



Symptoms of mood change in hospitalized elderly people: prevalence and associated factors

Sintomas de alteração de humor em pessoas idosas hospitalizadas: prevalência e fatores associados

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ABSTRACT

To analyze the prevalence and factors associated with symptoms of mood swings in hospitalized elderly people. Cross-sectional study with 673 hospitalized elderly people. A sociodemographic questionnaire and Clinical-Functional Vulnerability Index-20 were applied. The chi-square test was performed. Of those evaluated, 52.3% presented discouragement, sadness, or hopelessness. Women (OR=1.5), octogenarians (OR=1.6), individuals with a negative perception of health (OR=2.6), and pre-frail (OR=2.0) and frail (OR=5.4) and who died (OR=2.5) were more likely to present this symptom ($p<0.05$). The prevalence of loss of interest in previously pleasurable activities was 15.0% and was significantly ($p<0.05$) more present in octogenarians (OR=1.9), individuals with a negative perception of health (OR=3.7), and pre-frail (OR=2.8) and frail (OR=18.4), and who died (OR=2.6). There was a high prevalence of mood changes in hospitalized elderly people; these symptoms were associated with demographic and health conditions.

Keywords: Elderly. Health of the Elderly. Hospitalization. Mood Disorders.

RESUMO

Analisar a prevalência e fatores associados a sintomas de alterações de humor em pessoas idosas hospitalizadas. Estudo transversal, com 673 pessoas idosas hospitalizadas. Aplicou-se questionário sociodemográfico e Índice de Vulnerabilidade Clínico Funcional. Realizou-se teste qui-quadrado. Dos avaliados, 52,3% apresentaram desânimo, tristeza ou desesperança, sendo que mulheres (OR=1,5), octogenários (OR=1,6), indivíduos com percepção negativa de saúde (OR=2,6) e pré-frágeis (OR=2,0) e frágeis (OR=5,4) e que vieram a óbito (OR=2,5) exibiram mais chances de apresentar este sintoma ($p<0,05$). A prevalência de perda de interesse em atividades anteriormente prazerosas foi de 15,0% e de modo semelhante esteve significativamente ($p<0,05$) mais presente em octogenários (OR=1,9), indivíduos com percepção negativa de saúde (OR=3,7) e pré-frágeis (OR=2,8) e frágeis (OR=18,4), e que vieram a óbito (OR=2,6). Houve elevada prevalência de alteração de humor pessoas idosas hospitalizadas, sendo estes sintomas associados às condições demográficas e de saúde.

Palavras-chave: Idoso. Saúde do Idoso. Hospitalização. Transtornos do Humor.

INTRODUCTION

The health of older people is determined by the harmonious functioning of four functional domains: cognition, mood, mobility, and communication.¹ Humor is the necessary motivation for mental processes, such as the level of consciousness, sensory perception, and thinking, and for the development of activities and/or social participation.¹ Furthermore, it directly reflects on the individual's autonomy, that is, on the individual's ability to make decisions and command over their actions, thus being fundamental for carrying out activities of daily living (ADL).¹

Problems related to mood changes can range from isolated sadness to severe depressive disorders.^{2,3} These warning signs and symptoms can include hopelessness and loss of pleasure in everyday activities, both serving as suggestive markers of mood disorders indicated by the Clinical-Functional Vulnerability Index (IVCF-20).⁴

In recent decades, mood changes have become evident due to their increasing prevalence, especially in the elderly population.⁶⁻¹¹ Globally, research carried out in Asia shows a prevalence of approximately 35.1% for depressive symptoms in the elderly.⁸ Other international studies carried out with the Chinese⁹, African¹⁰, and Indian¹¹ population show prevalence of 24.1%, 26.3%, and 34.4%, respectively.

The high prevalence of symptoms of mood changes in hospitalized elderly people may be related to the situation of illness, in which the person perceives their health to be weakened, with repercussions for the performance of basic and instrumental activities of daily living, in addition to being away from home and the routines imposed by institutions.^{12,15}

Among the factors influencing hopelessness and loss of pleasure in daily activities, sociocultural and demographic factors stand out, the disconnection from previously

performed roles, the negative experience of aging, and health conditions, among others.⁵

Mood changes in elderly people are often ignored by health professionals, as they relate such manifestations to the senescence process. However, for health promotion, humor is fundamental to be investigated, as its changes can directly impact an individual's life and health. Conditions of sadness, discouragement, and hopelessness must be noticed by the professional in advance, as they may be associated with or culminate in severe mental disorders, such as depression and anxiety. Therefore, investigating the causes and seeking solutions for such changes must be a priority in the geriatric field.

Furthermore, there is a lack of studies on mood changes, especially in hospitalized elderly people, a scenario of high prevalence. Therefore, the present study becomes important in recognizing the symptoms of mood changes, which are not typical of the senile process and, if left untreated, can lead to several losses in the elderly person's life. Negative feelings such as sadness and discouragement are commonly observed, and when they persist, they can hinder the treatment and recovery process during the hospitalization process.

Therefore, the present study aimed to analyze the prevalence and factors associated with symptoms of mood changes in hospitalized elderly people.

METHODOLOGY

This was a cross-sectional, quantitative study, with a sample of elderly people hospitalized in the medical and surgical clinic sector of a teaching hospital in a medium-sized municipality in the state of Paraná in 2020-2021, the most critical period of the COVID-19 pandemic.

Sampling was for convenience, using the following inclusion criteria: a) being aged 60 years or older (both sexes); b) having undergone

gerontological care at the hospital during the data collection period; c) agreeing to participate in the study; d) having the cognitive capacity to participate in the study. Individuals who had incomplete information in the electronic medical record of gerontological care that met the scope of the study were excluded. The final sample consisted of 673 individuals.

Data were collected individually, at the bedside, directly from the patient, by the multidisciplinary gerontological care team in the first 48 hours of hospitalization in a medical ward or surgical ward. No collections were carried out with those hospitalized for COVID-19 with the active virus.

However, due to the convenience of sampling, some individuals had been relocated to the ward where the study was conducted and were in the post-COVID-19 period, being included in the research. The team was properly trained and calibrated for the study and respected ethical precepts. The instruments applied served as support for planning care for in-hospital patients and post-discharge plans.

To carry out the study, the following instruments were considered: sociodemographic and clinical questionnaire constructed specifically for the study, which included the following variables: gender, age group, education, self-perception of health, and clinical outcome. To assess the functional condition, the validated instrument entitled the Clinical-Functional Vulnerability Index (IVCF-20) was applied, consisting of 20 questions distributed in 7 dimensions: age, self-perceived health, functional disabilities, cognition, mood, communication, and multiple comorbidities. They total a maximum score of 40 points. The values are stratified and classify the individual from 0 to 6 as robust, 7 to 14 in pre-frail, and ≥ 15 as frail.⁴ These were considered independent variables of the study.

To assess symptoms of mood changes, two questions described in the IVCF-20 were

used: In the last month, have you felt discouraged, sad, or hopeless? In the last month, have you lost interest in previously enjoyable activities? These were considered the dependent variables of the study.

The results were tabulated in an Excel[®] spreadsheet, processed, and categorized, as recommended in the literature; this stage was double-checked. Next, the results were subjected to descriptive analysis using absolute and relative frequency. The chi-square test of independence (2x2) was applied to categorical variables with two responses at a significance level of 95%. Variables with three categories were subjected to a chi-square test of independence (2X3) at a significance level of 95% and analysis of adjusted standardized residuals, considering values equal to or greater than 2, regardless of the sign (+/-), as an association. To reinforce the existence or not of association, for variables with three categories, two other chi-square tests of independence (2x2) were carried out, considering the value for comparability in the test, the best condition presented, with the first data displayed in the table with the other conditions. In other words, the following were compared; for *age*: test 1: individuals aged 60 to 69 years versus 70 to 79 years, and test 2: individuals aged 60 to 69 years versus 80 years or more; for *education*: test 1: high school and higher education versus elementary school, and test 2: high school and higher education versus illiterate; and for *functional condition*: test 1: robust versus pre-frail and test 2: robust versus frail. Furthermore, for all independent variables analyzed, the Odds Ratio (OR) was calculated to assess how strongly the symptoms of mood changes are associated with the factors evaluated.

The present study is the result of research approved by the Human Research Ethics Committee under CAAE opinion 21585019.3.0000.0105, which met all ethical precepts for its execution.

RESULTS

There was a predominance of males, the age range varied between 60 and 100 years, with an average age of 71.8 years, and a low level of education, individuals with a positive perception of health and frail functional

condition. Of those evaluated, 52.3% of elderly people hospitalized showed discouragement, sadness, or hopelessness, and 15.0% lost interest in previously pleasurable activities (Tables 1 and 2).

Table 1. Demographic characteristics of elderly people admitted to the ward of a public educational institution, according to symptoms of mood changes. Ponta Grossa, 2020-2021 (n=673).

(Continued)

SYMPTOMS OF MOOD CHANGE					
Discouragement, sadness or hopelessness					
Variables	Total n(%)	No n(%)	Yes n(%)	OR	p-value
Discouragement, sadness or hopelessness	673(100)	321(47.7)	352(52.3)		
Sex					0.008**
Masculine	352(52.3)	185(52.6)	167(47.4)	1.5	
Feminine	321(47.7)	136(42.4)	185(57.6)		
Age					0.064
60-69 years old	332(49.3)	164(49.4)	168(50.6)		
Residual adjustment		0.9	-0.9		
70-79 years	218(32.4)	110(50.5)	108(49.5)	1.0	0.404
Residual adjustment		1.0	-1.0		
≥80 years	123(18.3)	47(38.2)	76(61.8)	1.6	0.017**
Residual adjustment		-2.3**	2.3**		
Education					0.923
High school and higher education	82(12.2)	19(44.2)	24(55.8)		
Residual adjustment		-0.4	0.4		
Elementary school	214(31.8)	94(43.9)	120(56.1)	1.0	0.487
Residual adjustment		0.3	-0.3		
Illiterate	43(6.4)	34(41.5)	48(58.5)	1.1	0.385
Residual adjustment		0.1	-0.1		
Not informed*	334(49.6)	174(52.1)	160(47.9)		
Self-perceived health					<0.001**
Positive	419(62.3)	237(56.6)	182(43.2)		
Negative	254(37.7)	84(33.1)	170(66.9)	2.6	
Functional condition					<0.001**
Robust	150(22.3)	107(71.3)	43(28.7)		
Residual adjustment		6.6**	-6.6**		

(Conclusion)

SYMPTOMS OF MOOD CHANGE					
Discouragement, sadness or hopelessness					
Variables	Total n(%)	No n(%)	Yes n(%)	OR	p-value
Pre-Frail	204(30.3)	113(55.4)	91(44.6)	2.0	0.001**
Residual adjustment		2.6**	-2.6**		
Frail	319(47.4)	101(31.7)	218(68.3)	5.4	<0.001**
Residual adjustment		-7.9**	7.9**		
Clinical outcome					0.016**
Hospital discharge	339(50.4)	149(44.0)	190(56.0)		
Death	38(5.6)	9(23.7)	29(76.3)	2.5	
Not informed*	296(44.0)	163(55.1)	133(44.9)		

Source: Prepared by the authors (2022). *Not considered in the test. ** Values that resulted in association.

Sex ($p=0.008$), age ≥ 80 years ($p=0.017$), self-perceived health ($p<0.001$), functional condition ($p<0.001$), and clinical outcome ($p=0.016$) were associated with discouragement, sadness, or hopelessness. Furthermore, analyses of the adjusted standardized residuals indicated that octogenarians, pre-frail, and frail people were associated with discouragement, sadness, or hopelessness. Women and octogenarians were 1.5 and 1.6 more likely, respectively, to present

such symptoms of mood changes compared to men and individuals aged between 60 and 69 years. Furthermore, individuals with a negative perception of health, those who were pre-frail and frail, and who died during hospitalization were, respectively, 2.6, 2.0, 5.4, and 2.5 more likely to experience discouragement, sadness, or hopelessness compared to individuals with a positive perception of health and robust (Table 1).

Table 2. Demographic characteristics of elderly people admitted to the ward of a public educational institution, according to symptoms of mood changes. Ponta Grossa, 2020-2021 (n=673).

(Continued)

SYMPTOMS OF MOOD CHANGE				
Loss of interest in previously pleasurable activities				
Variables	No n (%)	Yes n (%)	OR	p-value
Loss of interest in previously pleasurable activities	572(85.0)	101(15.0)		
Sex				0.208
Masculine	305(86.6)	47(13.4)		
Feminine	267(83.2)	54(16.8)	1.3	
Age				0.05**
60-69 years old	289(87.0)	43(13.0)		
Residual adjustment	1.5	-1.5		
70-79 years	187(85.8)	31(14.2)	1.1	0.335
Residual adjustment	0.4	-0.4		

(Conclusion)

SYMPTOMS OF MOOD CHANGE				
Loss of interest in previously pleasurable activities				
Variables	No n (%)	Yes n (%)	OR	p-value
≥80 years	96(78.0)	27(22.0)	1.9	0.009**
Residual adjustment	-2.4**	2.4**		
Education				0.766
High school and higher education	65(79.3)	17(20.7)		
Residual adjustment	-0.3	0.3		
Elementary school	174(81.3)	40(18.7)	0.9	0.345
Residual adjustment	0.6	-0.6		
Illiterate	33(76.7)	10(23.3)	1.2	0.372
Residual adjustment	-0.6	0.6		
Not informed*	300(89.8)	34(10.2)		
Self-perceived health				<0.001**
Positive	383(91.4)	36(8.6)		
Negative	189(74.4)	65(25.6)	3.7	
Functional condition				<0.001**
Robust	147(98.0)	3(2.0)		
Residual adjustment	5.1**	-5.1**		
Pre-Frail	193(94.6)	11(5.4)	2.8	0.05**
Residual adjustment	4.6**	-4.6**		
Frail	232(72.7)	87(27.3)	18.4	<0.001**
Residual adjustment	-8.5**	8.5**		
Clinical outcome				0.008**
Hospital discharge	276(81.4)	63(18.6)		
Death	24(63.2)	14(36.8)	2.6	
Not informed*	272(91.9)	24(8.1)		

Source: Prepared by the authors (2022). *Not considered in the test. ** Values that resulted in association.

Regarding loss of interest in previously pleasurable activities, there was an association with age ($p=0.05$), self-perceived health ($p<0.001$), functional condition ($p<0.001$), and clinical outcome ($p=0.008$) (Table 2). Elderly people aged 80 or over were 1.9 times more likely to have lost interest in previously pleasurable activities compared to those aged between 60 and 69 years. Similarly, individuals with a negative self-perception of health were 3.7 more likely

to have this symptom of mood changes, as well as pre-frail and frail elderly people who were respectively 2.8 and 18.4 more likely to have this symptom. Furthermore, concerning the clinical outcome, individuals who died were 2.6 times more likely to have the symptom of loss of interest in previously pleasurable activities compared to those who were discharged from the hospital.

DISCUSSION

In the present study, more than half of the elderly people hospitalized showed discouragement, sadness, or hopelessness, while a much smaller portion reported a loss of interest in previously pleasurable activities. Despite the lack of approach to the topic in the literature, the explanation for this condition is suggested to be because feelings of sadness and discouragement are primary manifestations of mood changes, while loss of interest has a secondary character, considering that one of the escape mechanisms from sadness and discouragement consists of relying on pleasurable daily activities. When this mechanism is not enough to rid the individual of these feelings, the pleasure in carrying out activities is lost.

However, that more specific approaches are required to determine the loss of pleasure in everyday activities and its connection with, or dependence on, feelings of discouragement, sadness, and hopelessness.

When pointing to the prevalence of mood changes found, the findings are in line with the literature, where a previous study with 134 individuals from a Family Health Unit in the state of Pará, aged 60 years or more, pointed out that 55.6% of the sample presented sadness, discouragement, or hopelessness in the last month, and 50% lost interest in previously pleasurable activities in the last month.¹⁶

Research that used other methods for evaluating mood changes also points to high prevalence among elderly people in the community: the study carried out by Ramos et al. (2015)¹⁷ during home visits in the north of Minas Gerais, with 639 elderly people, the main findings were: average age of 70.6 years, higher prevalence of females, self-declared non-white; majority married, and with low education. Associated with such factors, the prevalence of depressive symptoms was 27.5%.¹⁷

In turn, the investigation in a public teaching hospital in Belo Horizonte, state of

Minas Gerais, with a sample of 96 elderly people, predominantly female, the majority aged between 60 and 69 years old, married and with low education, used the Geriatric Depression Scale to analyze mood changes and identified that 39% of the sample presented mood changes, such as mild to moderate depressive symptoms, where 54.1% were female.¹²

There are several causes of mood changes in elderly people, and it is important to consider genetic aspects, events such as abandonment, bereavement, and disabling illnesses, as well as functional dependence and cognitive deficits.¹⁸

Furthermore, the high prevalence of mood changes found in the present study can be attributed to the pandemic context and the hospital admission, given the high incidence of deaths among the elderly population, the main risk group, at the beginning of the COVID-19 pandemic, the period in which the present study was carried out.¹⁹

However, it would not be prudent to solely blame the hospital admission process for the occurrence of symptoms of mood changes, considering that the questions addressed by IVCF-20 refer to the elderly person's mood in the last 30 days and the approach was carried out in the first 48 hours of hospitalization. Therefore, the existence of emotional baggage before hospitalization must be taken into account, determined by socioeconomic, psychological, and health conditions.

With this in mind, it is important to consider which health condition deteriorates until it culminates in hospitalization. In parallel, even before hospitalization, feelings of discouragement, sadness, hopelessness, and loss of pleasure in daily activities intensify, as well as a worsening of health status.²⁰

Brazilian research carried out with the elderly population assisted by the Family Health Strategy demonstrated that the presence of comorbidities was associated with the occurrence of depressive symptoms, considering the impact

that multimorbidity can have on the functional capacity of the elderly person.⁶

As for demographic and health characteristics associated with humor, females, advanced age, and elderly people who assessed their health as negative, who presented some degree of frailty, and who died during the hospitalization process showed significantly more mood changes.

De Lara et al. (2020)²¹ also reported mood changes more present in the elderly female public, a condition that can be justified by hormonal changes, such as estrogen levels, and also by the fact that women have greater tendencies to internalize stressful events, have their rights and status culturally harmed, in addition to being victims of violence more frequently and more affected by widowhood and loneliness due to their longer survival.^{21,22}

Regarding advanced age, an important determinant of the high prevalence of mood changes, the literature points out that several factors favor greater changes in mood in the elderly, such as their perspective on their health condition, frailty, reduction of autonomy and independence, as well as multimorbidity, which are more present in this public.^{5,23} Furthermore, longevity is closely related to fear and desires regarding the finiteness of life, which were intensified through the pandemic context and hospitalization.

The association found between mood changes and health conditions must be thought of in a bidirectional way: as a cause, in which mood changes can influence the worsening of the individual's functional clinical condition, considering that patients with depressed mood tend to decrease their self-care, changes their diet, may refuse to follow recommendations, have a longer stay, restriction to bed, and reduced physical mobility.²² As a consequence, the presence of diseases, reduced functionality, and autonomy can expose the elderly person to reflections and limitations that cause feelings of anxiety, irritation, and sadness.

This context serves as a basis to explain the association found between negative self-perception of health and mood changes and corroborates an international study carried out with 314 elderly people living in the city of Cali, Colombia, which showed a relationship between negative self-perception and intrinsic characteristics of depression.²⁴

A Brazilian study conducted with elderly people with functional dependence in the community demonstrated profound psychosocial repercussions of limited functional capacity: sadness, fear, unhappiness with their health condition, loss of pleasure in daily activities, and anguish, among others.²³ The difficulty in activities of daily living (ADL) causes intense anguish and social isolation and can aggravate mood changes.²³

Furthermore, research developed by Tibães et al. (2021)²⁵ found that elderly people with partial functional dependency were 1.81 times more likely to have depression. The determination of the emergence of symptoms of mood changes can be considered bilateral about functional capacity: elderly people with functional dependence are more likely to develop some mood changes in the same way that the detriment to the emotional state also generates disabilities and dependence on the elderly.^{25,26}

Although mood changes are strongly present in the elderly population, their detection is low, often neglected, and, consequently, untreated, increasing the risk of mortality, characteristics that converge with the outcome of the present study.²⁷

Therefore, it is necessary to constantly train the multidisciplinary team so that it is possible to discern the changes belonging to senescence or adapt to the characteristics of senility, seeking to know and identify potential risk factors for the hospitalized population, promoting quality of life and good prognoses to enable healthy aging, being essential for the physical and mental health of the elderly.

Given the findings, the importance of continuous screening and assessment of mood changes in elderly people stands out so that identified cases are referred to the appropriate professionals for appropriate treatment in the case of a mood disorder.

Furthermore, elderly people must be protagonists of self-care and have available strategies that guarantee the promotion of mental health and well-being in old age, such as reinforced healthy family ties, religious and/or spiritual practices, and even bringing back good memories from the past. All strategies mentioned can be applied, including in the hospital environment. It is up to the multidisciplinary team to facilitate this process.

Additionally, reflection on the factors associated with depressive symptoms adds to the mental health of hospitalized elderly people, expanding concepts elucidated by Gerontology, thus increasing the effectiveness and resoluteness of the care provided and the appreciation of empathy included in gerontological health practices.

Given the results obtained, it is important that health professionals know the patient's profile and be more cautious when treating mood conditions. Loneliness, loss of friends and family, feelings of worthlessness, and pessimism about the clinical condition are causes that may be linked to mood changes and should be investigated by the professional to create a stronger bond with the patient. Therefore, seeking solutions that involve encouraging family support, spirituality, and self-care, even in the hospital setting, contributes to ensuring that these symptoms are alleviated or do not evolve into more severe conditions.

As limitations of the study, we can mention the lack of studies that deal more precisely with mood changes other than depression or anxiety. In addition, the clinical conditions of the patients were not in the scope of this study, showing the need for further studies to complement this topic. However, these facts do not diminish the

importance of the present study and highlight the need to increasingly explore the topic.

CONCLUSION

The present study identified a high prevalence of discouragement, sadness, or hopelessness in hospitalized elderly people, and a lower prevalence of loss of interest in previously pleasurable activities. Regarding the factors associated with these symptoms of mood changes, both were more prevalent in octogenarians, individuals with negative self-perception of health, pre-frail, and frail functional conditions, and who died during hospitalization. Furthermore, the symptoms of discouragement, sadness, or hopelessness were also significantly more present in women.

REFERENCES

1. Ribeiro IA, Lima LR de, Volpe CRG, Funghetto SS, Rehem TCMSB, Stival MM. Frailty syndrome in the elderly in elderly with chronic diseases in Primary Care. *Rev esc enferm USP*. 2019;53:03449. doi: <https://doi.org/10.1590/S1980-220X2018002603449>.
2. Didoné LS, Jesus ITM de, Santos-Orlandi AA, Pavarini SCI, Orlandi F de S, Costa-Guarisco LP, et al. Factors associated with depressive symptoms in older adults in context of social vulnerability. *Rev bras enf*. 2020;73 Supl 1: 20190107. doi: <https://doi.org/10.1590/0034-7167-2019-0107>
3. Abrantes GG de, Souza GG, Cunha NM, Rocha HNB da, Silva AO, Vasconcelos SC. Depressive symptoms in older adults in basic health care. *Rev bras geriatr gerontol*. 2019;22(4). Sintomas depressivos em idosos na atenção básica à saúde. *Rev bras geriatr gerontol*. 2019;22(4):1-7. doi: <https://doi.org/10.1590/1981-22562019022.190023>.

4. Moraes EN, Pereira AMVB, Azevedo RS, Moraes FL. Avaliação multidimensional do idoso. Curitiba: Secretaria do Estado da Saúde do Paraná. 2018, 118p. Disponível em: https://www.saude.pr.gov.br/sites/default/arquivos_restritos/files/documento/2020-04/avaliacaomultidoidoso_2018_atualiz.pdf.
5. Baba H, Kito S, Nukariya K, Takeshima M, Fujise N, Iga J, et al. Guidelines for diagnosis and treatment of depression in older adults: A report from the Japanese Society of mood disorders. *Psychiatry clin neurosci*. 2022;76(6):222-234. doi: <https://doi.org/10.1111/pcn.13349>.
6. Souza KA, Freitas FFQ, Castro AP, Oliveira CDB, Almeida AAB, Souza KA. Prevalência de sintomas de depressão em idosos assistidos pela estratégia de saúde da família. *Rev min enferm*. 2017;21(1018):1-7. doi: <http://www.dx.doi.org/10.5935/1415-2762.20170028>.
7. Ferreira FG, Gomes L de O, Grangeiro AFB, Cintra TR, de Mello JLM, Magalhães PR de M, Cunha C da S. Prevalência de depressão e fatores associados em idosos atendidos na Atenção Primária à Saúde em região metropolitana do Distrito Federal. *Sci Med*. 2021;31(1):38237. doi: <https://doi.org/10.15448/1980-6108.2021.1.38237>
8. Cai H, Jin Y, Liu R, Zhang Q, Su Z, Ungvari GS, et al. Global prevalence of depression in older adults: A systematic review and meta-analysis of epidemiological surveys. *Asian J Psychiatr*. 2023;80(1):103417. doi: <https://doi.org/10.1016/j.ajp.2022.103417>
9. Fan X, Guo X, Ren Z, Li X, He M, Shi H, et al. The prevalence of depressive symptoms and associated factors in middle-aged and elderly Chinese people. *J Affect Disord*. 2021;293(1):222-228. doi: <https://doi.org/10.1016/j.jad.2021.06.044>
10. Bedaso A, Mekonnen N, Duko B. Estimate of the prevalence of depression among older people in Africa: a systematic review and meta-analysis. *Aging Ment Health*. 2022;26(6):1095-1105. doi: <https://doi.org/10.1080/13607863.2021.1932740>
11. Pilia M, Yadav V, Bairwa M, Behera P, Gupta SD, Khurana H, et al. Prevalence of depression among the elderly (60 years and above) population in India, 1997-2016: a systematic review and meta-analysis. *BMC Public Health*. 2019;19(1):832. doi: <https://doi.org/10.1186/s12889-019-7136-z>
12. Serra MA, Nascimento IMT do, Guimarães GDL, Silva SM da, Goveia VR, Mendoza IY. Prevalência de sintomas depressivos no idoso hospitalizado: estudo comparativo. *Rev enferm UERJ*. 2019;27:36091. doi: <https://doi.org/10.12957/reuerj.2019.36091>.
13. Saraçlı Ö, Akca ASD, Atasoy N, Önder Ö, enormancı Ö, Kaygısız , et al. The Relationship between Quality of Life and Cognitive Functions, Anxiety and Depression among Hospitalized Elderly Patients. *Clin psychopharmacol neurosci*. 2015. 31;13(2):194–200. doi: <https://doi.org/10.9758/cpn.2015.13.2.194>.
14. Cardozo-Fernández OM, Aguilera-Gaona E, Ferreira-Gaona MI, Diaz-Reissner CV. Depresión y factores de riesgo asociados en pacientes geriátricos hospitalizados. *Mem inst investig cienc salud*. 2017;15(1):48-56. doi: [https://doi.org/10.18004/mem.iics/1812-9528/2017.015\(01\)48-056](https://doi.org/10.18004/mem.iics/1812-9528/2017.015(01)48-056).
15. Maximiano-Barreto M, Moura Aguiar I, Martins K, Costa Buarque D, de Oliveira Fermoseli A. Ansiedade e depressão e a relação com a desigualdade social entre idosos. *Psicol saúde doenças*. 2019;20(1):209-219. doi: <http://dx.doi.org/10.15309/19psd200117>.
16. Poubel PB, Lemos EL da C, Araújo FC, Leite GG, Freitas I da S, Silva RM de A, Borralho TG, Pires CAA. Autopercepção de saúde e aspectos clínico-funcionais dos idosos atendidos em uma unidade básica de saúde no norte do Brasil. *J Health Biol Sci*. 2017;5(1):71-8. doi: <https://doi.org/10.12662/2317-3076jhbs.v5i1.1054.p71-78.2017>
17. Ramos GCF, Carneiro JA, Barbosa ATF, Mendonça JMG, Caldeira AP. Prevalência de sintomas depressivos e fatores associados

- em idosos no norte de Minas Gerais: um estudo de base populacional. *J bras psiquiatr.* 2015;64(2):122–31. doi: <https://doi.org/10.1590/0047-2085000000067>.
18. Corrêa ML, Carpena MX, Meucci RD, Neiva-Silva L. Depressão em idosos de uma região rural do Sul do Brasil. *Ciênc saúde coletiva.* 2020;25(6):2083–92. doi: <https://doi.org/10.1590/1413-81232020256.18392018>.
19. Dourado SP da C. A pandemia de Covid-19 e a conversão de idosos em “grupo de risco”. *Cad campo.* 2020;29:1-10. doi: <https://doi.org/10.11606/issn.2316-9133.v29isuplp153-162>.
20. Guimarães L de A, Brito TA, Pithon KR, Jesus CS de, Souto CS, Souza SJN, et al. Sintomas depressivos e fatores associados em idosos residentes em instituição de longa permanência. *Cien saude colet.* 2019;24(9):3275–82. doi: <https://doi.org/10.1590/1413-81232018249.30942017>.
21. Lara HCAA de, Melo CA de, Silva E da C, Silva IA da, De Oliveira JS, Santana FS. Prevalência de depressão em mulheres idosas assistidas na atenção básica. *Rev atenção saúde-RAS.* 2020;18(64). doi: <https://doi.org/10.13037/ras.vol18n64.6520>.
22. Lauretani F, Ruffini L, Scarlattei M, Maggio M. Relationship between comprehensive geriatric assessment and amyloid PET in older persons with MCI. *BMC geriatr.* 2020;20(1). doi:<https://doi.org/10.1186/s12877-020-01746-x>.
23. Silva PO, Aguiar BM, Vieira MA, Costa FM da, Carneiro JA. Prevalence of depressive symptoms and associated factors among older adults treated at a referral center. *Rev bras geriatr gerontol.* 2019;22(5):190088. doi: <https://doi.org/10.1590/1981-22562019022.190088>.
24. Carneiro JA, Gomes CAD, Durães W, Jesus DR de, Chaves KLL, Lima C de A, et al.. Autopercepção negativa da saúde: prevalência e fatores associados entre idosos assistidos em centro de referência. *Ciênc saúde coletiva* 2020;25(3):909–18. doi: <https://doi.org/10.1590/1413-81232020253.16402018>.
25. Tibães ECS, Neri AC, Magalhães MP, Gonçalves CT, Lafetá BN, Gonçalves JTT, et al. Funcionalidade e depressão em idosos não institucionalizados em um centro de referência em saúde do norte de Minas Gerais, Brasil. *Braz j dev.* 2021;7(12):119263–82. doi: <https://doi.org/10.34117/bjdv7n12-610>.
26. Costa C, Kemer CG, Oliveira DV, Antunes MD, Nascimento Júnior JRA do, Silva CCR da. Mobilidade na marcha, risco de quedas e depressão em idosos institucionalizados e não institucionalizados. *Saúde e Pesquisa.* 2017;10(2):293-300. doi: <https://doi.org/10.17765/1983-1870.2017v10n2p293-300>
27. Zenebe Y, Akele B, W/Selassie M, Necho M. Prevalence and determinants of depression among old age: a systematic review and meta-analysis. *Ann gen psychiatry.* 2021;20(1):55. doi: <https://doi.org/10.1186%2Fs12991-021-00375-x>

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