BIOLOGICAL AND PSYCHIC AGING: NARRATIVE LITERATURE REVIEW

Gustavo Baroni Araujo[1]

Jordane Gomes dos Santos[2]

Délio Guerra Drummond Júnior[3]

Lizandra Ellem Silva de Souza[4]

Yasmin Emanuelly Leal Araújo[5]

Júlio Cesar Pereira da Silva[6]

Iaggo Henrique de Sousa Figueiredo[7]

Mariel Wágner Holanda Lima[8]

Joelma Maria dos Santos da Silva Apolinário[9]

Rafael Noleto Leao[10]

Winícius de Carvalho Alves[11]

Anderson Fernandes de Carvalho Farias[12]

Abstract: Biological aging is relentless, active and irreversible, causing greater vulnerabilities to the body to external and internal

1 Universidade Estadual de Londrina
2 Universidade Federal de Alagoas
3 Universidade Federal do Oeste da Bahia
4 Centro universitário de Juazeiro do Norte
5 Universidade Federal do Piauí
6 Universidade Paulista
7 Universidade Estadual do Piauí
8 Universidade Federal do Rio Grande do Norte
9 Centro Universitário Maurício de Nassau
10 Centro Universitário Tocantinense Presidente Antônio Carlos
11 Centro Universitário Santo Agostinho
12 Universidade Presidente Antônio Carlos

JID JOURNAL OF INTERDISCIPLINARY DEBATES

ISSN: 2675-469X
Vol. 03 - n 02 - ano 2022
Editora Acadêmica Periodicojs

aggressions. The objective of this work is to discuss general aspects that occur with aging, as well as the main causes of biological and psychological aging based on the scientific literature. This is a bibliographic review of the narrative literature review method, carried out from March 2022 to May 2022. The guiding question was: "What is the most relevant information about biological and psychological aging in the elderly?" The searches were carried out through the SciELO database (Scientific Electronic Library Online), Google Scholar and the Virtual Health Library (BVS). The descriptors/keywords used were: "Biological aging" and "Psychic aging" combined with the Boolean operator "AND" in the period from 2018 to 2021. Inclusion criteria were original and review studies made available in full in Portuguese. In total, 6 articles made up this study. The various factors of human aging are observed, and they point to losses, changes in sexual functionality, physical changes, in addition, the signs of functional aging appear discreetly throughout life, being called senescence. Biological and psychic aging occurs in different ways in each individual. The approach to aging must be multifaceted, as the quality of life of the elderly population can be positively and negatively affected by a wide range of factors.

Keywords: Elderly; Longevity; Quality of life.

INTRODUCTION

Biological aging is relentless, active and irreversible, causing the body to be more vulnerable to external and internal aggressions (Cepellos, 2021).

There is evidence that the aging process is multifactorial in nature and dependent on genetic programming and changes that occur at the cellular-molecular level.

Consequently, there may be a decrease in the functional capacity of the affected areas and an overload of the homeostatic control mechanisms, which start to serve as a physiological substrate for the influence of age on the presentation of the disease, the response to the proposed treatment and the complications that follow (Raimundo; Cabrita & Gaspar, 2021). The signs of functional deficiencies appear discreetly throughout life, being called senescence, without compromising relationships and decision management. This process cannot be considered a disease. Under baseline conditions, the elderly do not show changes in functioning when compared with the young. The difference is manifested in situations in which it is necessary to use homeostatic reserves, which, in the elderly, are weaker (Araujo; Afonso; Apolinário, 2021); (Macena, Hermano & Costa, 2018).

Perceptive aging is very different. Some sensory modalities, such as smell, taste, or kinesthesia, are little affected by age, while others, such as hearing, vision, and balance, are severely affected. Of all these perceptual modalities, aging most significantly affects balance, hearing and vision, and this has important, and sometimes serious, consequences at a psychological and social level. On the other hand, auditory and visual sensory deficits seem to be important causes of a general decline in the functioning of intellectual activities (Monteiro & Coutinho,

2020). Given the discussion, this work aims to investigate general aspects that occur with aging, as well as the main causes of biological and psychological aging.

METODOLOGY

This is a bibliographic review of the narrative literature review method, carried out from March 2022 to May 2022. This study is configured as a narrative review, the type of study allows to address the results found in articles of different methodological designs already published, in this sense, allows reviewers to access summarized information. For the construction process to occur in a coherent way, it is essential that the reviewers perform the synthesis of the data in an organized and rigorous way so that the information is reliable (Soares et al., 2014).

With the rise of the academic community in terms of the number of studies published in the health area, literature review studies have gained great prominence. This methodological design allows for greater knowledge of findings in studies with the purpose of expanding the possibility of interventions by professionals in different areas of knowledge. The integrative review allows the reader to identify the diversity of scientific articles within a given subject that encompasses the guiding question of the research, to expand and subdivide the observed results, as well as to make it possible to discuss that add to the field of knowledge. In this sense, this methodological design relies on a broad survey of studies to compose the requirements of scientific research, contributing to the reliability of the data in the research.

This type of study aims to find results, present possible discussions within the objective of the study and synthesize information on the topic or question investigated in a systematic, orderly and comprehensive manner (Ferenhof; Fernandes, 2016). In the construction process, it is necessary for the researcher to plan a synthesis from topics in order to produce a greater understanding of a given subject.

In addition, literature review studies are considered starting points for the production of scientific knowledge, considering that it is through studies of this nature that new questions and hypotheses arise, as well as gaps for new research within a thematic axis (Botelho; Cunha; Macedo, 2011). The elaboration of the integrative review is a methodology that allows the search, the critical evaluation and the synthesis of available evidence on the investigated topic, where the results found are fundamental for the dissemination of knowledge and to promote relevant interventions for the provision of care and in the reduction of of losses in health outcomes, however, makes it possible to recognize weaknesses that could lead to possible investigations (Sousa; Marques-Vieira; Severino; Antunes, 2017). The integrative review is considered a valuable tool in the sense of presenting investigations in a comprehensive and systematic way with the objective of presenting results on a topic in question. The research data collection relies on the selection of information carried out in a categorized way, evaluation of the articles included; analysis, discussion and understanding of the results found; and the production of the review (Ercole, Melo,

& Alcoforado, 2015).

The elaboration of the integrative review follows the following steps: 1- Elaboration of the guiding question; 2- Search in databases and sampling; 3- Data collection, 4- Critical analysis. To answer the guiding question of the study: "What is the most relevant information about biological and psychological aging in the elderly?" The searches were carried out through the SciELO database (Scientific Electronic Library Online), Google Scholar and the Virtual Health Library (BVS). The descriptors/ keywords used were: "Biological aging" and "Psychic aging" combined with the Boolean operator "AND" published in the period between 2018 and 2021.

The inclusion criteria were original and review studies made available in full, covering the investigated topic in digital form, in Portuguese. Review articles, incomplete articles, debates, letters to the editor, reviews and abstracts were not included.

At the beginning of the research, 135 publications were obtained, after applying the inclusion and exclusion criteria, 29 articles were partially totaled, after a more accurate reading, the final total of 6 publications was adhered to according to the investigation proposed in the study.

RESULTS AND DISCUSSION

In view of the results found through the search strategy, variables were outlined that best described the evidence observed in the studies. Table 1 below presents the main information of the articles based on the proposed elements: article number, journal, database, author and year of publication, title, objec-

tive, results in evidence and important conclusions.

Nº	Author and year	Title	Objective	Results and conclusions
1	Rocha, 2018.	Human aging and its psychosocial aspects	To carry out a bibliographic review, allowing to make a correlation of the theory presenting aging in a natural way, contemplating psychosocial changes and psychological aspects	Aging is a delicate and painful process because it has problems that affect all areas - social, economic, family and public health, among other contexts; because at this stage there is an increase in chronic degenerative diseases
2	Pereira, 2019	Cognitive function in aging	Discuss the importance of cognitive function in aging	The promotion of active and healthy aging must necessarily include the cognitive dimension, through the implementation of intervention strategies that stimulate and promote an adjusted, or even optimized cognition, in view of what is biologically expected by age and global clinical context.
3	Borson; Romano, 2020.	The genetic process of aging and pathways to longevity	Discuss the evolution of the aging process and ways to increase longevity	Aging is complex and prevents the establishment of parameters regarding chronological age, being a reference in the development process where the interaction between the biological characteristics of growth and maturation are enhanced by physical, mental, emotional, social and motor components. Cellular senescence proceeds to a physiological change that limits the ability of normal cells to replicate.

4	Lima, 2020.	Investigation of Biochemical Markers in Biological Aging and Development of Neurodegenerative Diseases	Identify biochemical markers involved with aging and their potential relevance to the development of neurodegenerative diseases	Changes in lipid profile and oxidative status may be associated with neurodegenerative diseases as a consequence of loss of cellular homeostasis
5	Ferreira et al., 2021	The biology of aging: Telomeres, telomerase and physical activity (A systematic review)	To familiarize the reader with the current issue of telomeres, providing updated and integrated information about their structure and function and the possible relationship between the practice of physical activities and their length and aging, in addition to debating possible mechanisms of action.	Findings reveal telomeres, on average, 200 bp longer in elderly subjects who trained than in the untrained. Studies suggest that moderate physical activity has a protective effect on leukocyte telomere length.
6	Raimundo; Cabrita; Gaspar, 2021	Executive functions and lifestyle in the aging process	It was intended to understand and characterize executive functions and lifestyle in the aging process.	It was found that high age and low level of education affect the performance of executive functions and being in a romantic relationship can work as a protective factor as it increases this performance.

Source: Prepared by authors (2022)

The various factors of human aging are observed, and they point to losses, changes in sexual functionality, physical changes, among others. Relevant issues to be discussed with regard to the different aspects that reflect on aging and, based on this study, some can be located. The physical changes that are

associated with aging can affect some people more than others. Here we talk about: the change in the skin, pallor, elasticity, fat and muscles shrink, hair whitens and becomes thinner, body hair decreasing. There is also a decrease in size due to atrophy of the discs between the vertebrae of the spine, and thinning of the bones may also occur (Cochar-Soares, 2021). Due to the advancement and speed of development of the evolution of technologies, there really is a chronological age to consider aging and how the elderly excel at this contemporary speed.

The signs of functional deficiencies appear discreetly throughout life, being called senescence, without compromising relationships and decision management. This process cannot be considered a disease. Under baseline conditions, the elderly do not show changes in functioning when compared with the young. The difference is manifested in situations in which it is necessary to use homeostatic reserves, which, in the elderly, are weaker (de Carvalho Cordeiro, 2021).

Normal brain aging shows, from the second decade of life onwards, a discreet, slow and progressive weight decline, which culminates in a decrease in its volume. The microscopic study of neurons reveals changes characterized by: decrease in cytoplasmic RNA and Nissl substance, accumulation of lipofuscin; amyloid deposit in blood vessels and cells and senile plaque; and, less frequently, neurofibrillary tangles - characteristic of Alzheimer's dementia, which can, however, be observed in the brains of elderly people without evidence of dementia and which results in neuronal atrophy by re-

ducing the number of nerve cells (Uessugue, 2022).

Normal aging is associated, in addition to microscopic changes in neurons, to changes in neurotransmitter systems. The dopaminergic and cholinergic systems have diminished actions. Memory decline does not necessarily need to be associated with structural damage, and may occur due to physiological dysfunction and not to neuronal loss (de Maio Nascimento, 2020).

Among the main signs, it is observed, clinically, slowing down in cognitive processing, reduced attention, more difficulty in retrieving learned information and reduced prospective memory and contextual memory. The stored information (intermediate and remote long-term memory) is not affected, but the analysis and comparison of the information that constantly arrives at the brain, with the explicit and implicit memories stored in the posterior neurotex (Bianchi, de Oliveira & Bertolini, 2015).

These changes do not significantly impair the performance of daily tasks, do not promote limitation of activities or restriction of social participation. The influence of time on cognition also amplifies the differences between the sexes, that is, older men show greater ease in mathematical calculations, while women in executive skills (Constantino et al., 2019).

When analyzing attention, it is known that it represents a complex group of behaviors, in which the individual can select information and ignore others; sustain concentration on information for a period of time; divide attention between two or more aspects at the same time; and change the focus of attention when neces-

sary. The ability of the elderly to divide attention between various stimuli to apprehend a situation is extremely impaired. Other attention functions do not change with aging (Sousa, Fontes & Oliveira, 2019). Fluid capacities, that is, those involved in solving new problems, tend to gradually decline. The speed at which information is processed represents the most evident change in the elderly. Cognitive slowness influences all other functions and may be responsible for cognitive deficit in the elderly, and in the processing of information, greater difficulties in understanding texts, need for richer and longer explanations and more time to perform calculations are observed in the elderly.

From the perspective of psychology, the development of knowledge about the various types of dementia, the advancement of neuroimaging methods and appropriate scientific studies allowed the judgment on the boundary between health and disease in the elderly. Some of the cognitive abilities change over time, while others remain unchanged. Knowledge of the neuropsychological evolution allows us to assess whether any impaired cognitive function means disease (Batistoni, 2009).

Psychic aging or maturing is not naturally progressive nor does it occur unavoidably, as an effect of the passage of time, it also depends on the passage of time, but, above all, on the continuous personal effort in the search for self-knowledge and the meaning of life. With psychic aging, therefore, vulnerability is reduced (Sousa; Lima & Barros, 2021). The elderly person becomes wise enough to accept reality, tolerate pain or the loss of

biological independence, as their safety devices are increasingly effective in their relationship with the world. (da Silva Machado et al., 2022). It is full freedom or psychic independence, as it understands the meaning of life. Organic changes are significant in the aging process and are variable among the elderly. In some, there is a rapid decline of these, in others, little is observed. There is a weakening of immune function due to chronic stress, to the point that they may be more susceptible to respiratory infections. The heart rhythm becomes slower, irregular and blood pressure tends to increase.

FINAL CONSIDERATIONS

Biological and psychic aging occurs in different ways in each individual. The approach to aging must be multifaceted, as the quality of life of the elderly population can be positively and negatively affected by a wide range of factors.

The complexity of the causes of biological and psychological aging is observed, considering that the related factors mainly involve aspects of a biological, physiological and environmental nature. These signs presented by these events can be more serious with advancing age. As main strategies to avoid non-normal aging, it is recommended to perform routine exams and to organize the environment in which the individual finds himself.

REFERENCES

Araujo, G. B., de Oliveira Afonso, T., da Silva, J. M. D. S., Silva, M. P. B., da Silva, R. K. B., & da Cruz Oliveira, P. A. (2021). A temática “Saúde do Idoso”

na Revista Brasileira Multidisciplinar: Análise de uma década (2010–2020). Research, Society and Development, 10(9), e54410918309-e54410918309.

Batistoni, S. S. T. (2009). Contribuições da Psicologia do Envelhecimento para as práticas clínicas com idosos. Revista Psicologia em Pesquisa, 3(2).

BIANCHI, A. B., DE OLIVEIRA, J. M., & BERTOLINI, S. M. M. G. (2015). Marcha no processo de envelhecimento: alterações, avaliação e treinamento. Uningá Journal, 45(1).

Botelho, L. L. R., de Almeida Cunha, C. C., & Macedo, M. (2011). O método da revisão integrativa nos estudos organizacionais. Gestão e sociedade, 5(11), 121-136.

CEPELLOS, V. (2021). Feminização do envelhecimento: um fenômeno multifacetado muito além dos números. Revista de Administração de Empresas, 61.

Cochar-Soares, N., Delinocente, M. L. B., & Dati, L. M. M. (2021). Fisiologia do envelhecimento: da plasticidade às consequências cognitivas. Revista Neurociências, 29.

Constantino, A., Rocha, E. S., de Oliveira, O. M. P., & Monteiro, M. M. D. O. (2019). Declínios fisiológicos e fisiopatológicos do sistema locomotor durante o envelhecimento humano: uma revisão bibliográfica. Anais VI CIEH, Campina Grande: Realize Editora, 1-8.

da Silva Machado, B. A., Gondim, J. B., da Silva, G. T., da Silva, I. T., Marques, H. D. C., dos

Santos Segunda, M. O. B., ... & da Silva Freitas, F. V. (2022). Percepção da equipe multidisciplinar na qualidade de vida do idoso. Revista de Casos e Consultoria, 13(1), e13127795-e13127795.

de Carvalho Cordeiro, T. D., Silva, L. M., Araujo Monteiro, E., de Farias Pontes, M. D. L., Golgheto Casemiro, F., & Partezani Rodrigues, R. A. (2021). Alterações fisiológicas da visão durante o envelhecimento: percepção de idosos e profissionais. Investigación y Educación en Enfermería, 39(3).

de Maio Nascimento, M. (2020). Uma visão geral das teorias do envelhecimento humano. Saúde e Desenvolvimento Humano, 8(1), 161-168.

Ercole, F. F., Melo, L. D., & Alcoforado, C. L. G. C. (2014). Revisão integrativa versus revisão sistemática. Rev Min Enferm, 18(1), 9-12.

Ferenhof, H. A., & Fernandes, R. F. (2016). Desmistificando a revisão de literatura como base para redação científica: método SSF. Revista ACB, 21(3), 550- 563.

Macena, W. G., Hermano, L. O., & Costa, T. C. (2018). Alterações fisiológicas decorrentes do envelhecimento. Revista Mosaicum, (27), 223-238.

Monteiro, R. E. G., & Coutinho, D. J. G. (2020). Uma breve revisão de literatura sobre os idosos, o envelhecimento e saúde. Brazilian Journal of Development, 6(1), 2358-2368.

Raimundo, M., Cabrita, T., & Gaspar, T. (2021, July). FUNÇÕES EXECUTIVAS E ESTI-

LO DE VIDA NO PROCESSO DE ENVELHECIMENTO. In Congresso Internacional em Saúde (No. 8).

Soares, C. B., Hoga, L. A. K., Peduzzi, M., Sangaleti, C., Yonekura, T., & Silva, D. R. A. D. (2014). Revisão integrativa: conceitos e métodos utilizados na enfermagem. Revista da Escola de Enfermagem da USP, 48(2), 335-345.

Sousa, L. M. M., Marques-Vieira, C. M. A., Severino, S. S. P., & Antunes, A. V. (2017). A metodologia de revisão integrativa da literatura em enfermagem. No21 Série 2-Novembro 2017, 17.

Sousa, N. F. D. S., Lima, M. G., & Barros, M. B. D. A. (2021). Desigualdades sociais em indicadores de envelhecimento ativo: estudo de base populacional. Ciência & Saúde Coletiva, 26, 5069-5080.

Sousa, H. J. S., Fontes, L. A. X., & Oliveira, P. C. D. C. R. (2019). Análise da abordagem fisioterapêutica nas alterações senescentes e senis do sistema musculoesquelético. Revista da FAESF, 3(2).

Uessugue, P. (2022). Idoso: senescência e senelidade.