finding is in disagreement with another study conducted in Brazil, which showed that habitual alcohol consumption did not differ between those who reported depression or not, but the risk of consuming alcohol was 72% higher among individuals with major depression and 44% higher in individuals who showed depressive mood for more than seven days.³² Although many studies have analyzed depression and alcohol use, these works do not differ regarding the type of depressive disorder in general.^{32,33}

As for the use of tobacco and its derivatives, in the present study, smoking was associated with a higher prevalence of depression. The pertinent literature demonstrates that there is a relationship between depression and nicotine dependence, as well as smoking cessation, being considered risk factors for the maintenance of the clinical condition or the development of a new depressive episode.¹⁷ This can be explained by the fact that nicotine causes a quick and transient relaxing effect. On the other hand, the lasting effect that this substance brings is the increase in

stress in the body of people who use cigarettes in large quantities.³⁴

As for race/skin color, blacks had a lower prevalence of depression in this study. Nonetheless, a systematic review including 14 Brazilian studies found a higher prevalence of depression and other common mental disorders in black-skinned individuals compared to white-skinned individuals.³⁵ Gonçalves et al.¹⁷ emphasizes that health inequalities should not be attributed exclusively to skin color, and it is also necessary to consider economic and social inequalities in different contexts. Ethnic and racial minorities have less access to mental health than Caucasian (white) patients and, when they have, they receive a lower quality service, corroborating the impact that historical racial inequality has had on the treatment of depression.³⁴ In this sense, the difficulty related to access in black people may be related to the lower prevalence of depression in this race.

Besides the use of cigarettes, the present study showed that the prevalence of depression is also associated with the habit of spending several hours watching TV (3 hours or more). Depressive individuals tend to try to minimize their symptoms of sadness and discouragement by constantly using TV, which also causes sedentary lifestyles and poor diet, causing worse levels of physical and mental health, especially in adults.³⁶

Regarding the context variables, HDI and primary care coverage were associated with the outcome. It was observed that depression is less prevalent in areas with less human development and less coverage of primary care. A study conducted in Brazil showed that the South Region, which has the highest HDI of the large Brazilian regions, had the highest rate of hospitalizations for mood disorders, including depression.³⁷ These data may be related to greater access to the diagnosis of depression, since, as discussed above, better socioeconomic levels lead to greater access to health services and, consequently, greater numbers of individuals diagnosed with depression. In addition, the social and economic contexts where individuals are inserted can lead to illness. The study by Viapina et al.³⁸ shows that contemporary society has progressively become ill due to the environment where citizens live, where individuals are increasingly seeking material goods through

strenuous work hours, which causes psychological distress in the long term.

With regard to the Primary Health Care (PHC) coverage, this study showed that areas with lower coverage by the Family Health Strategy teams have a lower prevalence of depression. In the Brazilian public health network, 23.9% of users who access primary care seek care for depression,⁶ thus demonstrating that depressive disorder is a predominant cause at this level of care. The increased coverage of primary health care brings with it greater access to individuals diagnosed with depression and other disorders. The advances in the expansion of Brazilian primary care bring with them a larger number of teams and improved access and therapeutic treatments related to depression.³⁹ From these data, it can be seen that the increased coverage of primary care provides easier access for the diagnosis of depression; therefore, the low coverage of primary care causes barriers for individuals with depressive symptoms to access health services.

It is important to highlight that Brazil is a country that has different social and economic contexts in its regions, therefore, states may have different prevalences of depression. The South and Southeast regions demonstrate higher prevalences of self-reported depression and the North and Northeast regions have lower rates. This higher prevalence, especially in the South region, may be related to the high rates of suicide and attempted suicide in this region. The data may also be related to the availability and access of residents in different regions of Brazil to professionals and mental health services, as well as self-perception of health-illness and search for treatment, factors that impact the possibility of diagnosis.⁴⁰

It is essential to highlight the important role of primary health care in promoting and preventing health for individuals with depression and other mental illnesses. Health promotion is a key factor in improving and reducing symptoms. The actions must be carried out by a multidisciplinary team in order to guarantee the effectiveness of the actions performed, aiming to prevent, promote and guarantee greater resolution of the population's mental problems. Having a trained professional team can reduce the number of mental illnesses.

One of the limitations of this study refers to response biases, since the topic involves mental health and this has a strong influence on the response. It is possible that information was omitted, due to fear or embarrassment of exposure. Another factor to be considered is the difficulty in accessing health services for the diagnosis of depression in Brazil. These situations may have resulted in an underestimation of the prevalence of depression. Nonetheless, population surveys offer representative samples of the population from all regions of the country. Knowing the prevalence of depression in Brazil through population-based surveys and with a methodology that takes into account the context of each individual is essential for the assessment and planning of the health system, thus contributing to the advancement of knowledge and improvements in public policies.

Furthermore, this study can serve as a reflection and analysis for health professionals, in which, through the results, they become aware of the main factors that involve illness in individuals with depression, making them seek to develop their care practices and actions to be based on individual and contextual factors related to the disease.

CONCLUSION

The present study reveals a prevalence of depression of 9.9% in Brazil, which is mainly associated with individual characteristics, such as being woman, aged 30-59 years, divorced, with higher education, with a per capita income above 3 minimum wages, who live in urban areas, who assess their health as fair, bad or very bad, who have another non-communicable chronic disease, smokers and who have a TV screen time of 3 hours or more.

These findings indicate the importance of strengthening the health care network, especially in primary care services and psychosocial care services. From this, it is possible to develop emergency preventive and health promotion strategies for individuals who have characteristics that have been associated with depression, in order to reduce the prevalence of this disorder in Brazil.

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