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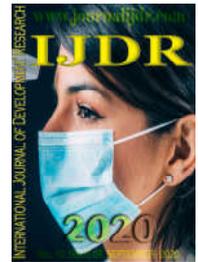
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THE DIFFERENT PROCESSES IN THE CYCLE OF HUMAN LIFE

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ABSTRACT

Objective: to establish the differences and paths of human development, aging and old age.

Method: an integrative review extracted from the gerontological literature. 16 scientific articles were used, published from 2002 to 2016 and 04 scientific articles published between the years 1969 and 1996, in addition to 08 books, which enabled analysis of the life cycle processes.

Results: the processes of development and aging should not be considered as identical, but as different divisions of the stages in the life cycle of individuals, with old age being a stage of development. **Conclusion:** the processes involving the human life cycle are influenced by genetic, biological, psychological, and sociocultural aspects. At the same time, old age is understood in a more positive and less stereotyped way, being a good step for optimizing and compensating resources (physical and cognitive) and adapting the elderly person to the environment in which they live.

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INTRODUCTION

The expansion of research on the factors associated with the life of the elderly, in contemporary society, makes some necessary responses to the instruments capable of providing dignified and healthy longevity for the elderly. People's life events are sources of their physical, mental and psychosocial development. They are reflected in the aging process and in old age, because they are interconnected and are not equivalent, since both human development and the aging process may occur in opposite directions, since the physical aging process can present important functional losses in capacities and people's daily life skills, but mental and psychosocial development continues throughout life, in an unceasing process of evolution, with rare pathological exceptions. In this sense, based on an integrative review extracted from the gerontological literature, this research seeks to delimit concepts and related paths that involve the human life cycle, demonstrating that evolutionary changes such as growth, gain or progress are part of the life of individuals from beginning to end, highlighting that old age, stage of

development, is not directly linked to human physical and mental decline, under the perspective of possible development in aging.

METHODS

This is an integrative review extracted from the gerontological literature that enabled a study in relation to the difference in the processes that involve the life cycle, allowing to detect differences about the theme. In preparing this research, the following steps of the proposed review were followed, that is to say: a) elaboration of the research problem; b) establishment of inclusion and exclusion criteria; c) selection and evaluation of the scientific material used; d) analysis and synthesis of said material. In this sense, we used the database of 16 scientific articles from the Scielo and Pubmed databases, published between 2002 and 2016 and 04 scientific articles published in the period from 1969 to 1996, the result of classical research in the human aging process de Neugarten (1969), Baltes and Goulet (1970), Schulz and Heckhausen (1996).

Furthermore, given the inclusion requirements, 08 books were used that seek to describe the process of the emergence of the first researches related to development, aging and old age, highlighting authors such as Bühler, Erikson and Baltes. It is noteworthy that the analysis, synthesis and discussion of the selected material, took place in a descriptive manner, with theoretical propositions of themes related to the aging process being established, differentiating the development of human aging, considering old age as a phase of the aforementioned cycle, the purpose of an integrative review being met.

DISCUSSION AND RESULTS

Concepts and research related to human aging have been developed in the last sixty years, confronting the idea that the aging process is associated with negative aspects (losses), opposing the perception of the human development process of gains. These studies started to analyze the processes that influence people's life trajectories, understanding that human development cannot homogenize neither the human development process nor the aging process. Neri (2013) defends the idea that aging is not a biological or medical problem and that it is necessary to take into account research on human development, aging and old age, with its different terminologies. In this sense, gerontology and psychology seek to delimit concepts and paths to establish some patterns of behavioral changes related to advancing age. Some concepts and theories about human development and/or aging may be presented to society as universal phenomena and divided into phases, such as Buhler's Human Life Course Theory (1935) which sought to explain the process of human development. This theory considers the relationship between the process of human development and the establishment of goals, involving losses and gains throughout human life (BUHLER, 1976).

Another theoretical model is the one referenced by stages, consecrating the use of the term "life cycle in psychology"¹, highlighting the work carried out in 1959 by Erikson (1998), which exposes development as a process divided into eight stages also known as competitive trends / crises that represent the moment of human life for each one, the first four being related to the stage of birth until childhood, and the last three to the adult years and old age. In the eighth stage (ego integrity versus hopelessness), starting from the age of 60, it is the moment when the accounting of what each one has done, satisfactorily or not, is carried out, the result of this evaluation being reflected in feelings and possible individual actions. Moreira (2012, p. 453) explains that, in the aforementioned eighth stage, the individual is faced with the greatest challenge, namely: "maintaining the integrity of the self, evaluating life as an achievement, maintaining generativity, but oriented to culture, and being able to consider its course with wisdom", being established "the fight against despair,

nihilism and the lack of meaning". Thus, there may be a contrast between the satisfaction of having lived according to the expectations generated throughout life and the disappointment or failure of having accomplished nothing. It should be noted that psychosocial conflict is not a particular feature of the eighth stage, as there is a similar conflict at each stage. However, in the use of different instruments of opposition, there is a feeling of trust and mistrust, which needs to be resolved in a positive (ritualization) or negative (ritualism) way, which will reflect on the next phase (ERIKSON, 1998). This time, human life, considered in its entirety, is carried out in cycles that comprise the process of human development, requiring the establishment of a relationship between the body (biological process), the psyche (psychic and mental process) and the ethos (social process).

Moving on to the theoretical propositions not referenced to internships, the social-interactionist model of development throughout the course of life promoted by Neugarten (1969) stands out. It is based on the premise that the individual study of children's personality does not offer the necessary tools to promote the understanding of adult behavior, considering that the development process is a consequence of the integration of social, cultural and environmental factors that ends up reflecting on the transformations that the individual suffers throughout life, which may be associated with degenerative issues and externalities related to adaptive methods and coping with losses. Neugarten (1969) states that the transition of the course of life occurs from the "social clock", allowing the individual to identify his position in his generation, being able to be early, late or at the correct time, promoting a sense of normality. When talking about Neugarten's theory, Neri (2013, p.29) concludes that the social clock of human development would be characterized by "transition events of biological nature (eg, menarche and menopause) and sociological (p. eg, school entry and retirement) that are associated with evolutionary tasks". Thus, the definition of what is human development and its phases may occur from the sum of biological and psychosocial events, delimited by biological and sociological transitions unified with evolutionary tasks.

Baltes and Goulet (1970) proposed the paradigm of lifespan, that is, development throughout life, which can vary its beginning at any time in life. Its process is not linear, as seen in the theories of internships, and it may present curvilinear movements for some developed skills, such as the willingness to practice physical activities, which are verified with greater intensity in adult life than in old age. Lifespan includes the recognition of multi directionality in ontogenetic alteration, development factors linked to and disconnected from age, as well as structural contextual issues and study of the range of plasticity in development. Thus, changes in human development are related to the individual's adaptive capacity in a system of gains (growth) and losses (decline). Therefore, in order to obtain the result of this system, it is necessary to recognize the requirements of questions proposed by the individual and the environment during the process of adaptation throughout life (BALTES, 1987). From a perspective of maximizing development throughout life, Schulz and Heckhausen (1996) cite four principles: a) promotion of diversity in the opportunity for the performance of operating domains; b) selectivity in the search and allocation of resources; c) compensation and management of resource failures; d) management of trade-offs, through domains and sequential life stages, recognizing that the

¹To explain the term life cycle, a terminology that although it is common in everyday language, Neri (2015) states that in the scientific context, specifically, by psychology, sociology, history and biodemography it can be used in five senses: 1st) related life cycle successive stages of stages or ages, or the reproduction of the experiences lived by previous generations; 2nd) understanding of the life cycle as an arrangement between individual development and the history of social institutions; 3) life cycles through the perception that individuals' experiences tend to close and coherence; 4) under a historical, sociological and demographic approach, life cycles are related to each individual's life history and behavioral changes; 5) Finally, in the light of family psychology and sociology, cycles can be understood with meanings of succession, reproduction and tendency to close.

allocation of resources to one domain may provide opportunities for the development of others. Thus, people help to shape their own development and influence the reactions of others towards them. Therefore, lifespan encompasses a relationship of attempting to balance gains and losses, since in childhood, as a rule, gains prevail and in old age, losses. According to Neri (2015), even with the existence of objective criteria used to define neurological, cognitive and economic losses, the conceptualization of those, and gains, is largely controlled by subjective criteria and social desirability, which is why it is necessary to talk about potentials and limits for development. The idea argues that human development is a continuous, multidimensional and multidirectional process of changes, orchestrated by genetic-biological and sociocultural influences, and can be encompassed by a sequence of predictable (genetic-biological) changes graded by age; a predictable sequence of psychosocial changes, graded by history; and, an unpredictable sequence of modifications provided by the influence of biological and social agendas (NERI, 2006).

Regarding the changes graded by age, the sense of normality, according to Neri (2015), comes from the fulfillment of age norms, allowing individuals to mirror themselves in others, obtaining support over the experienced moment. Therefore, the social clock metaphor, proposed by Neugarten, explains that nothing is more natural than the correspondence between age and social expectation, and that cannot be the only criteria in the organization of the course of life. In a similar sense, Quadros (2017) states that development is linked to a permanent and non-linear evolutionary process, in which individuals are inserted in a vital cycle and in all fields of existence, such as the affective and the motor. It is also noteworthy that this process is determined not only by biological or genetic maturation processes, but also by the environment where one lives. Given the above, mitigating the idea that human development is related to the decline, research on childhood and adolescence, gave way to studies related to the other phases, inserted in Psychology as an area of research and application, based on theories that consider the evolution in stages and also those not referenced to stages, that is, those that claim to be the development process resulting from the interaction of the individual, in constant transformation, with the environment in which he lives, being subject to interactive changes and systemic transformations, justifying research related to aging and old age. Like human development, the aging and/or senescence² process is also an individual experience, which for some researchers, such as Rodrigues (2002, p. 64), begins before birth, extending to the end of life of the individual, being able to "be understood through a dimension of movement, the flow of life and the possibilities of development", which means that members of a certain population do not age equally. Neri (2015), in contrast to Rodrigues (2002), understands that human aging, although it is a universal process, will start after sexual maturity, suffering an acceleration from the fifth decade of life, characterized by

changes in physiological and morphological nature. From this perspective, Schneider and Irigaray (2008, p. 587) emphasize that aging is a heterogeneous process, varying according to the social, economic and political contexts in which the individual is inserted, that is, they are linked to existential issues; thus, "they are nothing more than the result of a social and temporal construction carried out within a society with its own values and principles, which are crossed by multifaceted, multidirected and contradictory issues". Bispo et al (2019), referring to Baltes, affirm that the heterogeneity, characteristic of aging, as an individual process, is influenced by three factors: a) genetic factors and environmental conditions, in development; b) ways of life; c) different disease patterns in old age, considering the normal aging process. This means that there is no direct relationship between aging and declining conditions regarding the individual's health, obviously safeguarding the losses inherent to biological plasticity and genetic fidelity.

Established a relationship between development and human aging, it is emphasized that this will depend on their level, due to the associated action between genetics, social, economic, medical resources, among others. Thus, the path of influences that reflect on development and aging may be related to the allocation of resources at different times in life, such as: growth in childhood, under the reach of high levels of functioning or adaptive capacity; the stable maintenance of operating levels due to new contexts; and the regulation of losses in old age, when maintenance or recovery is not possible (NERI, 2006). Bio gerontologists estimate that only 25% of individuals' forms of aging are justified by genetics, while 75% are due to external conditions, categorizing aging as an individual process, influenced by age, genes, the environment in which the individual is inserted, not being random, the ability to age well, in a way, can be considered as a reflection of the individual's free will, throughout life (BALLESTEROS et al, 2013), as well as the social conditions in which they live.

In this way, aging is related to a series of structural and functional changes - cumulative, progressive, intrinsic and deleterious - that are independent of time and that begin to manifest themselves, as a rule, in reproductive maturity, ratifying the idea that individuals age in different ways. So much so that empirical researches receptive to the study of interactions implicit in aging have promoted the extinction of separations between gerontology and other fields of science, such as biology, which determines the physiological systems and organizational patterns of human aging, since many phenomena related to aging process are being understood as multi-causal, thus promoting the integration of sciences (SGARBIERI; PACHECO, 2017). When one understands that the processes of development and aging are not synonymous, but divisions different from the life stages of individuals, it is possible that evolutionary changes, such as gain or progress, are part of the life of individuals from beginning to end. Thus, although there are divergences regarding the linearity of aging, there is a consensus in the literature that aging is understood as a process and old age is seen as a stage of development (TORRES et al, 2015). As a last stage of development, old age came to be considered as such only in the transition period between the 19th and 20th centuries, as one of the results of the modernization process of Western societies, based, basically, on two factors: institutionalization of pensions and preparation of new clinical knowledge that has spread to other

²There is no consensus in literature on the use of aging and senescence terminologies as synonyms. Finch (1990) opted for the use of senescence instead of aging, given its connection with the idea of time as a dependent variable, defining senescence with human changes associated with age that directly reflect on vitality. Neri (2015), in his research entitled "Concepts and theories about aging", uses the expressions as synonyms. According to Sgarbieri and Pacheco (2017) aging and senescence are not synonymous, however, the differences may be more in the emphasis than in the concept, both being intrinsic properties of most living organisms.

fields, determining its spectrum in the cultural imagination, fostering state actions, such as the formulation of public policies as well as the development of new specialized disciplines, such as gerontology (SILVA, 2008). At the same time, there are new reflections about this stage becoming a favorable period for new conquests, resource optimization (physical and cognitive), compensation for those that do not exist or have deficiencies and better adaptations of the individual in the environment in which he is inserted, which means, a positive old age. Silva (2008) highlights two issues that were fundamental in the process of developing positive old age: a) the criticism of the belief that old age is a disease, which enabled researchers in social gerontology to develop the idea that normal aging is composed of biological processes that do not always imply physical or mental damage to individuals and can also be the subject of medical treatments and public policies, for example; b) a positive identity for old age, generated by social gerontology, having as one of the arguments the fact that the negative identity of old age is a result of certain cultural conditions, since the new identity comes from the articulation between different individual and social practices, based on the benefits arising from the subjects' engagement.

However, this process has been taking place gradually, with several terminological derivations throughout history to classify or even delimit the individual in this phase, as the expressions stand out: "old", "elderly", "old age", "Mature adult", among others, having a great and relevant role in people's ways of acting and relating. Hein and Aragaki (2012) understand that the terminology "old" is related to negative meanings, signs of physical decay and productive incapacity, often used to refer to the old poor. Freire et al (2012) add that most of the negative events related to the stage of old age lead to the question of how individuals can live with those, maintaining a good quality of life. To this end, they suggest three possibilities: a) abandonment of the areas and activities that remained impaired; b) compensation of these; c) acceptance of dependence related to lost domains, in order to spend energy on other goals.

This negative expression of old age, that is, the term "old", began to be replaced by the term "elderly", by some scholars and workers in the area, in Brazil, from the 1960s. Peixoto (2007) adds that this movement was due to a social issue, that is, the old man was associated with that individual without work and without state aid. In contrast to the old, the term elderly reflected a positive view of old age, less stereotyped, portraying the moment when the middle class way of life dissipated in the other classes of retirees who began to assimilate the idea of old age with quality of life. (SILVA, 2008). Thus, Hein and Aragaki (2012) perceived the elderly as "monetary capital", considering the pensions received, reflecting a socially respected person. At that time, Neri and Yassuda (2014), attributed to psychology the descriptive and explanatory improvement of old age as a stage of life, and the term elderly as that individual determined based on criteria given by society. The expression "third age", with few historical studies on its emergence, was verified in the French and English scenarios around 1950 and legitimized in Brazil in the 1980s, emerging as a substitute for the treatment of old age, influenced by gerontology and for the interests of the consumer culture, stabilizing and validating respect for retirees, aged 60 to 80 years old, active in the environment in which they live, their contribution to the generation and

propagation of a positive view of old age being decisive, and was aimed at delaying the signs of time (SILVA, 2008). Some experts in the study of aging, such as Neugarten and Laslett, referred to by Papalia and Feldman (2006), pioneers in referring to the denominations of early old age (old-young) and advanced old age (old-old) - refer to three groups of older people: the elderly-young, the elderly-old and the elderly-older. The term "young elderly" generally refers to people aged 65 to 74, who are usually active, full of life and vigorous. Elderly old people, 75 to 84 years old, and elderly-older people, 85 years old or more, are those who are more prone to weakness and illness and may have difficulty performing some activities of daily living.

There are also scholars, such as John Glenn, referred to by Papalia and Feldman (2006), who use the term "elderly-young" for the healthy and active majority of "old adults" and elderly-old for those frail and sick, regardless chronological age. However, Schneider and Irigaray (2008, p.586), point out that "the distinction between elderly-young, elderly-old and elderly-older people can help in the understanding that aging is not something determined by chronological age", because that it is the result of lived experiences and future expectations. Baltes and Smith (2006), in order to overlap denominations linked to chronological aspects, contributed with two terminologies: "old age" (initial old age or third age), which cannot be confused with old age with a chronological focus, and fourth age (old-old) with similarities and distinctions from what is normal old age, pathological old age and successful old age, for example.

Individuals of the fourth age have limited functional capacity, which consequently generates restrictions on research and social policy interventions, unlike what occurs in the elderly, which is characterized by positive aspects. To differentiate them, in general, these researchers used instruments based on population and personal parameters. Regarding the population parameter, "the transition from the third to the fourth age is the chronological age at which 50% of individuals belonging to the same birth cohort and are no longer alive" (BALTES, SMITH, 2006, p.11). Thus, the individual who is above the cutoff point would be in old age. Another definition, based on demographic criteria, maintains the 50% criteria, excluding people who died early in the calculation. In relation to the personal parameter, the distinction between the third and the fourth age is individualized, in which the duration of an individual's life is estimated, unlike the other parameter that is based on the population average. Therefore, the transition from the third age to the fourth may occur at different ages. Furthermore, the distinction between them may "be made according to the difference between the potential for a good quality of life, typical of the Third Age, and the negative potential of the Fourth Age to maintain and improve the quality of life" (BALTES, SMITH, 2006, p.12). Schneider and Irigaray (2008), point out that the differentiation of young elderly, old elderly and older elderly people can serve in the understanding that aging is not something verified by chronological age, but rather by the result of experiences and future expectations. In this sense, these authors defined as responsible and fundamental in the categorization of an individual as old or not, the following criteria: biological, related to body and mental changes verified throughout life; chronological, related to the passage of time in days, months and years; psychological, related to the connection between chronological age and psychological capacities or even the

individual's ability to adapt to the environment; social, related to habits, languages, the way the individual behaves in his environment, according to his chronological age, among others. The fact is that, as a result of complementary and inseparable processes understood under the individual (implying different life trajectory) and collective (built under different socio-cultural influences) plans, old age has generated a discursive proliferation about the state of old age and the subjects who embody the marks of time. Torres (2015) participates in the idea that old age, although defined based on the criteria of chronological age (from sixty years old) - which serves as an indicator of the functional capacity of individuals, disregarding gender and social class - stresses coexistence of psychological, functional, biological ages associated with old age. For the author, old age (a consequence of the aging process from the perspective of social representations) must be understood as a polysemic social object, which is why, in addition to analyzing social representations, the experiences of the elderly, weighing their environment social and family.

As an alternative to the homogenizing perspectives that object to the management of life and protection of old bodies, Santos and Lago (2016) emphasize that the particularities of individuals' experiences should be weighed up from joint or intersectional sets, enabling the analysis of the complexities of forces social and political aspects that shape the subjects and their actions. Thus, people belonging to the same chronological stage may be considered old or not, depending on the relationship established between the social context in which they are inserted and the outlines in which their bodies are enunciated. Corroborating, in order to demystify preconceived and stereotyped ideas of old age, Leite and Araújo (2017, p. 202), consider that the first step is the recognition of the individual's condition of being old. There is no defect in being what you are, since "being old is a form of empowerment, of resistance to changes imposed by society rooted in pejorative and prejudiced conceptions". Thus, the meaning of being old is based on subjective criteria, linked to social habits, such as preferences and lifestyles and objectives, related to the time / space of the social field.

From a modern medicine perspective, old age has been understood as a clinical problem and invariable processes, in which death is the result of diseases inherent to old age, with old age being a necessary phase of life in which the body is degenerated (TABLES, 2017). Anyway, the interpretations that individuals have about old age, generally, will be related to the way each of them lives, based on research, observations and discussions about the aging process and, consequently, old age, based on objective criteria. and subjective, such as gender, race/ethnicity, mental health, institutionalization, sociability, among others. Although the application of these criteria has been (and continues to be) fundamental in the process of building positive aging by demystifying homogeneous and static old age and the stereotype of the old as incapable/unproductive. It is currently observed that policy makers are more concerned with the possible negative impacts of population aging, as well as the increase in life expectancy on health rights and pensions, disregarding, with certain frequency, issues such as intergenerational cohesion at the moment when different generations compete for the same resources (ROWE; KAHN, 2015). There is a tendency of scientific and social speech, sometimes preaching for silence, or something to be avoided, now treating aging as an element of political investment by social movements or even market

dynamics, which is why it is not yet possible to define it in an absolute way old age in contemporary society, only its consideration as a stage of development.

CONCLUSION

Considering the research already carried out by professionals who work with themes related to human aging, there was a lack of consensus on concepts and limits of the life cycle processes that can be recognized as the results of changes and theoretical constructions given over the years. story. Although development and aging occur throughout life, both cannot be used as synonymous, being orchestrated by genetic-biological, psychological, and sociocultural influences that become more evident in old age, the last stage of development. At the same time, the understanding of old age runs through the chronological question. Considered a polysemic social object, it is possible to verify the displacement of the negative sense of the "old" expression, associated with losses and declines, suggesting an unproductive or incapable individual, towards a more positive sense of this stage, less stereotyped, in which the person is seen as a be able to achieve goals and develop skills, even in the presence of physical or mental disabilities, by maximizing positive aspects (gains) and minimizing negative aspects (losses), thus having a more satisfying life. Given the above, the objective of the research was achieved, hoping that it will serve as a subsidy for others that contemplate human aging, resulting in new knowledge that can be used to benefit the elderly population.

BIBLIOGRAPHIC REFERENCES

- _____. 2013. Concepts and theories about aging. In: MALLOY-DINIZ, L *et al.* Neuropsicologia do envelhecimento: uma abordagem multidimensional. Porto Alegre: Artmed.
- _____; Goulet, L. R 1970. Status and issues of a life span developmental psychology. In BALTES, Paul B; GOULET, L. R (Eds.), Life span developmental psychology: Research and theory. New York: Academic Press.
- _____; Smith, J 2006. New borders for our aging future: from the successful old age of the Young elderly till the dilemmas of the fourth age. In. A Terceira Idade, São Paulo: SESC, 17(36): 7-31, jun. 2006.
- _____. 2014. Successful aging: affective aspects and cognitives. 3^a ed. Campinas, São Paulo: Papirus.
- _____. 2015. Development and aging: biological perspectives, psychological and sociological. Campinas, SP: Papirus.
- Ballesteros, RF. *et al.* 2013. Active aging: a global goal. Current Gerontology Geriatrics Research.
- Baltes, PB. 1987. Theoretical propositions of the life span developmental psychology: on the dynamics between growth and decline. *Developmental Psychology*, 23(5), 611-626.
- Bispo, NNC *et al.* 2019. Successful aging in the perspective of old people. *Investigação Qualitativa em Saúde*. 2: 1303 - 11
- Bühler, C. 1976. Psychology in the life of our time. 2 ed. Lisboa: Fundação Calouste Gulbenkian.
- Erikson, EH 1988. The complete cycle of life. Porto Alegre: Artmed.
- Finch, C. 1990. Longevity, senescence, and the genome. Chicago: University of Chicago Press.

- Freire, SA. *et al.* 2012. Dealing with changes in aging: the model of selection, optimization and compensation. *Perspectives in Psychology*. 16 (1):190-211, jan/jun.
- Hein, MA. Aragaki, SS. 2012. Health and aging: a study of theses from Brazilian masters (2000-2009). *Collective health sciences [online]*. 17(8).
- Leite, ARL; Araujo, MSS 2017. Meanings of aging for those who get old. *Temporalis*, Brasília (DF), 17(33): 193-210, jan./jun.
- Moreira, JO 2012. Changes in the perception about the aging process: preliminary reflections. *Psychology: Theory and Research*, 28 (4):451-456, out/dez.
- Neri AL. 2006. The legacy of Paul B. Baltes about the psychology of development and aging. *Temas psicol. Ribeirão Preto*, 14(1), jun.
- Neugarten, B L. 1969. Continuities and discontinuities of psychological issues into adult life. *Human Development*, 12(2): 21-30.
