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Aging, mental health, and suicide. An integrative review

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Abstract

Objective: this integrative literature review aimed to systematize scientific production regarding the process of aging, mental health, and suicide. *Method*: the LILACS, MEDLINE, and PubMed databases were used to search for papers published between 2007 and 2017. The final analysis included 34 papers. *Result*: descriptive North American studies in English were most prevalent. The largest number of papers on the theme was published in 2013. The researchers used questionnaires and interviews as instruments for questions involving aging and suicidal ideation. The papers revealed an association of suicide or suicidal ideation in elderly persons who manifested anxiety, depressive symptoms, depression, physical diseases, low educational and socioeconomic levels, and chronic diseases. *Conclusion*: this integrative review reinforces the need for investment in public policies and spaces that offer receptiveness, listening, and safety for the aged population, as well as surveys with more robust methodologies to investigate the phenomenon under analysis.

Keywords: Aging. Suicide. Mental Health. Public Health.

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INTRODUCTION

In the twenty-first century population aging is resulting in almost 58 million new sexagenarians every year, making it clear that the phenomenon cannot be ignored. Furthermore, for every 84 male sexagenarians, there are 100 women of the same age, confirming the feminization of old age. This situation brings many challenges: social, economic and cultural, both individually and collectively (society), and above all within the family[1].

From the individual perspective, which reflects on the collective and familiar scenario, one can cite the changes brought about by aging itself, inherent phenomena and important fields of investigation and research. These modifications are not limited to biological aspects as a consequence of lifelong wear and tear, but also include psychosocial factors involving personality, life history, gender and socioeconomic context[2,3].

Physiologically, aging has a direct relationship with the incidence of chronic noncommunicable diseases (CNCD), such as cardiovascular and respiratory diseases, neoplasia and diabetes mellitus, resulting in functional disability and considerable changes in the habits and quality of life of the individual[3].

Researchers[4] have identified an association between chronic pathologies and their negative impact on the quality of life of the elderly. Depression is a risk factor for a poor prognosis of chronic diseases, affecting the individual's functional capacity and quality of life[4]. The presence of a physical illness may contribute to the worsening of depression, through its effect on direct brain function, or psychological and psychosocial effects. Thus, just as depression anticipates chronic diseases, so these pathologies accentuate depressive symptoms[4].

In relation to the contemporary events of old age, it has been seen that the more advanced the age, the greater the mortality rate in relation to attempts of suicide[5]. In its criteria for depressive states the Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition (DSM-V) includes factors such as recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or specific plan to commit suicide[6]. Suicidal ideation is understood as all the expressions, desires, thoughts and behaviors aimed at ending one's own life without the effectuation of the act. Self-extermination practices that do not achieve their goal are called suicide attempts[7].

Faced with such challenges and manifestations of aging, it is necessary to assess the means of research and investigation into the subject in order to allow a better analysis and understanding of those who face such events. The research question posed was: which aspects influence suicidal ideation in the elderly? In this way we tried to systematize the knowledge produced about the suicidal ideation of elderly persons.

METHOD

An integrative literature review was used as a research method. This methodology allows the synthesizing of the state of the art of knowledge about the subject of interest, following the steps: identification of the theme, selection of the hypothesis or research question; establishing of criteria for inclusion and exclusion of studies/ sampling; definition of the information to be extracted from the selected studies; evaluation of included studies; interpretation of results; and presentation of knowledge review/synthesis[8].

In order to carry out this integrative review, the following databases were selected: Latin American and Caribbean Health Sciences Literature (LILACS), MEDical Literature Analysis and Retrieval System (MEDLINE) and PubMed. The research was carried out between October and November 2017, and the collection was carried out simultaneously by two researchers. The following controlled descriptors in health were used: *"Aging"* and *"Mental Heath"* and *"Suicide"*.

We included only original, complete articles with an exclusively epidemiological methodology, which were available free online, published between the years 2007 and 2017, and in English, Portuguese and Spanish. In order to increase the reliability of the information from the databases, a manual search of available articles (search by hand) was carried out, based on the references of the articles already collected.

To analyze the data, the articles were translated and read, followed by the systematization and transcription of the extracted information, allowing the publications that met the inclusion criteria to be organized. The following information of interest was extracted: authors, article title, year of publication, country of origin, database, sample, study design, level of evidence, instruments and indexes used by researchers in the original study, results and synthesis of conclusions.

With the aim of analyzing the level of evidence, the following hierarchical classification was used: level I – evidence of results of meta-analysis from controlled clinical trials with randomization; level II – evidence of experimental design studies; level III – evidence of quasi-experimental studies; level IV for evidence obtained from non-experimental, descriptive or qualitative methodological approaches; level V for evidence of case or experience reports; and level VI for evidence based on expert opinions or standards or legislation[9].

RESULTS

The sample of this integrative review resulted in one article in the LILACS database (5.2%), one in PubMed (5.2%) and 17 in MEDLINE (89.4%) being found. From these texts, through a search by hand, five articles indexed in LILACS and ten in MEDLINE were also included. As four productions were repeated across the platforms, the search resulted in a total of 34 articles for final analysis, 27 from MEDLINE (79.4%), six from LILACS (17.6%) and one from PubMed (2.9%).

Figure 1 shows the steps of this integrative review.

In terms of the origin of the studies, 76.4% were from North America, 17.6% from Latin America and 5.8% from Europe. The English language was most prevalent (85.2%), followed by Portuguese (8.8%) and Spanish (5.8%). There was a considerable number of studies with a descriptive approach (88.2%), followed by those with a qualitative approach (11.7%), characterized as level IV in the hierarchical classification[9].

The analysis of selected articles showed that the 2013 was the year with the greatest number of publications (20.5%), followed by 2014 (17.6%); 2015 and 2010 (14.7%); 2007, 2009, 2011, 2012 and 2016 (5.8% each); and 2008 (2.9%). No article was found that met the criteria for inclusion in 2017. Table 1 presents a brief description of the articles selected for this integrative review, together with the synthesis of the results of the selected texts.

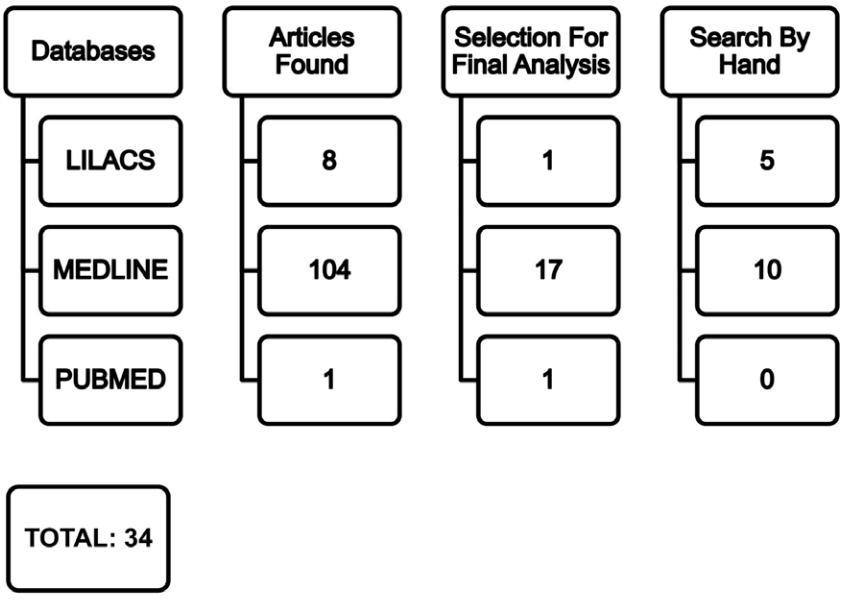

Figure 1. Flowchart of selection process of articles in sample, 2007-2017. Catalão, Goias, 2017.

Chart 1. Information of interest extracted from selected articles in the integrative review. Catalão, Goias, 2017.

Authors	Year, country, database, sample	Study design and instruments	Results	Synthesis of conclusions
Ayalon et al.[10]	2007, USA, MEDLINE, 15.590	Descriptive, questionnaire	Worse cognitive functioning, poorer health and greater mental suffering were associated with passive suicidal ideation and a younger age, the female gender, worse cognitive functioning and increased mental suffering were associated with active suicidal ideation.	Affliction and cognitive impairment are the only two variables that consistently predicted passive and active suicidal ideation.
Carmel et al.[11]	2013, USA, MEDLINE, 382,	Descriptive, structured interview	The will to live moderated, but did not mediate, the decline related to proximity to death.	Those with a high level of will to live did not exhibit a reduction in their satisfaction with life as death approached
Cavalcante et al.[12]	2012, Brazil, LILACS, 51	Qualitative methodology and semi-structured interview script, adapted for the study of the suicide of the elderly	It is crucial to understand the interaction between variables - psychiatric or clinical symptoms, risk and protective factors, personality traits, circumstantial events, family continuity, and health care capacity. Each interactive pattern reveals that suicide is multi-causal and singular.	It is important that health can be instrumentalized with means to identify, propose and ensure comprehensive care for the elderly - in research, care and public policy.
Ceará[13]	2009, Brazil, LILACS, 40,	Qualitative, MINI Plus, WHOQOL-bref and semi-structured interviews	A higher frequency of mental disorders in the study group with 15 (37.5%) cases. The risk of suicide was present in three (7.5%) participants.	Homosexuals have a greater frequency of mental disorders, but a better quality of life
Ciulla et al.[14]	2013, Brazil, MEDLINE, 530	Transversal Descriptive MINI Plus	Risk of suicide was found in 15.7% of the sample.	A high suicide risk rate was found
Chen et al.[15]	2010, USA, MEDLINE, 266	Descriptive, BSRS-%, GDS-15, MOS, SF-12.	The data revealed a significant relationship between quality of life and suicidal ideation.	The proposed model has the potential to help health professionals effectively design and implement their suicide prevention programs.
Conte et al.[16]	2015, Brazil, LILACS, 9,	Descriptive, semi-structured interview	The study, through three brief stories, questions the biomedical model in terms of treatment of at-risk situations and emphasizes, in integral health care is to be achieved, the importance of the concept of the Expanded Clinic.	Highlights the need to construct a line of care for the elderly population.

to be continued

Continuation of Chart 1

Authors	Year, country, database, sample	Study design and instruments	Results	Synthesis of conclusions
Cronin et al.[17]	2013, MEDLINE, Ireland, 8.504	Descriptive, TILDA	Describe potential advantages of the incorporation of new biometrics and technologies in population studies to advance the understanding of disorders related to aging.	A detailed description of the physical measurements will facilitate cross-national comparative research.
Dong et al.[18]	2015, USA, MEDLINE, 3.159	Descriptive, structured interview	The association was significant for older women, but not for older men.	Associations between ill-treatment and suicide ideation
Gilman et al.[19]	2013, USA, MEDLINE, 1.226	Descriptive, PROSPECT	The mean HDRS scores were significantly higher among participants with financial stress and with annual income below US $ 20,000.	There are marked social inequalities in depressive symptoms and suicidal ideation among the elderly.
Gómez-Restrepo et al.[20]	2014, Colombia, LILACS, 2.444	Descriptive-cross-sectional. Yesavage Geriatric Depression Scale.	A prevalence of depression of 26.3% was identified.	There is a prevalence of depression associated with factors such as: female gender, low schooling, no pension, hypertension, diagnosis of mental illness, hunger in the first 15 years of life and absence of leisure activities and poor self-perception.
Hall et al.[21]	2009, MEDLINE, USA, 18	Qualitative, structured interview	Residents revealed concerns related to disease, the social aspects of the experience of disease, and demonstrated the importance of preserving dignity. Some residents saw their symptoms and losses as related to old age and not to illness.	Although residents did not seem to feel anguish due to thoughts of impending death, they were distressed by the multiple losses they had experienced.
Heisel et al.[22]	2015, MEDLINE, USA, 173	Descriptive, GSIS (Geriatric Suicide Ideation Scale)	The Geriatric Suicide Ideation Scale was found to be strong in terms of reliability and consistency.	The results suggest the Geriatric Suicide Ideation Scale is a Strong measure among elderly persons residing in the community.
Hirsch et al.[23]	2007, USA, MEDLINE, 462	Descriptive, structured interview	Positive affect distinguished suicide ideators from non-recipients after controlling for age, gender, depression, negative affect, disease burden, activity, sociability, cognitive functioning, and physical functioning.	Clinical and theoretical formulations of late suicide should consider the role of positive affect.
Iliceto et al.[24]	2013, USA, MEDLINE, 655	Descriptive, self-reported questionnaires.	Associations between suicidal ideation and certain personalities.	Elderly persons and young adults may be similar in personality and psychopathology variables that predict suicidal ideation.

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Continuation of Chart 1

Authors	Year, country, database, sample	Study design and instruments	Results	Synthesis of conclusions
James et al.[25]	2011, USA, LILACS, 1.327	Descriptive, medical history and neurological and neuropsychological examinations	The risk of developing disabilities in activities of daily living decreased by 43%	Social activity is associated with a reduced risk of disability occurring in activities of daily living, mobility and instrumental activities.
Kane et al.[26]	2014, USA, MEDLINE, 37	Descriptive, structured interview	The interviewees related malnutrition, alcoholism, depression to the probability of committing suicide.	There were significant differences following educational work on aging and psychopathology.
McCarthy[27]	2010, USA, MEDLINE, 1 source of research	Descriptive, Google Internet search engine activity for suicide related terms between 2004–2009.	Google search volumes correlated with CDC statistics for both suicide and self-mutilation.	Monitoring changes in Internet search volumes can provide an indicator of suicide risk in the population.
Na et al.[28]	2016, USA, MEDLINE, 1.116	Descriptive, PHQ-9k	14.7% of Korean American elderly persons reported suicidal ideation.	Suicidal ideation without depressive syndromes was common among elderly Korean adults.
O'Riley et al.[29]	2014, USA, MEDLINE, 377	Descriptive, interviews at home	14% of the subjects considered current death or suicidal ideation	There were differences and similarities between the correlations of death and suicidal ideation.
Olsson et al.[30]	2016, USA, MEDLINE, 273	Descriptive, MADRS	Attempts at suicide had lower scores on the Mini-Mental State Examination (MMSE) and of the attempts, the mean MMSE score was lower among those with clinically severe attempts.	Older suicide attempts may involve cognitive deficits, which may, in part, be related to the attempt itself.
Ordóñez Monak et al.[31]	2014, Colombia, LILACS, 98	Descriptive-retrospective, reports of necropsy specialists	Suicides of this population group are mainly men, who have one of the highest rates compared to the majority of the population.	Suicide is a major public health problem
Rusching et al.[32]	2013, USA, MEDLINE, 248	Descriptive, MADRS	Perceived social support partially mediated the report.	Church attendance, rather than other indicators of religious involvement, has the strongest relationship with current suicidal ideation.
Segal et al.[33]	2015, USA, MEDLINE, 109	Descriptive, GSIS	The evaluation of depressive symptoms should be included in the assessment of the risk of suicide in old age.	Depressive characteristics are strongly related to the increase in suicidal thoughts and reduced resilience to suicide among older adults.

to be continued

Continuation of Chart 1

Authors	Year, country, database, sample	Study design and instruments	Results	Synthesis of conclusions
Shin et al.[34]	2012, USA, PubMed, 1.548-	Descriptive, demographic characteristics, physical diseases, MMSE, SGDS, BAI and physical exams	Anxiety and depression associated with suicidal ideation	It is suggested that there is an independent relationship between the state of physical health and suicidal behavior among the elderly.
Simon et al.[35]	2014, USA, MEDLINE, 3.159	Descriptive, structured interview.	No statistically significant associations were found between the general expectations of filial devotion and suicidal ideation in the last 2 weeks or in the last 12 months.	Lower levels of filial devotion were associated with a higher risk of suicidal ideation among Chinese elderly.
Sirey et al.[36]	2008, USA, MEDLINE, 403	Descriptive, structured interview	12.2% of the elderly reported clinically significant depression and 13.4% reported suicidal thoughts.	More than one in nine elderly people suffer from depression.
Sun et al.[37]	2010, USA, MEDLINE, 56.088,	Descriptive, Geriatric Depression Scale. (GSIS)	Depressive symptoms were associated with all-cause mortality only in men.	Depressive symptoms were associated with all-cause mortality in men and with suicide in both sexes.
Van Orden et al.[38]	2014, USA, MEDLINE, 377	Descriptive, interviews at home.	The results indicate that passive SI is rarely present in vulnerable elderly people in the absence of significant risk factors for suicide.	The death wish and the belief that life is worthless do not seem to be normative at the end of life.
Van Wijmen et al.[39]	2010, USA, MEDLINE, 6.824	Descriptive	Members frequently requested AD when they were already seriously ill.	Promotes the possibility of comparing the data of the present study with other studies with related subjects.
Wahlin et al.[40]	2015, USA, MEDLINE, 625	Descriptive, interview.	The prevalence was 45% and was more pronounced among older elderly persons (70%).	The prevalence of depressive symptoms among elderly people in rural Bangladesh is high.
Wiktorsson et al.[41]	2010, USA, MEDLINE, 103	Descriptive, MMSE	There was no association with dementia.	The results can help inform clinical decisions about suicide risk assessment in this vulnerable and growing age group.
Wong et al.[42]	2011, USA, MEDLINE, 1.999	Descriptive structured interview	Age-adjusted mortality rates in five years were 44.3 and 23.9 per 1,000 person/year for those who felt "useless" and those who did not, respectively.	Uselessness can be independently associated with all-cause mortality in elderly Chinese men.
Yan Ho et al.[43]	2013, England, MEDLINE, 16	Qualitative, qualitative interview.	The three main categories of themes of the Dignity Model were widely supported.	These findings highlight both a cultural dimension and a family dimension in the construct of dignity.

AD: *Advance Directive*; BAI: *Beck Anxiety Inventory*; BSRS-5: *Brief Symptom Rating Scale*; CDC: *Centers of Disease Control*; GDS-15: *Geriatric Depression Scale*; GSIS: Geriatric Suicide Ideation Scale; HDRS: *Hamilton Depression Rating Scale*; MADRS: *Montgomery-Åsberg Depression Rating Scale*; MINI Plus: *Mini International Neuropsychiatric Interview*; MMSE: *Mini Mental State Examination*; MOS: *Medical Outcomes Study*; PD: *Parkinson's Disease Questionnaire*; PHQ-9K: *Patient Health Questionnaire*; PROSPECT: *Prevention of Suicide in Primary Care Elderly: Collaborative Trial*; RFL: *Reasons for Living Scale;* SF-12: *Short-Form Health Survey*; SGDS: *Geriatric Depression Scale (Short Form)*; TILDA: *The Irish Longitudinal Study on Ageing;* WHOQOL-bref: *World Health Organization. Quality of Life-Bref*;

DISCUSSION

The majority of the articles found were from the MEDLINE database. The largest number of publications were published in 2013, followed by 2014, a fact that may be explained by the publication of the Good Health Adds Life To Years: Global Brief for World Health report by the World Health Organization (WHO) in 2012, which encouraged discussions on the phenomenon of aging and its impact on various sectors of society. The report presented data on the state of old age in the world, the demography and epidemiology of population aging, and possible actions on aging and health[44].

The investigation pointed out that 28 articles (82.3%) used the application of questionnaires and interviews, with the aim of investigating the aspects involved in aging and suicidal ideation. Instruments such as scales are useful for the detection of depressive symptoms self-reported by the elderly[45]. In addition, actions that require on-site examination of the relationships, interactions and lifestyles of the elderly are fundamental for establishing a relationship between aging and possible suicidal behavior. It is important to harmonize clinical and social evidence, as well as epidemiological data, with reports of the elderly themselves about their life trajectory and their reasons for giving up on living[46].

An association between suicide or suicidal ideation in the elderly and factors such as anxiety[34], depressive symptoms and depression[14, 20, 23, 26, 36, 37], physical and chronic diseases[16,25,31,34], low schooling[20], low socioeconomic status[19] and ill-treatment[25] was found. The studies indicate a relationship between physical health status, the absence of leisure activities and less social support and a greater possibility of suicide attempts[16,18,34]. Thus, higher levels of social and physical activity confer benefits to the health of the elderly, reducing daily disability and depressive symptoms that can lead to suicide[25].

It is known that elderly people with depression may have considerable cognitive and functional disorders, and that the changes due to aging may lead to certain alterations. It is observed that both cognitive impairment and mental suffering among the elderly increase the probability of suicidal ideation[10]. The most recurrent cognitive variations in depressed elderly persons are executive functions, attention deficit, and the slowing of processing[47].

As a multifactorial process, aging causes anatomical and functional changes in the body. Such alterations may result in the appearance of chronic and degenerative diseases[16,25,31,34], such as pulmonary diseases, arterial hypertension, osteoporosis, arthritis, dementias or mental disorders, heart diseases, arthrosis, rheumatism, stroke and cancer, reducing the functional capacity and quality of life of the elderly person[48]. All these factors increase the chances of suicidal ideation and suicide itself in the elderly[31].

Another finding observed in the analysis of the articles was the need to invest in reception, therapies, discussion circles, groups, forums and health conferences as health care strategies[16]. The absence of a space for listening and reception in the health and social services, as well as the lack of a health professional who can support elderly individuals, can increase their vulnerability to the risk of suicide[16], with such measures an effective protection against suicide.

There is a need for strategies that favor the prevention of mental disorders, the treatment of diseases with the inclusion of diagnostic procedures, early detection, correct medication, psychotherapy and the training of professionals and other persons involved with this population group[49]. The understanding of care in the quality of life as encompassing physical, psychological and social aspects allows the involvement of health professionals in the construction and effective implementation of suicide prevention programs in addition to potentializing opportunities of detection of the mental health needs of the elderly[15,36].

Limitations of the present study include the methodology used, considering its level of scientific evidence compared to other methodologies such as systematic reviews or a meta-analysis. However, through the hierarchical level of methodological classification, the present study identified a predominance of level IV studies, which suggests that new studies on suicide among the elderly employ

more robust methodologies and designs that produce consistent evidence.

CONCLUSION

The aspects related to suicidal ideation in the elderly were a low socioeconomic level, the presence of anxiety, depressive symptoms and depression, physical illnesses and chronic diseases. A multidimensional look at the phenomenon of suicide in the elderly is required, based on economic, psychological, physical and social factors, both by professionals who work in the field of aging and by the state, with public policies that support this population. Although the growth of the elderly population is an indisputable reality, the support given to such individuals has not advanced with the same speed. In this way, living spaces that offer physical and leisure activities, access to health care of all levels of complexity, social and family support avoiding isolation and solitude, can be considered actions that minimize or avoid suicidal ideation.

The reading of the original texts made it possible to understand the way aging, suicide and mental health issues have been treated in the scientific milieu. Nevertheless, the works studied addressed a relevant and complex topic of study, representing a significant source of knowledge for future research. The results of this review are relevant because, besides evidencing the associations between several factors found in literature and suicide, they also point out ways to promote physical and mental health among the elderly, thus reducing the risk of suicide among this population.

At the same time, the need for greater investment in the area of health is emphasized, strengthening existing public policies through intersectoral collaboration in the health care of the elderly.

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