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# Factors associated with depression and depressive symptoms in the elderly: an integrative literature review

## *Fatores associados à depressão e aos sintomas depressivos em idosos: uma revisão integrativa de literatura*

## *Factores asociados a la depresión y a los síntomas depresivos en personas mayores: una revisión integrativa de la literatura*

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**ABSTRACT**

**Objective:** To synthesize scientific knowledge about risk factors associated with depressive symptoms and depression in the elderly. **Method:** Integrative review carried out in the PubMed®, Medline®, SciELO, and Lilacs databases, using the descriptors “aged” AND “depression” AND “risk factors” in Portuguese, English, and Spanish, during the period covered by the Master’s in Organizational Management from 2015 to 2019. The articles that met the inclusion criteria were epidemiological in nature, original, complete texts, and addressed the elderly triad, depression, and its risk factors. **Results:** It was found that the risk factors for developing depressive symptoms were: having more than nine years of education; female gender; history of chronic diseases, such as diabetes mellitus, systemic arterial hypertension, alcohol and tobacco consumption; advanced age; poor quality of life and difficulty in carrying out activities of daily living. Zinc deficiency has been linked to depressive symptoms in women, poorer social support, and reduced social contact after cardiac and/or neurological events. The prevalence of depression in the elderly ranged from 8.3% to 41.9%. **Conclusion:** These findings support and alert professionals who work with this population, enabling them to plan care services that address the physical, social, and psychological needs of elderly individuals. Community centers, development of programs with physical activities, leisure activities, and social and family support, which minimize isolation and loneliness, are examples of actions that can prevent the development and worsening of symptoms and depressive conditions.

**Descriptors:** Elderly; Depression; Risk Factors; Epidemiological Studies; Comprehensive Health Care.

***RESUMO***

***Objetivo:*** *Sintetizar o conhecimento científico acerca dos fatores de risco associados a sintomas depressivos e à depressão em idosos.* ***Método:*** *Revisão integrativa realizada nas bases de dados PubMed®, Medline®, SciELO e Lilacs, por meio dos descritores “aged” AND “depression” AND “risk factors” nos idiomas português, inglês e espanhol, no período compreendido na vigência do Mestrado em Gestão Organizacional de 2015 a 2019. Atenderam aos critérios de inclusão dos artigos, ser de natureza*



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*epidemiológica, originais, textos completos, que abordassem a tríade idosos, depressão e seus fatores de risco.* ***Resultados:*** *Encontrou-se que, os fatores de risco para desenvolvimento de sintomas depressivos foram: ter acima de nove anos de estudo; sexo feminino; história de doenças crônicas, como diabetes mellitus, hipertensão arterial sistêmica, consumo de álcool e tabaco; idades avançadas; má qualidade de vida e dificuldade para realização das atividades da vida diária. A deficiência de zinco foi relacionada a sintomas depressivos em mulheres, ao pior suporte social e ao menor contato social após sofrer eventos cardíacos e/ou neurológicos. A prevalência de depressão nos idosos oscilou entre 8,3% e 41,9%.* ***Conclusão:*** *Esses achados subsidiam e alertam os profissionais que trabalham com essa população, com vistas ao planejamento de ações nos serviços de atenção referentes às necessidades físicas, sociais e psicológicas das pessoas idosas. Centros de convivência, desenvolvimento de programas com atividades físicas, de lazer e suporte social e familiar, que minimizem o isolamento e a solidão, são exemplos de ações que podem prevenir o desenvolvimento e o agravamento de sintomas e de quadros depressivos.*

***Descritores:*** *Idoso; Depressão; Fatores de Risco; Estudos Epidemiológicos; Assistência Integral à Saúde.*

***RESUMEN***

***Objetivo:*** *Sintetizar el conocimiento científico sobre los factores de riesgo asociados a los síntomas depresivos y a la depresión en personas mayores.* ***Método:*** *Revisión integrativa realizada en las bases de datos PubMed®, Medline®, SciELO y LILACS, mediante los descriptores "aged" AND "depression" AND "risk factors", en los idiomas portugués, inglés y español, durante el período correspondiente al desarrollo del Máster en Gestión Organizacional, entre 2015 y 2019. Se incluyeron artículos originales, de naturaleza epidemiológica, con textos completos, que abordaran la tríada: personas mayores, depresión y factores de riesgo.* ***Resultados:*** *Se identificaron como factores de riesgo para el desarrollo de síntomas depresivos: tener más de nueve años de escolaridad; sexo femenino; antecedentes de enfermedades crónicas como diabetes mellitus, hipertensión arterial sistémica, consumo de alcohol y tabaco; edades avanzadas; baja calidad de vida y dificultades para realizar actividades de la vida diaria. La deficiencia de zinc se asoció con síntomas depresivos en mujeres, menor apoyo social y menor contacto social tras eventos cardíacos y/o neurológicos. La prevalencia de depresión en personas mayores osciló entre el 8,3% y el 41,9%.* ***Conclusión:*** *Estos hallazgos sirven de apoyo y advertencia a los profesionales que trabajan con esta población, con el fin de planificar acciones en los servicios de atención dirigidas a las necesidades físicas, sociales y psicológicas de las personas mayores. Centros de convivencia, desarrollo de programas con actividades físicas, recreativas y de apoyo social y familiar que reduzcan el aislamiento y la soledad son ejemplos de intervenciones que pueden prevenir el desarrollo y agravamiento de síntomas y cuadros depresivos.*

***Descriptores:*** *Persona mayor; Depresión; Factores de Riesgo; Estudios Epidemiológicos; Atención Integral en Salud.*

## INTRODUCTION

Population aging is understood as a direct consequence of socioeconomic and demographic development. For example, there is a decrease in infant and maternal mortality rates, which leads to greater survival at older ages. The increase in the aging process is present throughout the world, but each country experiences a different stage of this transition[1].

Globally, in the 20th century, there were 14 million people aged 80 or over; by 2050, that number will rise to 100 million living in China alone and 400 million elderly people in the same age group worldwide. In Brazil, projections indicate that, in 2025, the number of people aged 60 or over will reach around 32 million (22.7% of the total population) [2].

In the face of an aging population, the impact of the increase in the prevalence of chronic non-communicable diseases (NCDs) stands out. An integrative review of health promotion strategies adopted by multidisciplinary teams to reduce the incidence of NCDs in communities served by Primary Health Care (PHC) – revealed that basic actions – both at the individual and collective levels, covering nutritional aspects and physical activity according to the community profile – improve the quality of primary care and ensure equity in care[3].

These actions are relevant because, globally, NCDs represent the principal causes of mortality and disability among the elderly, being responsible for around 38 million deaths per year, especially in low and middle-income countries, such as Brazil. Heart disease, stroke, chronic respiratory diseases, cancer, and dementia comprise the main ones[4].

There are also mental disorders considered as NCDs that most negatively affect the elderly quality of life and burden family relationships, with depression being the most prevalent[4]. The occurrence of depression in elderly people varies across different regions of the world, with rates ranging from 10 to 16% in European countries and Canada, and up to 25% in Spain. In Brazil, a study carried out in the Southern region revealed that the prevalence of depression is between 8.3 and 64%5, and depressive symptoms tend to be greater in elderly people with NCDs, such as hypertension, diabetes, stroke, and some coronary disease[6].

Among the factors associated with the occurrence of depression, the following stand out: low socioeconomic status, being female, having a family or personal history of depression, suffering from physical and chronic illnesses, and living alone. On the other hand, the practice of social and physical activity, participation in religious activities, and social support are considered protective factors[1,5-6].

The fact that depression in the elderly population expresses a significant prevalence of NCDs worldwide[5] and the elderly form an age group with considerable growth[2], makes it an essential factor to (re)cognize care models, especially for the elderly, based on the assessment of functional and cognitive capacity. A study carried out on models of comprehensive care for elderly people around the world indicated that there are innovative models, focused on long-term care for elderly people considered frail. Thus, despite the immense challenges and diverse demands presented by them, with comprehensive care, articulated with health and social care services, with a view to promoting healthy aging[7], an urgent demand, especially for developing countries, such as Brazil.

In this way, these individuals can be directed to appropriate treatment in existing health policies, with emphasis on Primary Care equipment[8], considering that one of the screening instruments can be applied by different professionals and in several care spaces, especially by the multidisciplinary team present in Primary Health Care teams. Given the above, this study aimed to synthesize scientific knowledge about the risk factors associated with depressive symptoms and depression in the elderly.

## METHOD

This is an integrative literature review that consists of a method of synthesis and analysis of scientific evidence, and also presents the aim of developing a critical explanation and summarizing the findings of investigations on the topic of interest. To prepare this integrative review, six steps were followed: identification of the theme and guiding question; definition of inclusion and exclusion criteria and database; extraction of information of interest from selected texts; evaluation of the studies; analysis and interpretation of the results; and presentation of the synthesis of knowledge[9].

The guiding question was developed using the PICO strategy, in which P corresponded to patient or problem; I to intervention; C to control or comparison, and O to outcome. Given the topic of interest, P was established as an elderly person; I does not apply; C does not apply; and O as identification of risk factors associated with depressive symptoms and depression in the elderly population[10]. Because of this, the guiding question was outlined: “What are the factors associated with depressive symptoms and depression in the elderly population?”.

The search for publications took place using the Health Sciences Descriptors/Medical Subject Headings (DeCS/MeSH), in April 2019, in different databases: US National Library of Medicine (PubMed®), Medical Literature Analysis and Retrieval System Online (Medline®), Literatura Latino-Americana e do Caribe em Ciência da Saúde (Lilacs) and electronic library Scientific Electronic Library Online (SciELO). DeCS/Mesh were used, in English, intersected by the Boolean operator *AND*: “*aged*” *AND* “*depression*” *AND* “*risk factors*”.

The inclusion criteria were articles of an epidemiological nature, original, complete, published between 2015 and 2019, the validity period of the Master’s in Organizational Management, which addressed the central theme, available electronically free of charge in English, Portuguese, and Spanish. Duplicate articles in the databases and electronic library were excluded by counting them only once.

First, two researchers independently read the titles and abstracts of the articles, and then the inclusion criteria were identified. Afterwards, the information of interest was extracted through careful reading, from a standardized form, containing the following information: authorship, database, country of origin, language, year of publication, study design, level of evidence, samples, instruments used, main results, and summary of conclusions[11].

The hierarchy occurred depending on the methodological approach followed, which was level I for meta-analysis of controlled studies; level II for results achieved in experimental studies; level III for results from quasi-experimental, non-randomized, controlled, or case-control studies; level IV with a qualitative methodological focus, non-experimental studies; level V for experience and case reports; level VI for results from expert opinion studies based on standards and legislation[12].

Figure 1 illustrates the methodological approach for selecting articles for this integrative review, in which the following inclusion criteria were applied: research involving older adults; type of study (epidemiological, case-control, clinical trial, cross-sectional, and cohort); and main subject (depression, depressive disorder/symptoms, anxiety, mental disorders, and anxiety disorder). To broaden the exploration of the selected publications, a manual search was also carried out (hand-searching), which consisted of checking the references of the original studies[11]. There was no addition of new articles in the hand-searching, since the studies in the references of the selected texts were published before the chosen years.

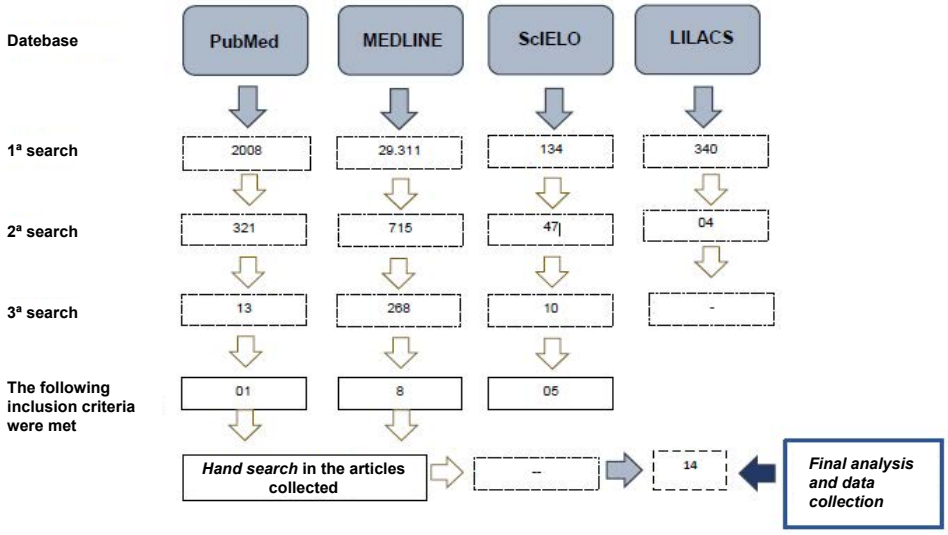


**Figure 1 –** Diagram of the steps taken in the process of selecting articles for the sample, 2015-2019.
**Source:** Authors themselves.

## RESULTS

Fourteen articles met the inclusion criteria for this integrative review and moved on to the data analysis and exploration phase. There was a prevalence of publications in the Medline® (8; 57.15%) and SciELO (5; 35.70%) databases. Regarding the years of publication, the most frequent articles were published in 2017 (5; 35.70%), 2016 (4; 28.56%), 2015 (3; 21.44%), and 2018 (2; 14.30%).

Regarding languages, English prevailed (12; 78.57%). Regarding the level of evidence, 13 articles comprised level IV (94,7%). Publications were concentrated in South America (4; 28.56%), followed by North America (3; 21.45%).

Articles were found that discussed protective factors against depressive symptoms[5,14,15], risk factors for depression[16-17], depressive symptoms[14-15-18-24], and different values regarding the prevalence of depression[5,20-23] in the elderly. Cognitive problems observed in the interviewees during the neurological assessment were also reported[17,23].

To synthesize and summarize the findings of this study, as well as highlight the contributions of knowledge regarding the factors associated with depression and depressive symptoms in the elderly population, a summary table of the studies was prepared (Chart 1).

**Chart 1 –** Summary of studies found in the integrative review that address risk factors associated with depression and depressive symptoms in older adults. Catalão, Goiás, Brazil, 2019.

| Authors / Year | Database/ country of origin/ language | Study design/level of evidence/ sample/instruments | Results |
|---|---|---|---|
| Gullich, Duro & Cesar, 2016[5] | SciELO<br>Brazil<br>Portuguese | Observational study;<br>Level IV (552 elderly individuals);<br>Geriatric Depression Scale-Reduced (GDS-15)). | The prevalence of depression was 20.4% (95% CI 17.3-23.8); 8.3% among those who did not take any medication daily or who regularly participated in at least three leisure activities, and 64.0% among single elderly individuals. Protective factors against depression: interaction among elderly individuals, physical activity, participation in religious and leisure events, and group activities. |
| Wilkie, Blagojevic-Bucknall, Belcher, Chew-Graham, Lacey & McBeth, 2016[8] | Medline<br>United Kingdom<br>English | Cohort study;<br>Level IV (1,991 elderly individuals);<br>Follow-up questionnaires at baseline and years 3 and 6. | Widespread pain and depression are the main modifiable factors associated with reduced social participation (44% at baseline; 49% at year 3 and 55% at year 6 of follow-up). Restricted social participation was associated with reporting some pain; widespread pain; anxiety; multimorbidity; and cognitive impairment. Protective factors against social restrictions include improved physical capacity.. |
| Dong, Bergren & Simon, 2017[14] | Medline<br>United States<br>English | Cross-sectional and longitudinal study;<br>Level IV (2,713 elderly Chinese)<br>Doctor trust;<br>Relationship between doctor trust and depressive symptoms;<br>Patient Health Questionnaire-9. | At baseline, 54.4% of participants reported any depressive symptoms. The greater the older adult's trust in their doctor over time (longitudinal study), the lower their chances of experiencing depressive symptoms (25%-31%). |

| | | | |
|---|---|---|---|
| Zhi, Wang, Liu, Wang, Shi, et al., 2017[15] | Medline China English | Cross-sectional study; Level IV (1,732 elderly individuals); Geriatric Depression Scale; Body Mass Index (BMI). | The prevalence of depressive symptoms was 6.7% (5.0%–8.5%) in men and 12.5% (10.4%–14.6%) in women. Protective factors: Higher BMI, waist circumference, and waist-to-hip ratio were associated with a lower risk of depressive symptoms in older women. |
| Segura-Cardona, Cardona-Arango D, Segura-Cardona A, Garzón-Duque, 2015[16] | SciELO Colômbia Spanish | Cross-sectional study; Level IV (4,248 elderly individuals); Demographic and social characteristics; Katz Index; Geriatric Depression Scale (GDS). | In the general sample, 29.5% were at risk for depression. The risk of depression was associated with age (59.5%) (between 60 and 74 years), marital status (36.4%) (widowed); education level (45.6%) (incomplete primary education); and alcohol consumption (8.7%); average perception of quality of life (45.2%) and loss of functional capacity (25.6%); and little or no support network (68.6%). Alcohol consumption lost statistical significance in subsequent analyses and did not remain a protective factor in this study. Functional dependence was considered a risk factor for the presence of mood disorders in the sample studied. |
| González, Ignácio, Jornada, Réus, Abelaira, Santos, et al., 2016[20] | SciELO Brazil Portuguese | Cross-sectional study; Level IV (1,021 elderly individuals); Portuguese version of the Mini International Neuropsychiatric Interview (MINI). | The prevalence of depression was 26.2%; dysthymia, 5.5%; and double depression, 2.7%. Risk factors for depression were: nine or more years of education and current smoking. Risk factors for double depression: male gender; reported high blood pressure; and current/past smoking. Dysthymia was associated with male gender; reported high blood pressure; and smoking (current/past). |
| Hashem, Nasreldin, Gomaa & Khalaf, 2017[17] | Medline Egypt English | Cross-sectional and case-control study; Level IV (80 elderly people). | Older adults with late-onset depression had greater depression severity and were more cognitively impaired in terms of memory, verbal fluency, language, and visuospatial abilities.<br><br>Vascular risk factors, especially hypertension and diabetes, were higher in older adults with late-onset depression and affected depression severity and the degree of cognitive impairment. |
| Jung, Spira, Steinhagen-Thiessen, Demuth & Norman, 2017[18] | Medline Germany English | Cross-sectional study; Level IV (1,514 elderly individuals); Food Frequency Questionnaire (EPIC); Geriatric Depression Scale (GDS). | Plasma zinc deficiency was found in 15.7% of participants with depressive symptoms. They reported lower zinc intake and lower plasma zinc levels compared to the general sample.<br>Plasma zinc deficiency was associated with depressive symptoms, particularly in women. |
| Torres, J.L, Castro-Costa E, Mambrini, J.V, Peixoto, S.W, Diniz, B.S, Oliveira C, et al, 2018[24] | SciELO Brazil English | Cohort study; Level IV (1,014 elderly individuals); General Health Questionnaire; Geriatric Depression Scale Clinical Assessment in Neuropsychiatry. | Prevalence of “minor” depressive symptoms (23.1%) and “major” depressive symptoms (10.4%), in addition to showing statistically significant positive associations with functional disability in the long term. |
| Simning, A, Seplaki, C.L, Conwell, Y., 2018[19] | Medline United States English | Cohort study; Level IV (5,643 elderly individuals); Patient Health Questionnaire 2 (PHQ-2). | Those without close social contacts are more likely to have depressive symptoms after a heart attack or stroke, and those with close social contacts are more likely to have depressive symptoms after a stroke, but not after a heart attack. |
| Simning, A, Seplaki, C.L, Conwell, Y. 2015[25] | SciELO South Africa English | Cross-sectional study; Level IV (1,008 elderly individuals); Geriatric Depression Scale. | Social difficulties attributed to health problems were associated with greater chances of having anxiety disorders and depressive symptoms in older adults. |
| Tani, Y, Fujiwara,T. Kondo N., Noma, H, Sasaki Y, Kondo K. 2016[22] | Medline Japan English | Prospective cohort study; Level IV (10,458 elderly individuals); Data from the Japan Gerontological Evaluation Study (JAGES); Geriatric Depression Scale <5. Socioeconomic status (SES) | 13.9% reported depression. The impact of childhood socioeconomic status on depression was weaker among older adults, suggesting survival effects for older, healthier Japanese. |
| Chu, C.S, Sun, I.W, Begum, A, Liu, SI, Chang, CJ, Chiu, WC, et al., 2017[23] | Medline China English | Cross-sectional study; Level IV (113 elderly individuals); Mini-Mental State Examination Geriatric Mental State schedule (GMS); Hamilton Depression Rating Scale. | Among older individuals with prior depression, 53.1% had early-onset depression, while 46.9% had late-onset depression.<br>Subjective memory complaints (SMCs) were present in more than half of the participants with a history of depression (55.8%). |
| Heisel MJ, Talbot NL, King DA,Tu XM, Duberstein PR., 2015[26] | PubMed Canada English | Uncontrolled pre-post-treatment psychotherapy trial; Level III (17 elderly individuals); Interpersonal Psychotherapy (IPT) Geriatric Suicide Ideation Scale (GSIS); Psychological Well-Being scale (PWB); Social Adjustment Scale-Self-Report (SAS-SR); Duke Social Support Index (DSSI). | Study participants experienced improved psychological well-being, reduced symptoms of depression, and reduced suicidal ideation throughout IPT tailored for older adults at risk of suicide. |

Source: Authors themselves.
Note: SciELO; IC95%: 95% confidence interval; TIP*: trust in physician; OR: odds ratio; BMI: body mass index; WC: waist circumference; WHR: waist-hip ratio; PR: prevalence ratio; ACE: angiotensin converting enzyme; µmol/L: micromol por litro; SHR: sub-hazard ratio; IPT: interpersonal psychotherapy; INK: Ntuzuma and KwaMashu; mg/dL: miligramas por decilitro; SD: standard deviation.*

## DISCUSSION

This section will be dedicated to the discussion of the main findings of the IR, focusing on the most relevant results. Regarding the database, Medline stood out, specializing in studies in the areas of Medicine, Veterinary Medicine, Biological Sciences, Nursing, and Public Health[25], which may justify the fact that it was the one that presented the

most publications included in the investigation, according to the descriptors and the chosen theme. This finding reinforces the reason why most publications are in English. Regarding the level of evidence, the prevalence of level IV is corroborated by other studies in which population-based studies, especially cross-sectional ones, are the most used.

The protective factors regarding the non-development of depressive symptoms were in relation to an applied scale, called Trust in Physician (TIP). The higher the TIP score, the lower the likelihood of presenting depressive symptoms, and, in two years of follow-up, there was a 25% reduction in these symptoms[14]. The doctor/patient relationship involves challenges and perspectives. The quality of the meeting motivates your action, in addition to the immediate complaints of the elderly person, but attention must also be paid to the facts, humanized care, assertive communication, and the bond construction[28], to understand the elderly within biopsychosocial care.

Another finding of this research was that overweight women (body mass index ≥ 28.0 kg/m²) were less likely to experience depressive symptoms[20]. It was observed, in the results of a theoretical research, that 80% of the studies reported significant associations between obesity and depression; however, it is understood that less consistent evidence that depression can lead to obesity[29].

Social interaction among older adults, collective activities, physical activity, and participation in religious events were also protective factors against depressive symptoms[5]. Researchers have reported that physically active older adults (~150 minutes per week) performed better in attention, calculation, recall, and overall cognitive status on the Mini-Mental State Examination (MMSE) compared to sedentary and irregularly active older adults[30].

Regarding the risk factors for depression, the following were associated: years of study (> 9 years) and being female[20]; reporting a history of chronic diseases, such as diabetes mellitus[17], systemic arterial hypertension and smoking[14,17,19]; age (long-lived) [22]; marital status (widowed) and educational level (technologist); alcohol consumption; tobacco consumption; poor quality of life and loss of functional capacity for basic activities of daily living[8]. Difficulty in relating to the physical and emotional environment has also been associated with the risk of depression in the elderly[16].

Corroborating these findings, other studies have also revealed that female gender, widowed or single elderly individuals, low education levels, social isolation, lack of family relationships, and cardiovascular disease are factors that increase the chances of depression[6,31]. Regarding women, elderly women are 1.4 times more likely to suffer from depression, which may be explained by the fact that they live longer than men, in addition to hormonal changes that result in irritability and decreased self-esteem, libido, and memory[31]. Regarding education, it can be inferred that elderly people who have studied for less than eight years also have less access to health services and medical treatment, which favors an increase in cases of depression[6].

The main findings in this integrative review related to depressive symptoms were zinc deficiency in women[18], less emotional support interfering with the future of the elderly's long-term physical disability[24], and less social contact among the elderly after suffering cardiac or cerebral events, with older people having a greater chance of developing depressive symptoms[19].

In the Health, Well-Being and Aging (SABE) study, the prevalence of depressive symptoms in elderly people in the city of São Paulo (SP) was 14.2%, in addition to being associated with complaints of health conditions, physical dependence, and family dysfunction[32]. In another study carried out with elderly people treated by Primary Care, the prevalence of depressive symptoms was 22.8%, and the variables were associated with a fair/poor/very poor perception of health, functional dependence, and the fact of not having a job. The prevalence of depressive symptoms was 6.69 times higher when compared to the prevalence of depressive symptoms in elderly people with excellent/good/fair health perception[33].

In the selected texts, the development of depression was associated with zinc deficiency in plasma levels in elderly people. This association between low blood zinc and the development of depression can be justified by the fact that zinc directly interferes with mental and behavioral functions, in addition to being responsible for maintaining the correct development of cellular transport, protein synthesis, and intracellular signal transduction[16]. A higher intake of zinc reduces the chances of developing depression by 30 to 50%, in both women and men, in the age range of 50 to 85 years[34].

Coronary heart disease, heart failure, and stroke are responsible for increasing the chances of depression in the elderly population by 1.94, 1.40, and 1.33 times, respectively[6]. Regarding smoking, nicotine is considered an anxiolytic substance that interferes with the neuroendocrine system, causing relief from depressive symptoms; thus, there is an increase in cigarette use among elderly people with depression[35].

The prevalence of depression ranged from 13.9%[22] to 26.2%[20]; 41.9%[22] with mild symptoms of depression (also associated with age, income, disability, and nutritional status) and without the possibility of relying on family[22]. 8.3% of elderly people with depression who did not use medication and did physical activity were observed[5]. The

difference in prevalence rates can be explained by differences in sample size, geographic locations, and the fact that the studies used different instruments and scales. Previous research carried out with Brazilian elderly assisted by the Family Health Strategy identified a rate of depression of 27.3%[36]. Other cross-sectional studies showed prevalence rates ranging from 8 to 30.6%[31,37,38]. A cohort study conducted in the Southeast of the country, over an eight-year follow-up period, revealed a 10.3% rate of depression in elderly people. The researchers suggest a multidimensional assessment in Primary Health Care, creation and strengthening of community groups, to reduce loneliness and social isolation, and strengthening of social and health care policies[41].

Elderly people need more efficient services, with integration of PHC and other services in the Network, with care plans that cover acute and long-term care with a qualified health team, focused on risk management, quality of care, and appropriate use of existing services[42].

Furthermore, associations were also observed between depression and cognitive problems, identified in the neurological evaluation. The identification of late-life depression in the elderly was more severe, and they were more affected in terms of memory, verbal fluency, language, and visuospatial skills[17], as well as worsening memory performance[23]. In a study of 301 elderly people living in the community, depressive symptoms were associated with poorer memory scores, female gender, and higher levels of education (> 5 anos)[39]. Functional capacity and physical activity levels are better in active elderly people compared to sedentary elderly people and/or those who engage in irregular physical activity[30].

Another relevant fact was that previous hospitalization of elderly people was also a factor that triggered depression [5]. An investigation carried out with 102 hospitalized elderly people showed that 49% of them had depression. The dissatisfaction of the elderly when dealing with strangers, having to follow imposed routines and schedules, losing their power of choice, feeling incapable and dependent, and being just another person within the institution is one of the reasons for the development of such psychopathology[40]. By understanding the care models available in PHC and the diverse demands presented by elderly people based on a global assessment of the elderly person, it is possible to articulate health and social care services in the health promotion and healthy ageing area [7].

Identifying protective factors for the development of depressive symptoms, risk factors for their development, which depressive symptoms are most prevalent, and the prevalence of depression in the elderly population is of great relevance. It increases the chances of recognizing these symptoms, aiming to establish effective interventions for the diagnosis and prevention of the disease worsening.

Given the above, it was noted that the limitation of this integrative review is related to the level of evidence, as the selected studies covered levels III and IV of cross-sectional and cohort research. The different types of methodological designs were not applied, resulting in limited knowledge of the topic in question. This fact points to the need for future studies with more robust methodologies to identify the prevalence and factors associated with depression and depressive symptoms in elderly people, with a view to early observation of symptoms and, consequently, their treatment, especially in Primary Health Care.

## FINAL CONSIDERATIONS

This study sought to identify the factors associated with depressive symptoms and the prevalence of depression in the elderly. The risk for depression was associated with age (60-74 years), widowed marital status, alcohol consumption, regular perception of quality of life, deficient support network, systemic arterial hypertension (SAH), current and past smoking. Education (incomplete primary education and nine or more years of study) also stood out.

The depressive symptoms identified were related to the trust that the elderly person had in the doctor; that is, the greater their trust in the doctor who was treating them, the lower the chance of presenting depressive symptoms. In the long term, functional disability is associated with a higher prevalence of depressive symptoms. Health problems (in general) were associated with higher odds of anxiety disorders and depressive symptoms in older people. The female gender revealed a higher prevalence of depressive symptoms, and plasma zinc deficiency was associated with depressive symptoms in women.

The prevalence of depression has fluctuated, especially when referring to individual conditions. Overall, values of 8.3%-41.9% were found. In single elderly individuals, this figure rose to 64%. Elderly individuals with late-onset depression had greater depression severity and a worse response to the MMSE. Subjective memory complaints (SMCs) were present in more than half of the participants with a history of depression. It was identified that the factors associated with depression were: having restrictions on social participation, due to pain, anxiety, and cognitive impairment.

Protective factors against depression were identified: interaction among older adults, physical activity, participation in religious and leisure events, group activities, high BMI, and anthropometric measurements of the waist and hips in older women. Older adults with a support network and close social contacts were less likely to experience depressive symptoms after a heart attack or stroke. Interpersonal psychotherapy revealed that psychological well-being reduced symptoms of depression and suicidal ideation throughout IPT adapted for older adults at risk of suicide.

These findings can support and alert professionals who work with this population in Primary Care to develop planning, prevention, and health promotion strategies in services that address the physical, social, and psychological needs of elderly people. Community centers, development of programs with physical and leisure activities, and social and family support, which minimize isolation and loneliness, are examples of actions that can prevent the development and worsening of symptoms and depressive conditions.

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## CONFLICTS OF INTEREST

There is no conflict of interest.

## CONTRIBUTIONS

**Tainara Catozzi Denardi and Ivânia Vera** contributed to the elaboration, study design, acquisition, analysis and interpretation of data, writing and revision of the manuscript. **Graciele Cristina Silva Leão, Jordana Alves de Aguiar and Lorena Dias Silva** contributed to writing and revising the manuscript. **Moisés Fernandes Lemos** contributed to data acquisition, analysis and interpretation, writing and revising the manuscript. **Roselma Lucchese** contributed to data acquisition, analysis and interpretation.

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