Prevalence, healthcare service utilization, and factors associated with depression among older adults in Brazil

Matteus Pio Gianotti Pereira Cruz Silva[1]
Paula Yhasmym de Oliveira Feitosa[1]
Júlia Emmily Gomes dos Santos Silva[1]
Matheus Figueiredo Nogueira[1]
Fabiana Lucena Rocha[1]
Danielle Samara Tavares de Oliveira Figueiredo[1]

Abstract

Objectives: To estimate the prevalence of depression among older adults in Brazil and the associated factors, and to describe the characteristics of health service utilization and treatments provided to older adults with depression. *Method:* A cross-sectional, analytical study involving 22,728 older adults who participated in the National Health Survey (PNS), randomly selected across Brazil from August 2019 to March 2020. The outcome was self-reported depression, and the exposures were sociodemographic variables and a social network score. Descriptive and multiple analyses using logistic regression were employed. *Results*: The prevalence of self-reported depression among older adults was 11.8% (95% CI: 11.1-12.57). It was observed that 71.6% (95% CI: 67.9-75.0) of the older population with depression only undergoes pharmacological treatment. There was a higher likelihood of depression among older women (OR=2.46; 95% CI: 2.06-2.94), aged 60 to 69 years (OR=1.67; 95% CI: 1.31-2.14), with white skin color (OR=2.95; 95% CI: 1.62-5.39), residents of the South region (OR=3.01; 95% CI: 2.27-4.00), and with multimorbidity (OR=1.79; 95% CI: 1.49-2.14). *Conclusion:* Depression appeared with considerable frequency among older adults, especially among women. There is a need to encourage the adoption of non-pharmacological measures for the treatment of the condition, such as the use of integrative and complementary practices, physical activities, lifestyle changes, and the promotion of social activities.

Keywords: Aged. Depression. Health Services.

[1] Universidade Federal de Campina Grande, Departamento de enfermagem. Cuité, PB, Brasil

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Correspondence
Matteus Pio Gianotti Pereira Cruz Silva
matteuspgpcs@gmail.com

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INTRODUCTION

Depression is reported as one of the most common mental health conditions in the global population, affecting approximately 270 million people, or 3.8% of the world's population. It is noteworthy that one-third of the global population of older adults is affected by depressive disorder[1].

The World Health Organization (WHO) estimates that approximately 15% of the population aged 60 or older is affected by some form of mental disorder, with depression prevalent in 7% of the global older adult population[2]. In Brazil, the prevalence of depressive disorders in the general population was approximately 5.87% in 2019[3].

Depression can be defined as a chronic mood disorder characterized by profound sadness, associated with feelings of pain, bitterness, disillusionment, hopelessness, low self-esteem, and guilt, as well as disturbances in sleep and appetite[4]. According to the Pan American Health Organization (PAHO)[4], depression is a serious disorder that directly interferes with the individual's daily life, being a disabling condition associated with suicide and other chronic diseases[2].

The illness results from a complex interplay of social, psychological, and biological factors[5]. Additionally, genetic predispositions become one of the significant factors for the development of depression, particularly in the older adult population, where loss of autonomy and exacerbation of pre-existing pathologies, along with social factors, low functional capacity, self-care deficits, and lack of social relationships, are highlighted[1,6].

In older adults, the onset of this disease may be associated with the absence or difficulty in maintaining interpersonal relationships[6]. Studies indicate the importance of social relationships in health promotion, with the social network being a determining factor in the functionality of older adults and an important determinant of better health conditions for the individual[6,7]. Depression is a clinical condition that is also frequently associated with multimorbidity, which can lead to disabilities in performing activities of daily living, resulting in increased dependency on others and thereby increasing the risk of suicide in the population targeted by this study[8].

Regarding the increased use of healthcare services by older adults with depression, an international study indicated that the older population exhibiting mild to moderate depressive symptoms demonstrated higher healthcare service utilization and, consequently, incurred greater financial expenditure allocated to the care and treatment of such conditions[9]. International research suggests a significant relationship between increased medical costs for healthcare and depression in older adults. In contrast, in Brazil, previous research on the prevalence of depression, treatment, and healthcare service utilization by older adults with this condition is often limited to municipalities or regions[10].

Therefore, it is necessary to conduct studies on depression and the factors associated with the onset of this health condition, specifically in older adults, using a representative sample of the Brazilian population.

Thus, based on the results of this study, it will be possible to understand the magnitude of the older adult population affected by this outcome in the national scenario, as well as the characteristics of service consumption and treatment for this disease. Moreover, it will be possible to identify modifiable factors that may be related to depression in this population.

In this regard, the objectives of this study are to estimate the prevalence of self-reported depression in older adults in Brazil and the associated factors, and to describe the characteristics of healthcare service utilization and treatment provided to older adults with depression.

METHOD

This is a cross-sectional, analytical study using secondary data from the National Health Survey (PNS) of 2019. The microdata from the PNS are available on the website of the Brazilian Institute of Geography and Statistics (IBGE): http://www.ibge.gov.br. The PNS is a household survey whose data are representative of the entire population residing

in private households across the national territory. Its general aim is to provide data on the determinants, influencing factors, and health needs of the Brazilian population[11].

The sampling plan of the PNS was organized into conglomerates in three stages. The Census Tracts or group of tracts formed the Primary Sampling Units (PSU), totaling 8,036[12]. In each PSU, a fixed number of permanent private households were randomly selected (15 households/PSU or 18 households/PSU, depending on the Brazilian state)[11]. A total of 94,114 household interviews were conducted, corresponding to the second stage of selection in the PNS. In each household, one resident aged 15 years or older was selected through simple random sampling to answer a specific questionnaire. Subsequently, 90,846 individual interviews were conducted with the selected resident, representing the third stage of selection in the survey[11].

Domiciles located in census tracts with small populations, such as indigenous areas, barracks, lodgings, camps, vessels, penitentiaries, penal colonies, military bases, prisons, jails, homes for the aged, integrated child and adolescent care networks, convents, hospitals, etc., were excluded from the PNS[11].

The population used in this study consisted of 90,846 individuals who responded to the individual interview, representing the third stage of the PNS. Individuals aged 60 years or older from all Brazilian states were included in the sample, while adults and adolescents were excluded. For the analysis of depression prevalence in older adults, the sample consisted of 22,728 individuals selected across the national territory, constituting the denominator for calculating the disease prevalence in this population. To analyze the use and treatments provided by the Rede de Atenção à Saúde (RAS), or Health Care Network, for older adults with depression, the sample used comprised 2,366 individuals who self-reported a diagnosis of depression.

The PNS utilized a comprehensive questionnaire developed by technicians from the Ministry of Health, which underwent a pilot test and comprises three parts: a household section, a questionnaire for all household residents, and a questionnaire specifically for the selected household member[11].

For this research, data from the following modules were used: Module A (household characteristics - urban or rural location, number of rooms, and ownership of goods); Module C (characteristics of the residents); Module E (characteristics of residents' education); Module Q (which includes questions about self-reported diagnosis of various chronic diseases, including depression). The data collection took place between August 2019 and March 2020, conducted by technicians from IBGE with the assistance of a mobile device. Further details on the methodology of the PNS 2019 can be found in the paper by Stopa et al.[11].

The dependent variable was depression. This variable was constructed from the following question: "Has any physician or mental health professional (such as a psychiatrist or psychologist) ever diagnosed you with depression?". Older adults who reported receiving a diagnosis of depression were considered to have the depressive condition. Therefore, this variable was categorized as: "Did not receive a diagnosis of depression" and "Yes, received a diagnosis of depression."

The independent variables were sociodemographic characteristics: Sex (Male and Female); Age group (60 to 69 years, 70 to 79 years, and 80 years or more); Level of education, which was coded as high education (12 years or more), intermediate education (9 to 11 years), and low education (0 to 8 years); Self-reported skin color (White, Black, Mixed-race, Yellow, or Indigenous); Marital status (With partner and Without partner); Region of residence (South, Southeast, Central-West, North, and Northeast); Area of residence (Urban and Rural); Socioeconomic class, classified as very high income (Class A), high income (Class B), and medium to low income (grouped as Classes C, D, and E).

A social network score was also used. To construct this variable, questions from the PNS were utilized: "How many friends do you feel comfortable talking to about almost everything? (excluding family members or relatives)" and "How many family members or relatives do you feel comfortable talking to about almost everything?" These two variables were categorized as follows: 1 - one or more friends or family members; 0 - no friends or no family members.

Variables such as the following were also used in the score: "Living with a spouse or partner," with response options 1 - yes or 0 - no; "In the last twelve months, how often did you participate in group meetings, such as neighborhood or employee associations, social/community movements, academic centers, or similar?", with responses divided into: 3 - More than once a week/once a week, 2 - 2 to 3 times a month, 1 - Once a year/sometimes in the year, and 0 - Never; "In the last twelve months, how often did you do unpaid volunteer work?", with the options: 3 - More than once a week/once a week, 2 - 2 to 3 times a month, 1 - Once a year/sometimes in the year, and 0 - Never; "In the last twelve months, how often did you attend collective activities of your religion or another religion, excluding situations like weddings, baptisms, or funerals?", divided into: 3 - More than once a week/once a week, 2 - 2 to 3 times a month, 1 - Once a year/sometimes in the year, and 0 - Never.

Based on this, the social network score was constructed by summing the components of the social network, with a higher score indicating a larger social network and greater social participation. The score ranged from 0 to 11 points. Subsequently, the total score was distributed into quartiles. Older adults in the 1st and 2nd quartiles were considered to have a smaller social network, while those in the 3rd and 4th quartiles were considered to have a larger social network.

According to the theoretical model of Social Determinants of Health proposed by Dahlgren and Whitehead, social network variables directly influence the perspectives of depressive symptoms in older adults or lifestyle, given that they are affected by social network contacts.

To evaluate the use of health services among older adults with depression, the following questions were used: "Do you visit a physician/health service regularly because of depression or only when you have a problem?" coded as: Yes, No, Only when I have a problem, and Never; "What is the main reason you do not visit a physician /health service regularly because of depression?", with response options: I am no longer depressed; The health service is far away or there are transportation difficulties; I lack the motivation; The wait time at the health service is too long; I have financial difficulties; The health service hours are incompatible with my household work activities; I couldn't schedule an appointment through my health plan; I don't know who to see or where to go; and Other.

To characterize the treatment for depression, the following questions were used: "Do you undergo psychotherapy because of depression?" (yes/no); "Do you take medication because of depression?" (yes/no); and "Do you use acupuncture, medicinal plants and phytotherapy, homeopathy, meditation, yoga, tai chi chuan, liang gong, or any other integrative and complementary practices because of depression?" (yes/no).

Descriptive analyses of the exposures and outcomes were performed. Absolute and relative frequency measures were used, with respective 95% Confidence Intervals (95% CI). For the descriptive analysis of the outcome, a stratified analysis by sociodemographic characteristics was also conducted. To evaluate the association between independent variables and depression, a bivariate step using the chi-square test was employed to verify possible associations in the distribution of proportions.

In the multiple analysis, the Stepwise method was used with the Forward criterion, where all variables selected in the bivariate step were entered into the model one by one. The introduction of variables began with the outcome, followed by the exposures of interest, one at a time. Variables that remained associated with a significance level of less than 5% according to the Wald test were included in the adjusted models.

In the unadjusted analysis, a single exposure variable and the outcome were used to observe the crude effect of the exposure on depression, through the measure of association Odds Ratio (OR) without adjustment. Variables that showed a p-value <0.20 in the chi-square test were eligible for this step.

In addition to the p-value from the Wald test, for the analysis of variables associated with depression in multiple models, the 95% Confidence Interval (95% CI) was also used as a hypothesis test. When the 95% CI of the adjusted OR crossed 1.00, it was considered

that the exposure variable was not associated with the outcome. To assess the fit of the final individual models, the Wald test for the svy module was used.

In the descriptive, bivariate, and multiple analyses, sample weights were used to calibrate the complex sampling design, and these analyses were conducted using the Statistical Software for Professional (STATA), version 17[13].

This research used secondary data, and it was not possible to identify the participants through data manipulation. Therefore, in accordance with the requirements of Resolution number 466 of 2012, the review by the Ethics Committee is waived.

DATA AVAILABILITY

The entire dataset supporting the results of this study has been made available on the website of the Brazilian Institute of Geography and Statistics (IBGE) and can be accessed at https://www.ibge.gov.br/estatisticas/sociais/saude/9160-pesquisa-nacional-de-saude.html?=&t=downloads.

RESULTS

In this study, a predominance of women was observed, mostly in the age group of 60 to 69 years, self-reported as white in skin color, and the vast majority with low education levels - 0 to 8 years. Regarding the area of residence, the majority lived in urban areas and in the Southeast region of the country (Table 1).

The prevalence of depression in the older adult population was 11.8% (95% CI: 11.1-12.5), being higher among older women (15.9%, 95% CI: 14.9-16.9; p<0.0001), in the age groups of 60 to 69 years (13.2%, 95% CI: 12.0-14.1; p=0.0005) and 70 to 79 years (10.6%, 95% CI: 9.5-11.8; p=0.0005), of self-reported white skin color (14.0%, 95% CI: 13.0-15.1; p<0.0001), among those living without a partner (13.3%, 95% CI: 12.3-14.3; p=0.0001), and among older adults with a higher number of years of education, 12 years or more (14.3%, 95% CI: 12.1-16.7; p=0.0823 (Table 2).

The prevalence of depression was higher among older adults belonging to the "Class A" (14.6%, 95% CI: 9.2-22.5; p= 0.0091), compared to lower socioeconomic classes, with statistically significant differences. Additionally, urban residents (12.5%, 95% CI: 11.7-13.3; p<0.0001) and those from the Southern Region (17.1%, 95% CI: 15.5-18.9; p<0.0001) had higher depression prevalence rates. Similarly, older adults with multimorbidity (13.7%, 95% CI: 12.8-14.6; p<0.0001) had higher prevalence rates of the outcome in this study, with statistically significant differences. Higher prevalence of depression was also observed among older adults in the lowest quartiles of social network (12.2% 95% CI:11.1-13.5; p=0.3112), though without significant differences.

Concerning the use of healthcare services by older adults with depression, less than half of the affected population regularly attends a physician or healthcare service (39.3%, 95% CI: 36.3-42.5), with the main reason being "no longer feeling depressed" (71.6%, 95% CI: 67.9-75.0), followed by incompatibility between the time and schedule of the appointment (4.4%, 95% CI: 0.4-5.0%) and financial difficulties (3.9%, 95% CI: 2.5-6.1). As for depression treatment, 86.9% (95% CI: 84.6-88.9) were not undergoing psychotherapy (Table 3).

Regarding pharmacological therapy, more than half of older adults with depression, 61.8% (95% CI: 58.7-64.8), reported adopting pharmacological treatment, and the vast majority, 96.0% (95% CI: 94.4-96.7), did not use any integrative or complementary practices for depression treatment. When asked "When was the last time you received medical care for depression?" less than half, 41.2% (95% CI: 38.1-44.4), reported receiving care within a period of less than 6 months (Table 3).

Table 1. Sociodemographic characteristics of participating older adults (N= 22,728). Brazilian States, Brazil, 2019.

Sociodemographic Characteristics	n[a] (%)[b]	CI (95%)[c]
Sex		
Male	10,193 (44.5)	43.5-45.5
Female	12,535 (55.5)	54.5-56.5
Age group (years)		
60 to 69	12,555 (54.8)	53.8-55.8
70 to 79	7,157 (31.1)	30.2-32.0
80 or more	3,016 (14.1)	13.3-14.8
Skin Color*		
White	9,901 (51.3)	50.2-52.4
Black	2,455 (10.2)	9.6-10.8
Mixed-race	10,001 (36.7)	35.7-37.7
Yellow or Indigenous	369 (1.8)	1.5-2.1
Marital status		
With partner	9,946 (43.3)	42.3-44.3
Without partner	12,782 (56.7)	55.7-57.8
Education (years)		
12 or more	2,701 (13.1)	12.2-13.9
9 to 11	3,616 (16.5)	15.7-17.4
0 to 8	16,414 (70.4)	69.2-71.5
Social Class *		
A	240 (1.5)	1.1-2.0
B	2,810 (13.8)	12.9-14.7
C, D and E	19,675 (84.7)	83.5-85.7
Residential area		
Urban	17,313 (85.5)	84.8-86.1
Rural	5,415 (14.5)	13.9-15.2
Region		
Southeast	5,825 (46.4)	45.3-47.6
South	3,307 (15.7)	15.0-16.4
Central-West	2,373 (6.4)	6.0-6.8
North	3,487 (6.1)	5.7-6.4
Northeast	7,736 (25.4)	24.5-26.2
Total	22,728 (100)	

Source: National Health Survey, PNS, 2019. [a]Sample size; [b]Estimate of population proportion, considering the weights of the complex sampling design; [c] 95% Confidence Interval. *Self-declaration.

Table 2. Bivariate association of sociodemographic characteristics, multimorbidity, and social network score with depression in older adults (N=22,728). Brazilian states, Brazil, 2019.

Variables	Depression				
	Yes		No		
	n[a]	%[b] CI (95%)[c]	n[a]	%[b] CI (95%)[c]	*p*-value[d]
Total	2,366	8 (11.1-12.5)	20,342	88.2 (87.4-88.9)	
Sex					<0.0001
Male	571	6.6 (5.8-7.5)	9,622	93.4 (92.3-94)	
Female	10,740	15.9 (14.9-16.9)	1,795	84.1 (83-85.3)	
Age Group (years)					0.0005
60 to 69	1,417	13.2 (12.0-14.1)	11,138	86.8 (85.8-88.0)	
70 to 79	705	10.6 (9.5-11.8)	6,452	89.4 (88.0-90.5)	
80 or more	244	9.4 (7.6-11.2)	2,772	90.6 (88.8-92.2)	
Skin Color					<0.0001
Black	177	8.9 (7.1-11.1)	2,278	91.1 (88.9-92.8)	
White	1,275	14.0 (13.0-15.1)	8,626	86.0 (84.9-87.0)	
Mixed-race	886	10.0 (9.1-11.0)	9,115	90.0 (89.0-90.1)	
Yellow or Indigenous	28	6.3 (3.7-10.4	341	93.7 (89.6-96.3)	
Marital Status					0.0001
With partner	913	10.0 (9.1-10.1)	9,033	90.0 (89.0-90.9)	
Without partner	1,453	13.3 (12.3-14.3)	11,329	86.7 (85.7-87.7)	
Education (years)					0.0823
12 or more	716	14.3 (12.1-16.7)	5,014	85.7 (83.3-87.9)	
9 to 11	223	13.2 (11.6-14.9)	1,788	86.8 (85.1-88.4)	
0 to 8	1,427	11.2 (10.4-12.1)	13,560	88.8 (87.8-89.6)	
Social Class					0.0091
A	28	14.6 (9.2-22.5)	187	85.4 (77.5-90.8)	
B	321	14.5 (12.5-16.8)	2,061	85.5 (83.2-87.5)	
C. D e E	2,017	11.4 (10.7-12.1)	18,111	88.6 (87.9-89.3)	
Residential Area					<0.0001
Urban	1,985	12.5 (11.7-13.3)	15,328	87.5 (86.7-88.3)	
Rural	381	8.3 (7.1-9.6)	5,034	91.7 (90.4-92.9)	
Region					<0.0001
Southeast	691	12.6 (11.4-13.8)	5,134	87.4 (86.1-84.5)	
South	565	17.1 (15.5-18.9)	2,742	82.9 (81.1-84.5)	
Central-West	269	11.7 (10.1-13.4)	2,104	88.3 (86.6-89.9)	
North	220	6.1 (5.0-7.4)	3,267	93.9 (92.6-95.0)	
Northeast	621	8.3 (7.5-9.2)	7,115	91.7 (90.7-92.5)	
Multimorbidity					<0.0001
No	420	8.0 (6.9-9.2)	6,015	92.0 (90.8-93.1)	
Yes	1,924	13.7 (12.8-14.6)	13,609	86.3 (85.4-87.2)	
Social Network Score					0.3112
Higher social network (3rd and 4th quartiles)	1,301	11.5 (11.1-12.6)	8,761	85.5 (87.5-89.4)	
Lower network (1st and 2nd quartiles)	1,065	12.2 (11.1-13.5)	11,601	87.8 (86.5-88.9)	

Source: National Health Survey, PNS, 2019. Note: [a]Sample size; [b]Estimated population proportion, considering the weights of the complex sampling plan; [c]95% Confidence Interval; [d]Probability value of the chi-square test.

Table 3. Use of healthcare services and depression treatment in older adults (N=2,366). Brazilian states, Brazil, 2019.

Variables	%[a]	95%[b] CI
Does Mr./Ms. regularly visit the physician/health service because of depression or only when there is a problem?		
Yes	39.3	36.3-42.5
No, only when there is a problem	31.5	28.8-34.3
Never goes	29.2	26.6-31.9
What is the main reason for Mr./Ms. not visiting the physician/health service regularly because of depression?		
No longer depressed	71.6	67.9-75.0
The health service is distant	2.4	1.7-3.4
Lack of motivation	0.7	5.0-8.6
Financial difficulties	3.9	2.5-6.1
Time/hour-related issues	4.4	0.4-5.0
Could not schedule an appointment through the health plan	0.6	0.3-1.3
Does not know who to seek or where to go	0.5	0.2-0.9
Others	10.0	7.7-12.8
Treatments for depression		
Undergoes psychotherapy		
Yes	13.1	11.1-15.4
No	86.9	84.6-88.9
Takes medication		
Yes	61.8	58.7-64.8
No	38.1	35.2-41.2
Uses integrative or complementary practices		
Yes	4.0	3.3-5.6
No	96.0	94.4-96.7
When was the last time Mr./Ms. received medical attention for depression?		
Less than 6 months ago	41.2	38.1-44.4
6 months to less than 1 year ago	10.1	8.4-12.1
1 year to less than 2 years ago	6.5	5.2-8.1
2 years to less than 3 years ago	4.1	3.1-5.4
3 years or more	36.5	33.5-39.4
Never received	1.6	1.1-2.3

Source: National Health Survey, PNS, 2019. [a]Population proportion, considering sample weights; [b]95% Confidence Interval of the estimated population proportion.

When adjusted analysis of the association between sociodemographic characteristics and multimorbidity - the simultaneous presence of two or more chronic diseases - was conducted, the following remained associated with depression: being female (ORa=2.46; 95% CI: 2.06-2.94); age group of 60 to 69 years (ORa =1.67; 95% CI: 1.31-2.14); white skin color (ORa =2.95; 95% CI: 1.62-5.39); being from the Southern (ORa =3.01; 95% CI: 2.27-4.00), Southeast (ORa =1.94; 95% CI: 1.48-2.55), Central-West (ORa =1.76; 95% CI: 1.28-1.41), and Northeast (ORa =1.37; 95% CI: 1.05-1.79) regions; and having multimorbidity (ORa =1.79; 95% CI: 1.49-2.14). The residential area lost association in the multiple analysis (Table 4).

Table 4. Association between sociodemographic factors and multimorbidity with depression in Brazilian older adults (N=22,728). Brazilian states, Brazil, 2019.

Variables	Depression					
	OR Unadjusted[a]	(95%CI)[b]	*p*-value[c]	OR Adjusted[d]	(95%CI) [b]	*p*-value[c]
Sex reference (male)						
Female	2.64	2.25-3.12	<0.0001	2.46	2.06-2.94	<0.0001
Age group reference (80 or more)						
70 to 79 years	1.17	0.91-1.51	0.215	1.22	0.94-1.58	0.118
60 to 69 years	1.47	1.16-1.86	0.001	1.67	1.31-2.14	<0.0001
Skin color reference (Yellow or Indigenous)						
Black	1.76	0.92-3.37	0.087	2.21	1.20-4.06	0.011
Mixed-race	1.99	1.09-3.62	0.087	1.73	0.88-3.37	0.106
White	3.16	1.75-5.70	<0.0001	2.95	1.62-5.39	<0.0001
Marital status reference (With partner)						
Without partner	1.32	1.14-1.52	<0.0001	-		
Education reference (0 to 8 years)						
9 to 12 years	1.07	0.83-1.36	0.595	-		
12 years or more	1.19	1.0-1.40	0.025	-		
Socioeconomic status reference (Class A)						
B	0.92	0.47-1.79	0.822	-		
C, D and E	0.71	0.38-1.35	0.308	-		
Residential area reference (Urban)						
Rural	0.67	0.55-0.80	<0.0001	-		
Region reference (North)						
South	3.63	2.80-4.72	<0.0001	3.01	2.27-4.00	<0.0001
Southeast	2.29	1.76-2.96	<0.0001	1.94	1.48-2.55	<0.0001
Central-West	2.02	1.50-2.73	<0.0001	1.76	1.28-1.41	<0.0001
Northeast	1.43	1.10-1.86	<0.0001	1.37	1.05-1.79	<0.0001
Multimorbidity reference (No)						
Multimorbidity	1.82	1.53-2.17	<0.0001	1.79	1.49-2.14	<0.0001

Source: National Health Survey, 2019. [a]Unadjusted odds ratio; [b]95% Confidence Interval of OR; [c]Probability value of Wald test. [d]Odds ratio adjusted for sociodemographic characteristics and multimorbidity.

DISCUSSION

In this study, nearly 12 out of every 100 older adults reported a self-diagnosis of depression. The findings of this research are consistent with international studies with globally representative samples, which reported a global prevalence of depression in older adults of 13.3%[14]. In Europe, the prevalence of depression in older adults reaches 12.9%[14]. Meanwhile, in low-income countries, the prevalence can reach 26.3%[15].

Additionally, the higher prevalence and odds of depression in women were also observed in previous international and national research studies[15-18]. This result may be related to factors such as greater longevity, longer exposure of women to chronic diseases, and loneliness[18]. Furthermore, biological aspects such as estrogen decline and sociocultural factors may be potential determinants[19].

In this study, depression was associated with age, with older adults aged 60 to 69 years being more prone to it. Previous studies support the findings of this research, which indicate depressive symptoms in younger age groups of older adults compared to those aged 80 years or older[19]. Meanwhile, depression among older and oldest-old individuals may have been underreported, as these individuals may have a higher likelihood of disability, multimorbidity, and may have prioritized the treatment of other chronic conditions over mental health, in addition to facing access issues to healthcare services[20]. Furthermore, the frequency of depression was higher in older adults who self-identified as white, with these individuals having nearly three times the odds of depression compared to those with yellow skin color.

In a national survey conducted in 2022 with adults in general, the findings were similar to those found in this study[21]. However, previous research has identified a trend of mental disorders in non-white and black individuals, perhaps due to the use of non-random samples subject to selection biases or because they are exposed to other social and cultural determinants that may also influence the occurrence of depression in non-white populations in other contexts[22,23].

In this study, significant differences in the odds of depression were observed according to the region of residence. Higher prevalence of depression were observed among older adults in the Southern region of Brazil, and when adjusted multiple analysis was conducted, it was possible to identify that older adults residing in the Southern region – when compared to older adults residing in the North of the country – had a higher chance of experiencing depression. National studies have corroborated the findings, with the Southern region being identified as having higher prevalence of depression, not only among the older population, which may be correlated with elevated suicide rates in that region, as well as multimorbidity in general[21,24-26].

Furthermore, this could be related to regional disparities in mental health care coverage, as the North and Northeast regions have lower availability of mental health services compared to the South and Southeast regions, which could explain underreporting and lower prevalence in those regions compared to the South and Southeast[21].

It was also observed that older adults with multimorbidity may have twice the chance of developing depressive disorder compared to individuals without diseases or even a single morbidity. International studies have corroborated our results, indicating that multimorbidity is associated with an indirect increase in depression due to both biological and non-biological conditions[27,28]. For instance, biological conditions of senescence lead to a decline in hormones such as estrogen and testosterone, which may be associated with higher chances of depression. In women, there is an increased risk of depression and anxiety during perimenopause and menopausal transition due to reduced estrogen levels[29].

Furthermore, older adults with multimorbidity may experience functional declines, including difficulty performing activities of daily living, pain, unsatisfactory sleep, conditions that lead to a decline in the quality of life of the elderly, social isolation, and deficits in self-care[28]. A study conducted in China indicated that individuals diagnosed with numerous chronic conditions may experience functional limitations, disability, resulting in low quality of life, and social limitations that necessitate assistance

with simple tasks, mobility, and limited access to healthcare services, impacting their mental health[30].

In this research, there was also low demand for complementary services and non-pharmacological therapies for depression (psychotherapy or complementary and integrative therapies). National research also pointed out this reality. This may be related to access to healthcare services for such treatment, as well as social, economic, and cultural factors leading to deficient access[31]. Moreover, there is a predominance of the biomedical model in the healthcare system, and culturally, this care model is deeply rooted in common sense.

Studies indicate a predominance of the use of psychotropic drugs for the treatment of depression, with antidepressants, anxiolytics, and antipsychotics being the most prescribed[32]. Medication use is important for the treatment of psychiatric conditions; however, it should be carried out with an integrated approach and comprehensive individual care, integrating pharmacotherapy and psychotherapy[32].

Additionally, there is a low provision of Integrative and Complementary Practices (ICPs) in public healthcare services and a greater use of medications as a treatment choice by patients[33]. Strong evidence has been observed for the efficacy of psychotherapy and nutritional therapy in the treatment of depression; however, there is still a greater need for scientific rigor in clinical trials testing various integrative therapies for efficacy in the mental health of older adults[34].

The study evidenced that the use of ICPs was reported by 5.4% of older adults in Brazil, with a higher usage of medicinal plants/herbal medicine, acupuncture, and homeopathy. However, only 6.7% underwent treatment in the Unified Health System (SUS), indicating a low provision of these services. Furthermore, the literature shows increased utilization of these services by older adults with depression, highlighting the need to expand service coverage for this population[35].

As a limitation of the study, it is not possible to assert the precedence of exposures in relation to the outcome due to the cross-sectional design. Thus, no cause-and-effect relationship can be established. Additionally, depression was assessed through self-report, which is subject to measurement bias, as this measure relies on the individual's knowledge of their diagnostic status. It is worth noting that the PNS, being conducted by IBGE, a benchmark in nationwide studies, akin to the Demographic Census, adheres to significant methodological rigor regarding the sample selection process, interviewer training, data tabulation, and storage, thus reducing the likelihood of other limitations inherent in studies using secondary data, such as typing errors, data storage issues, and information loss.

The PNS did not include institutionalized older adults, which may underestimate the prevalence of depression, considering that they may be more vulnerable to experiencing depressive symptoms. Nonetheless, the sample is representative of the Brazilian community-dwelling older population, which lends external validity to the research and estimates that may approximate population parameters. Additionally, studies on the prevalence of depression in older adults and their utilization of health services are still scarce in Brazil.

It is recommended that future research on depression in older adults be conducted in Brazil, given that depression rates tend to be higher in developing countries, and the prevalence rates found worldwide vary significantly.

CONCLUSION

The study revealed that nearly 12 out of every 100 older adults reported having depression, being more common among women, aged 60 to 69, self-reported as white, and with multiple chronic conditions. Regarding treatment, the majority of older adults with depression rely solely on medication, with few seeking psychotherapy or complementary therapy.

Depression was more prevalent among older adults with lower social network scores, indicating fewer friends, family members, less frequent engagement in community and work activities. Therefore, there is a need to encourage the adoption of non-pharmacological measures for the treatment of the disease, such as the use of integrative and

complementary practices, physical activities, lifestyle changes, and the promotion of social engagement.

The results enable managers to support the implementation of measures that address the real needs and characteristics of their population, with the aim of promoting existing public policies and creating new ones to address the mental health needs of older adults.

AUTHORSHIP

- Matteus Pio Gianotti Pereira Cruz Silva – Principal author, conceptualization, investigation, writing.
- Danielle Samara Tavares de Oliveira Figueiredo – Supervision, review and editing, validation.
- Matheus Figueiredo Nogueira – Supervision, review, and editing.
- Fabiana Lucena Rocha – Supervision, review, editing, validation, and visualization.
- Júlia Emmily Gomes dos Santos Silva – Review and editing.
- Paula Yhasmym de Oliveira Feitosa – Review and editing.

Edited by: Camila Alves dos Santos

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