

## **Resilience Strategies for Successful Aging**

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### **Abstract**

*The objective of this research was to analyze the strategies resilience and SOC (selection, optimization and compensation) in elderly residents of Ivoti/Brazil. The methodology used was quantitative and descriptive. Participated in the study 193 people aged 60-79 years living in the city of Ivoti. The instruments used were the Resilience Scale and the Inventory SOC. It was found that the participants scored on scale high resilience and the SOC strategy used mostly was the selection for loss, followed by compensation. There was no significant difference in the use of strategies by men or women, or in relation to age groups 60-69 years and 70-79 years. The conclusion was that to be resilient may be a necessary factor for successful aging materializes.*

**Keywords:** Resilience; SOC; Successful aging.

### **1. Introduction**

When people think about the aging process, it is very common that the expected losses that come with age, along with the difficulties associated with them, that are referred in the first place. However, considering

that the aging process is irreversible, it must always be taken into account that the most important is how the elderly manages to deal with the losses related to old age, in order to maintain their functional capacity and quality of life in appropriate levels. This aspect is strongly related to the way in which the elderly person perceives their life and with the subjective characteristics related to an aging with quality of life [1].

An attempt to understand aging in an integrative way in physical, psychological, and social aspects culminated in Paul B. Baltes and Margret M. Baltes [2] lifelong development theory, known as lifespan, which advocates the possibility of a successful aging process. The lifespan paradigm deals with the study of individual development from birth to old age. The main premise of this approach is that development is not completed in adulthood but extends throughout the course of life. Since conception, adaptive processes of acquisition, maintenance, transformation, and wear are involved in the psychological and functional structures. Thus, it considers the ontogenesis of behavior and the mind dynamic, multidimensional, multifunctional and non-linear. This paradigm of development is of a pluralist nature, since it considers multiple levels, temporalities and dimensions of development. It can also be considered transactional, dynamic and contextualist as a continuous, multidimensional and multifactorial process of modifications, influenced by genetic-biological and sociocultural issues, of a normative and non-normative nature, demarcated by gains and losses and by the interaction between the individual and the culture [3]. Therefore, Baltes [1] developed the SOC - Selection, Optimization and Compensation intervention model as a way of describing development in general.

The SOC model seeks to situate how individuals can handle changes in the biological, psychological and social conditions that are constituted over the course of aging. Selection means specification and reduction of the alternatives allowed by individual plasticity. Regarding selection, there are two types: loss-based and elective. The first refers to the reorganization of the person's life based on some loss. In this type of selection there is a restructuring of the hierarchy of objectives, a search for new goals or adaptation of new standards that can be reached according to the person or the surrounding environment. Elective selection is characterized by the choice of a particular goal and the disregard of another not so important [4,5,6]. Optimization is consistent with the acquisition, expansion and maintenance of internal and external resources involved in achieving an operation more suited to the individual context. The focus of optimization is on acquiring, enhancing, and maintaining resources or resources that are effective in achieving desirable outcomes and avoiding those that are undesirable. It requires a systemic coalition between health factors, environment and psychological conditions, as well as investing in goals and pursuing goals. The compensation relates to the functional response that the individual manifests to a loss, seeking to maintain the functioning. Compensation is divided into two categories, the former being characterized as the change of objectives to be achieved, often shifting to a less ambitious objective, once the constraints begin to develop. The second is characterized by maintaining the same goal, but with the addition of differentiated strategies to achieve them. In summary, the compensation will involve the adoption of alternatives aimed at maintaining the operation [7].

Within the SOC model, the decline due to biological age can be compensated until the individual reaches a very advanced age. This compensation is determined by the allocation of internal resources and the contribution of culture, which act interactively. This process occurs properly until these factors enter

into imbalance, which would occur from the 80 years, at the present time [1].

Analyzing the strategies used to promote a healthy aging, it is necessary to promote protective factors since they are strong influencers of the ability to adapt to risk factors. This adaptation ability is called resilience. Considering resilience as a process, it is not possible that is an attribute of the person or a characteristic acquired throughout development [8]. It should be considered as an interactive phenomenon between the individual and his environment. Resilience is the human ability to cope, overlap and be strengthened or transformed by experiences of adversity.

Therefore, it is important that, with the aging process, the resilience capacity of the elderly is increased, so then the adaptive behavior can be maintained, as old age there is a greater probability of unpleasant events related to physical health, well-being and the life of loved ones.

The notion of resilience was created by the exact sciences, especially physics and engineering, which defined it as the maximum deformation energy that a material is capable of storing without undergoing permanent changes. When it was adapted to the human and medical sciences, the complexities related to the emotional aspects of the human being were considered [9]. Thus, with respect to the human being, resilience does not mean a return to an earlier state, but overcoming or adapting to a difficulty considered as risk [10].

The focus of resilience arises from efforts to understand the causes and evolution of psychopathology. These studies demonstrated that there was a group of children who did not develop psychological or social adjustment problems despite the researchers predictions [11, 12]. Pesce, Assis, Santos and Oliveira [8] agree that the definition of resilience converges to a sum of processes of social and psychic nature that allow healthy development even in non-healthy contexts.

Seligmann and Czikszentmihaly [13] studies explain how resilience can contribute to the quality of life construction. Infante [14] complements reporting that resilience reduces stress intensity and decreases negative emotional cues such as anger, depression, anxiety, while increasing curiosity and mental health. Therefore, the authors note that resilience has an effect not only to face adversity but also to maintain mental and emotional health.

Therefore, in the area of psychosocial intervention, resilience seeks to facilitate processes that involve the individual and his social environment, helping to overcome adversity, adapt to society and have a better quality of life [14]. In addition, even find ways to avoid and / or face the stress coming from the conflicts experienced at the time or throughout their life trajectory.

The idea of the cumulative effect of several risk events and their degree of adversity throughout life is defended by Pesce, Assis, Santos and Oliveira [8] as capable of generating negative development effects. This aspect is important to be considered in our study since the elderly population studied there is a great chance that the person will be exposed to this risk situation for a long time [15]. Rutter [16] further states that resilience is a result of the interaction between genetic and environmental factors, which is complex, since these aspects can act as both protection and risk factors.

It is known that the elderly, even under conditions of functional limitations and disabilities, can maintain a positive well-being sense. According to Neri [17], functional losses do not necessarily impede the continuity of emotional cognitive functioning. Like any human being, the elderly activates

compensatory mechanisms to deal with these losses.

Thus, in the process of aging, physical, psychological, and social role changes are challenges to the self and to the maintenance of human beings well-being. In this sense, old age can be characterized as a promising period for investigating factors and processes of resilience and vulnerability, and Couto [15] explains the importance of studying factors that promote resilience or vulnerability, because they can help to care and intervention with the elderly population with the aim of promoting successful aging.

In this sense, the present study aims to analyze the relationship between resilience strategies and the SOC model in elderly residents in the municipality of Ivoti / Brazil.

## **2. Method**

The present study is characterized as a quantitative, descriptive and transversal design research. A total of 193 elderly people in the age range between 60 and 79 years old, of both sexes, living in the city of Ivoti / Brazil, participated. The sample was selected proportionally by age and sex of each in the health centers. All the elderly enrolled in their respective health centers were invited to participate. Inclusion criteria were over 60 years of age, living in the municipality of Ivoti, not institutionalized or hospitalized and possess mental and health conditions to have independence and autonomy to participate in the study. Signing the Free and Informed Consent Form. The exclusion criteria were: to present dementia processes, fragility syndrome, to be hospitalized or institutionalized. The instruments used for the study evaluated the variables of successful aging and resilience strategies.

The SOC Inventory (Selection, Optimization, Compensation) explains the concept of successful aging. Paul Baltes, Margret Baltes, Alexandra Freund and Frieder Lang developed it in 1999 [18]. The inventory used in this study is a reduced version of 12 items described by Freund and Baltes [5] as more favorable and evaluates the use of SOC strategies by the elderly. Each item consists of two statements: one describing the behavior reflecting the SOC model and the other offering a reasonable, but not SOC, option. The participant must decide which of the two alternatives characterizes his behavior. Almeida, Stobäus and Resende [19] validated this version for Brazilian culture.

Wagnild and Young [20] developed the Resilience Scale to measure resilience assessed by levels of positive psychosocial adaptation to major life events. This scale is composed of 25 likert-type items ranging from 1 (totally disagree) to 7 (totally agree). The scores vary from 25 to 175 and the high values indicate high resilience [8]. The scale is divided into two factors, the first being the Personal Competence composed of 17 items and the second is Self Acceptance and Life Acceptance composed of 8 items. This scale was adapted by Pesce, Assis, Santos and Oliveira [8] and considered relevant for Brazilian culture.

The Research Ethics Committee of the University approved the project with number 747.080 and the participants of this study were contacted at the health centers through the Municipal Council for the Rights of the Elderly and the Secretariat of Health and Social Assistance of the Municipality of Ivoti partnership. Participants signed a free and informed consent form, according to the norms of resolution No. 466 of December 12, 2012 of the National Health Council of the Ministry of Health that deals with research involving human beings.

### 3. Results and Discussion

Initially, has been performed the analysis of the variable resilience and its factors, personal competence and Self / Life Acceptance, followed by analysis of the SOC variable (selection, optimization and compensation).

Considering the descriptive analysis of the resilience variable, it was possible to identify that the participants presented resilient characteristics, since the average score of the analyzed population was 142.85 (dp.13.80), considered high, since the scale varied from 24 to 168 , As can be seen in the histogram below.

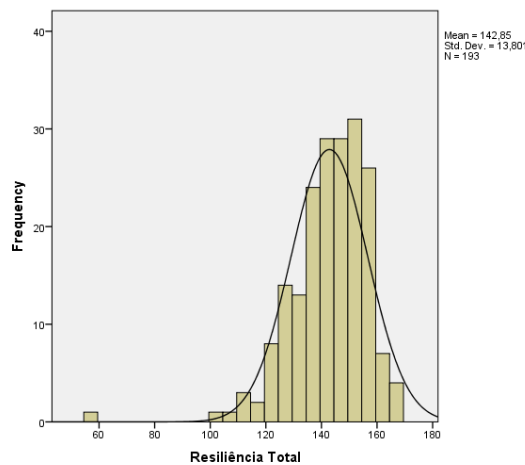


Figure 1 – Histogram of the variable Resilience

The original version of the Resilience Scale, developed by Wagnild and Young, was applied to 810 elderly people and represented by two factors: Personal Competence, Self / Life Acceptance. In the present study, has been maintained this subdivision, precisely because the study population is the same population chosen by these authors. The first factor: Personal Competence expresses self-confidence, independence, determination, mastery and perseverance. The second factor: Self / Life Acceptance expresses adaptability, balance, flexibility and a stable life perspective [20].

Considering the analysis of Personal Competence, the age group considered the most resilient was 75 to 79 years old, with an index of 106.58. In relation to the Self / Life Acceptance, the 65 to 69 age group had the highest score with an index of 41.81. Still observing the Personal Competence and Self / Life Acceptance proposed by Wagnild and Young [20], it is noticed that the first scored from 42 to 119 with a mean of 101.4, while the second scored from 15 to 49 , with a mean of 41.81. The average resilience indexes were 5.95 for Self / Life Acceptance and 5.98 for Personal Competence, which shows a small variation between these two factors, although not significant. These results are similar to those found by Couto [15] of 104 for Personal Competence and 41 for Self / Life Acceptance.

Table 1. Descriptive analysis of the factors of the variable Resilience

	N	Minimum	Maximum	Mean	Std Deviation
Resilience	193	57	168	142,85	13,801
Personal Competence	193	42	119	101,04	10,351
Self/Life Acceptance	193	15	49	41,81	5,012

Looking at the items on the scale individually, the ones that scored the most were: “My life has meaning” (6,66), “I am a friend of myself” (6,61), “In an emergency, I am a person whom other people can trust “(6.57),” I can face difficult times because I have encountered difficulties “(6.48),” I have an interest in things “(6,48) that refer to self-esteem, self confidence, self-efficacy, and problem-solving ability characteristic elements of a resilient person.

In relation to the resilience classification (low, moderate, high), only one person had a low index (between 24 and 75), 17 obtained a moderate score (76 to 125) and 173 had a high index (between 126 and 168). In the range of 60-69 years there was no low score in relation to resilience and in the range of 70-79 years only one participant had a low score.

Table 2. Distribution of the variable Resilience according to the age group

		Age range				Total
		60 – 64 years	65 – 69 years	70 – 74 years	75 – 79 years	
Resilience Classification	Low	0	0	1	0	1
	Moderate	9	2	3	3	17
	High	66	52	30	27	175
Total		75	54	34	30	193

In this study, statistical analyzes comparison between groups were also performed through the Mann-Whitney test to verify if there was a significant difference between the participants means according to the variables: age group and gender. Considering the age group, no significant difference was found. Even though each band was subdivided into two groups (60-64 years, 65-69 years, 70-74 years and 75-79 years), no significant difference was found ( $p < 0.05$ ). However, it can be seen that in relation to resilience the age group 65-69 obtained a higher average index (102,65).

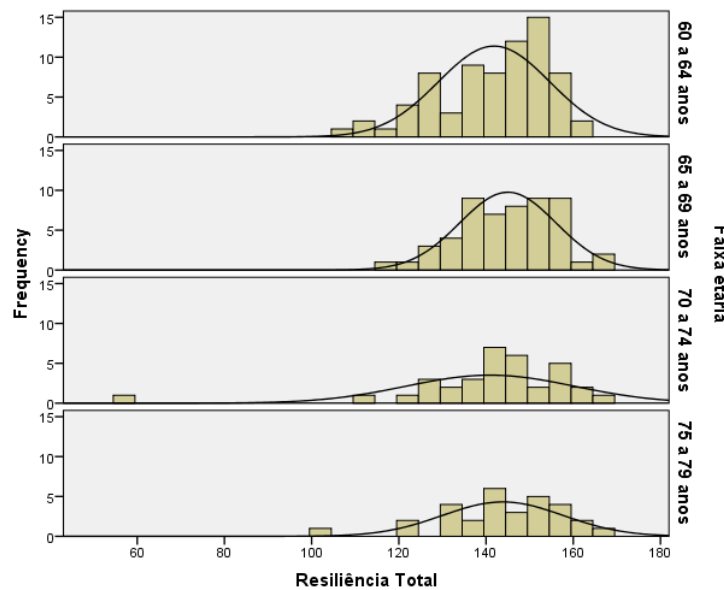


Figure 2. Comparative analysis of the variable Resilience in the age groups

Considering the analysis of Personal Competence, the most resilient age group was from 75 to 79 years old, with an index of 106.58. In relation to Self / Life Acceptance, the group from 65 to 69 age had the highest score (41.81).

Regarding sex, no significant difference was found since the men resilience rate was 95.50 and the women rate was 96.89. In Self / Life Acceptance factor men scored 99.90 and women 95.17. Observing the Personal Competence factor men scored 88.55 and women 99.61. Also regarding sex, it was evidenced that the sex with low resilience rating is a man. In addition, the age group shows that the person with low resilience is in the range of 70-74 years and that the largest number of resilient people is in the range of 60 to 64 years.

Performing a correlation analysis using Spearman’s coefficient ( $p \leq 0.05$ ), it was found that older people use more of the resilience strategy “doing things one day at a time” ( $\rho = 0.188$ ). However, they use less of the strategy “being on their own if they need it” ( $\rho = -0,155$ ).

Considering the variable strategy analysis for successful aging-SOC, in the case of the elderly evaluated in this study, the total mean obtained was 7.59, which may be considered adequate since the maximum score is 12 as can be Observed in the following histogram.

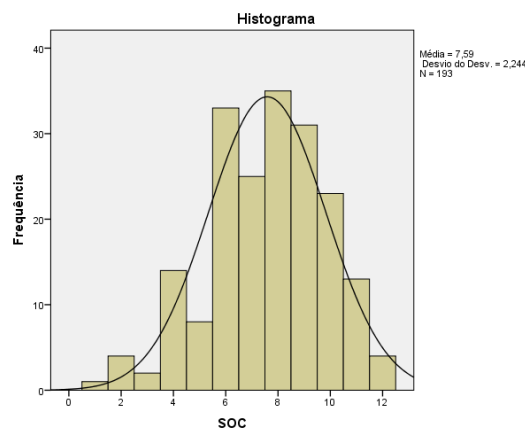


Figure 3 – Histogram of the SOC variable

In relation to the selection resource used by the elderly to achieve a successful aging, authors such as Freund and Baltes [4, 5] as well as Bajor and Baltes [6] distinguished selection based on losses and elective. In the study presented here, it can be observed that the selection based on losses obtained an average of 2.04 while the elective was 1.82. This fact may lead us to believe that loss selection was more commonly used by the elderly as a life strategy.

Considering the optimization and compensation items, the second averaged 1.89, while the first of 1.84. Thus, the strategy most used by the elderly participants of this study seems to be the selection by losses (2.04), followed by compensation (1.89), optimization (1.84) and finally by elective selection (1.82) that can be observed in figure 4.

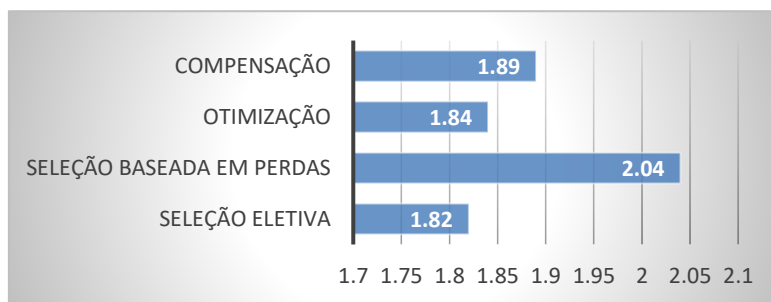


Figure 4. Distribution of the facets of the SOC variable

To investigate the relationship between the strategies use that lead to successful aging (SOC) and the resilience variable, the correlation analysis using the Spearman test at a significance level  $\leq 0.05$  was used. The results are presented in table 3 and show that the resilience has a positive relation ( $\rho = 0.155$ ;  $p = 0.032$ ) with the SOC model. Thus, in this study it is assumed that being resilient may be a necessary factor for successful aging take place.

Table 3. Correlation of SOC and Resilience variables (N = 193)

Variable		<i>rho</i>	<i>p.</i>
SOC	Resilience	0,155	0,032
SOC	Resilience10 – I am determined	0,182	0,012
SOC	Resilience11 – I rarely think about the purpose of things	-0,199	0,006
SOC	Resilience17 – In an emergency, I am a person that people can trust	0,178	0,013
SOC	Resilience 20 – My life has meaning	0,179	0,013
SOC – Elective selection	Resilience	0,144	0,047
SOC – Elective selection	Resilience – Acceptance of self and life	0,154	0,033
SOC – Elective selection	Resilience10 – I am determined	0,167	0,021
SOC – Selection by losses	Resilience	0,144	0,047
SOC – Selection by losses	Resilience – Acceptance of self and life	0,154	0,033
SOC – Selection by losses	Resilience10 – I am determined	0,167	0,021
SOC – Selection by losses	Resilience11 – I rarely think about the purpose of things	-0,183	0,011



SOC – Selection by losses	Resilience 17 – In an emergency, I am a person that people can trust	0,155	0,031
SOC – Selection by losses	Resilience 20 – My life has meaning	0,217	0,003
SOC – Optimization	Resilience 5 – I can be on my own if I need to.	0,153	0,034
SOC – Optimization	Resilience 17 – In an emergency, I am a person that people can trust	0,199	0,006
SOC – Optimization	Resilience 20 – My life has meaning	0,146	0,045
SOC – Compensation	Resilience 8 – I’m friends with myself	0,160	0,027
SOC – Compensation	Resilience 21- I do not insist on things that I can not do anything about	-0,159	0,028

It can be identified in table 3 that the strategies of the SOC model for facilitating a successful aging process is positively correlated with the resilient characteristics of being determined, being a person available when others need and realizing that their life has meaning. The SOC also has a negative correlation with rarely thinking about the objectives of the situations.

Elective selection, from the SOC model, is positively correlated with resilience, with the resilience facet of Self / Life Acceptance, and with the resilient characteristic to be determined.

The loss-based selection of the SOC model is positively correlated with the same variables of elective selection, but it also adds to the perception of the characteristics of being a reliable person, of life having meaning. Loss-based selection is negatively correlated with rarely having goals for their actions.

The optimization of the SOC model is positively correlated with resilient characteristics of autonomy, being a person in whom others place trust and again the perception of life making sense.

By contrast, from the SOC model, is positively correlated with the resilient characteristic of being friends with oneself and negatively correlated with the proposition of not insisting on things about which it can do nothing.

It believe to have found in this study an outcome similar to that evidenced by Lopes and Massinelli [(2013) who analyzed the level of resilience of caregivers of elderly people with Alzheimer’s between 50 and 67 years old, identifying an average resilience of 147.2 points, considered high. In addition, Couto [15], when studying 111 elderly residents of Porto Alegre and Rio Grande, both cities in the State of Rio Grande do Sul/Brazil, found a total resilience of 144.9.

Still analyzing the fact that the elderly participants of this study were autonomous and independent, not being institutionalized can be explained to the high index of resilience evidenced. Walsh [22] also points out that elderly people who are kept in their homes with low doses of medicines do not show serious reductions in their competencies as institutionalized ones, which tend to be medicated and isolated from people and family environments.

In addition, it is observed that in all the age groups of the study, there is a predominance of the highest classification. It is interesting to note that, a research carried out in Sweden [23] showed higher resilience scores between the older part of the population than among the younger ones. Based on these assumptions, one may think that the ability to incorporate positive emotion into daily life may be the path

to resilience [24]. Valada [25] explains that the elderly population of his study is in a life phase marked by adversities, but, despite this, shows a capacity for adaptation to all the changes inherent to aging, being verified that they are multifactorial aspects and not the age condition for a satisfactory development.

Considering aspects of personal competence, one of the most punctuated items in this research, Hardy, Concato and Gill [26] explain that psychosocial and functional factors, such as well-being and autonomy, are important predictors of disability and illness, having more significant than clinical or demographic factors in relation to successful aging, associated with resilience. Strandberg and Pitkälä [27] in a Japanese centenarians study identified nine factors related to autonomy that can lead to resilience: preserved daily life activities, good social and cognitive status, regular exercise, wake up spontaneously in the morning, mastication preserved, not being a drinker, have no severe drop after age 95, frequent protein intake, live at home and be a man.

In addition, in relation to psychosocial factors, Baltes and Smith [3] affirm that SOC is a psychosocial construct and that study expression reaches its peak in adulthood, accentuating itself in aging as a plan of selection and compensation with personal and contextual characteristics Specific. Teixeira and Neri [28] complement by stating that the focus is the continuous search for an effective way of dealing with losses through psychological strategies. In our study, selection by losses was the strategy most chosen by the elderly residents of Ivoti, which seems to be adequate to the exposed by the authors mentioned above.

Melillo [29] reports that in relation to gender differences in conflict resolution, both present the same frequency of resilient behavior. Despite this, female people tend to rely on interpersonal skills and inner strength, while males tend to be more pragmatic. Valada [25] found that women, in a study carried out in Portugal, are more able to be involved and productive in social and family life that is because they have the possibility of establishing strong family ties, friendship and domestic productivity, generally inaccessible to older men for cultural reasons.

In relation to this study, with respect to gender and its relationship with resilience, Fortes, Portuguese and Argimon [10] and Cardoso [30] observed that women present a somewhat higher mean in the resilience scale, however, found a significant difference.

In a study by Jeste, Savla, Thompson, Vahia, Glorioso, Palmer and Depp [31], with a sample of people between 50 and 80 years (with the highest number of individuals over 80 years), it was identified that resilience is a predictive variable of successful aging.

Fontes [32] argues that successful aging models can offer a variety of mechanisms and strategies to increase the resilience of older people. However, these models have been criticized because associate the possibility of aging well with the availability of social and health resources. However, despite this, scholars in this field argue that there is a wide range of possibilities for developing the capacity to recover from adversity of life, since for the resilience to manifest it is necessary that there are situations of risk, aging can be considered one of them.

It is important to consider that being resilient is different from having an aging marked by the absence of illnesses, since elderly people even if they experience some form of disability can be considered resilient [33].

Therefore, from the data collected and analyzed in this study, it is identified that successful

resilience and aging are effectively interconnected, and the more resilient the person is in different areas of their daily lives, the more likely they are to have successful aging.

#### **4. Conclusion**

By the analyzed population it was concluded that they has a high index of resilience. No significant differences were found between the variables gender and different age groups regarding the resilience level. In the aging process, it is necessary that the resilience capacity of the elderly had increased, in order to be able to maintain the adaptive behavior, since in old age the probability of stressful events is greater. It is also considered that the aging process implies new demands that can be individual, family, government and society challenges in general and it is believed that the promotion of health depends on joint action between society, academia and the government. In this way, it is confirmed that social support (family, community, government) is important in the aging process, as it integrates the elderly into the community, minimizes the risks of social exclusion and favors the development and maintenance of resilience, which can lead to to successful aging.

In the national literature, there are few studies that seek to understand the strategies of selection, optimization and compensation for a successful aging; this research brings important data about the SOC strategies, which is expected to be the beginning of a larger understanding of these psychological strategies. It emphasize the importance of understanding these mechanisms in terms of intervention planning for the elderly in situations of vulnerability, since they are subjective and susceptible to increase. Therefore, it can be concluded that being resilient may be a necessary factor for successful aging.

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