

## HOPE, COGNITIVE FUNCTIONING AND DEPRESSIVE SYMPTOMS IN THE ELDERLY

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**Abstract: Introduction:** As people age, they need to have quality of life, and for this, topics such as hope, cognitive functioning and depressive symptoms need to be further explored. **Objective:** to verify the relationship between hope, cognitive functioning and depressive symptoms in the elderly. **Method:** observational, cross-sectional study with a descriptive analytical approach. The instruments used were the Mini Mental State Examination (MMSE) for sample selection, the Consortium to Stabilize a Registry for Alzheimer's Disease (CERAD), the Dispositional Hope Scale and the Geriatric Depression Scale (GDS-15). Correlation analyzes (Spearman) between the Dispositional Hope Scale were compared with the CERAD and GDS instruments. **Results:** The sample consisted of 101 elderly people, 20 of whom were excluded because they had scores below 28 points on the MMSE, and 81 were analyzed. LOL. The Word List was significantly related to the Dispositional Hope Scale, pointing to higher average Hope scores in the investigated group, with expected classification for the total Hope ( $p=0.001$ ) and the Ways Dimension ( $p=0,011$ ). **Conclusion:** Hope is a positive adaptation, a protective factor of the psyche and transformation of negative behaviors, thoughts and feelings into new possibilities, enabling the elderly to face life's cumulative stressful circumstances. High levels of hope and the absence of depressive symptoms contributed for these individuals to present a better cognitive performance in tasks of Boston Naming, Verbal Fluency and Semantic Verbal Fluency and Phonological Fluency and Language, Executive Function and Long-Term Memory.

**Keywords:** Elderly. Cognitive functioning. Depressed symptoms. Hope.

## INTRODUCTION

The health of the elderly is related to global functionality, the ability to function alone, manage their own lives, even with some disease (MALLOY-DINIZ; MATOS, 2017). It is noted that independence refers to cognition and mood. Cognition includes memory, executive and visuospatial function, language, gnosis and praxis; and mood is related to motivation, becoming a cognitive disability when cognition and mood are not adequate (AMERICAN ASSOCIATION OF PSYCHIATRY, 2016). In aging, it is possible to associate depressive symptoms with cognition, as there is a decrease in health, functional capacity and problem solving (DALE et al. 2018). One of the main symptoms of depression is hopelessness, because it plays a key role in the trajectory of depression (AMERICAN ASSOCIATION OF PSYCHIATRY, 2016).

Hope is one of the constructs of Positive Psychology (PP), learned and stimulated throughout life, which has helped, through cognitive stimuli, in coping with problems that occur in the aging process (GUPTA; SINGH, 2020). Hope is the ability to create goals for life (BARROS-OLIVEIRA, 2008) and, for a person to keep moving toward goals, two senses are important: agency, which is energy directed toward goals; and ways that comprise planning to meet goals (SNYDER, 2000).

As for the levels of hope, it is believed that people who have the highest levels "have better social relationships, are more likely to contribute to their community and have better health and life expectancy" (HUPPERT; SO, 2009, p. 1). Studies prove that positive feelings and emotions predict resilience in the face of adversity (GUPTA; SINGH, 2020), increase happiness, optimism (FREDRICKSON; JOINER, 2002), strengthen psychological aspects YAGHOOBZADEH; SCHÜTZE, 2017). and reduce cortisol levels in relation

to stress (STEPTOE; WARDLE; MARMOT, 2005).

## **METHOD**

### **DESIGN**

It is an observational, cross-sectional study with a descriptive analytical approach.

### **SAMPLE AND SAMPLING**

The sample calculation consisted of 101 elderly people, 20 of whom were excluded because they had scores below 28 on the MMSE test. There were 81 participants who were aged 60 years or older, did not have cognitive deficits and participated in different community centers in Porto Alegre-RS. Those with cognitive impairment, depressed mood and those who did not complete all instruments were excluded.

### **SELECTION CRITERIA**

#### **INCLUSION CRITERIA**

Age equal to or greater than 60 years, who did not present cognitive deficits, according to the MMSE, and who participated in different community centers in Porto Alegre-RS.

#### **EXCLUSION CRITERIA**

Exclusion criteria: had cognitive deficits and dementia; and refused to participate in the research.

### **SAMPLE SIZE**

The sample size was dimensioned, taking into consideration, that the main analysis carried out refers to the correlation between the Dispositional Hope Scale, cognition and depressive symptoms (GDS). These parameters were used: 95% confidence level, correlation coefficient ( $r$ ) of at least 0.300 and maximum acceptable error ( $w$ ) of  $\pm 0.1$ . To

calculate the sample size, we used the formula for the standard error of the correlation  $[(1-r^2)/\sqrt{n}]$  (ARMITAGE; BERRY, 1971), definindo-se o erro máximo aceitável ( $w$ ) como  $[1,96 (1-r^2)/ \sqrt{n}]$ . Thus, a minimum sample size of 81 investigated was estimated. Sampling followed the non-probabilistic character in the convenience format.

## **RESULTS**

Table 1 below presents the characterization of the sociodemographic information of the studied population.

Graph 1 shows the average scores for the Hope Scale, according to the GDS Scale ratings.

Regarding the relationship between the Dispositional Hope Scale and the CERAD battery, there was a significant difference in the Boston Naming, and the group with expected classification had a higher mean Hope in the Total Hope ( $p < 0.001$ ) and in the Ways Dimension ( $p < 0.001$ ) (Chart 2).

Significant results were also maintained when the Boston Naming scores were compared with the Dispositional Hope Scale, in which statistically significant and positive correlations were detected with the total Hope ( $r_s = 0.231$ ;  $p = 0.038$ ) and with the Ways Dimension ( $r_s = 0,237$ ;  $p = 0,033$ ).

The Word List was significantly related to the Dispositional Hope Scale, pointing to higher average Hope scores in the investigated group, with Expected classification for Total Hope ( $p = 0.001$ ) and for the Initiative Dimension ( $p = 0.011$ ).

In Graph 3, the Hope Scale is presented in the Word List classifications.

On the Long-Term Memory, Language, Executive Function test, there was a statistically significant and positive correlation with the Ways Dimension ( $r_s = 0.304$ ;  $p = 0.039$ ), indicating that high scores in this dimension were correlated with high scores in Language.

Sociodemographic characteristics	Sampe (n=81) *	
	N	%
Gender		
Female	63	77,8
Male	18	22,2
Afe (years) <sup>A</sup>		
Mean ± standard deviation (amplitude)	67,6±7,1 (60 - 88)	
Median (1st - 3rd quartile)	66,0 (62,0 - 72,0)	
Age		
From 60 to 69	51	63,0
From 70 to 79	22	27,2
80 or over	8	9,9
Marital status – DA=1 (4,2%)		
Married/ the person lives in a stable relationship	47	58,0
Divorced/separated	12	14,8
Single	5	6,2
Widow	17	21,0
Marital statud – DA=1 (1,2%)		
The person lives in a stable union	47	58,0
The person does not live in a stable union	34	42,0
Residence – DA=1 (1,2%)		
Porto Alegre	65	80,2
Metropolitan Region of Porto Alegre	8	9,9
Countryside and other states	6	7,4
Porto Alegre - Abroad (Lisbon/Miami)	2	2,5
Ethnicity – DA=1 (1,2%)		
White	75	93,8
Brown	5	6,3
Currently payed activity		
No	37	45,7
Yes	44	54,3
Currently studying -DA=2(8,3%)		
Yes	19	23,5
No	62	76,5
GROUPED education level		
Elementary School	8	9,9
High school	13	16,0
University level	41	50,6
Post-graduation	19	23,5

School repetition – DA=1 (1,7%)

0 No one	60	74,1
1 One	16	19,8
2 Two or three	5	6,2

With whom resides – DA=1 (1,7%)

1 Single	25	30,9
2 Spouse	27	33,3
3 Spouse, children, grandchildren, daughters-in-law	29	35,8

Table 1 – Characterization of sociodemographic information

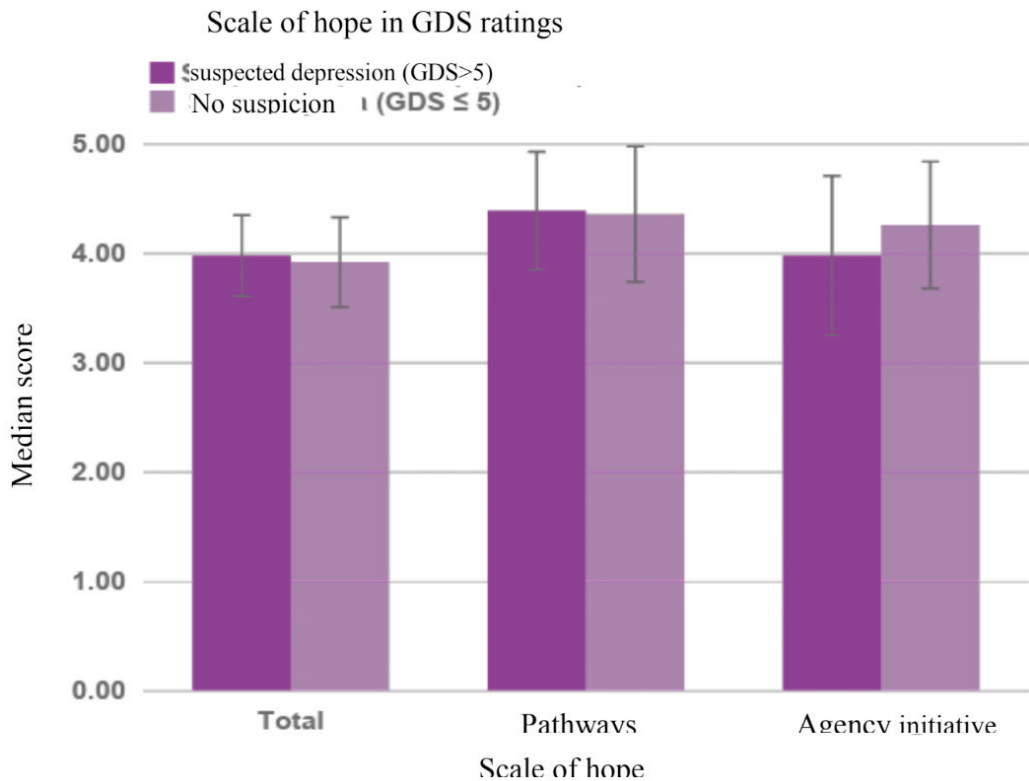
\* Percentages obtained on the total sample.

A: Symmetrical distribution (Kolmogorov Smirnov Test

;  $p=0,522$ )

DA: Missing data.

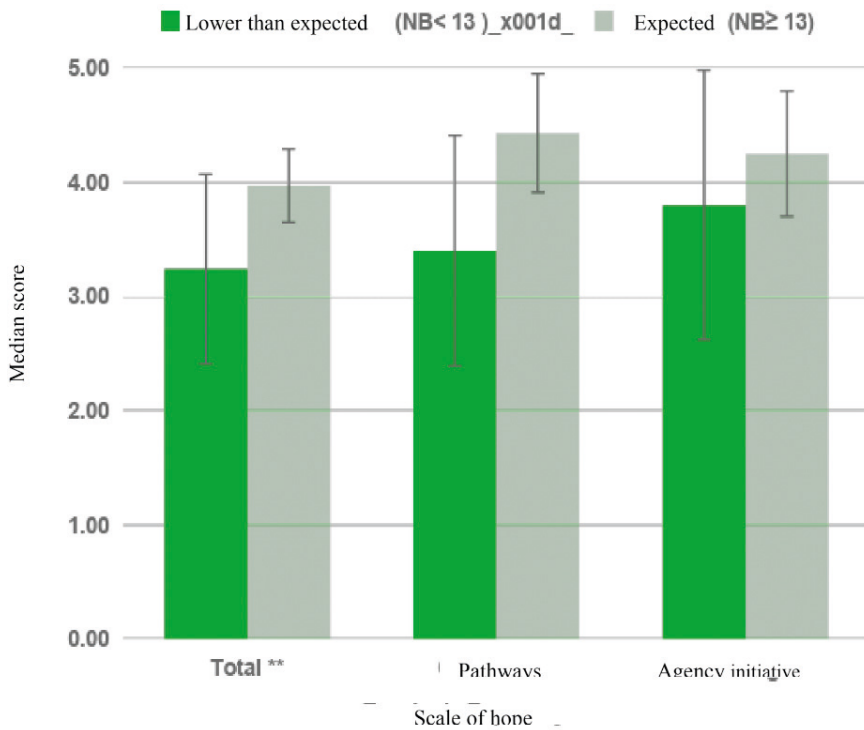
Source: research data



Graphic 1 – Mean scores for the Hope Scale, according to the GDS Scale ratings

Source: research data

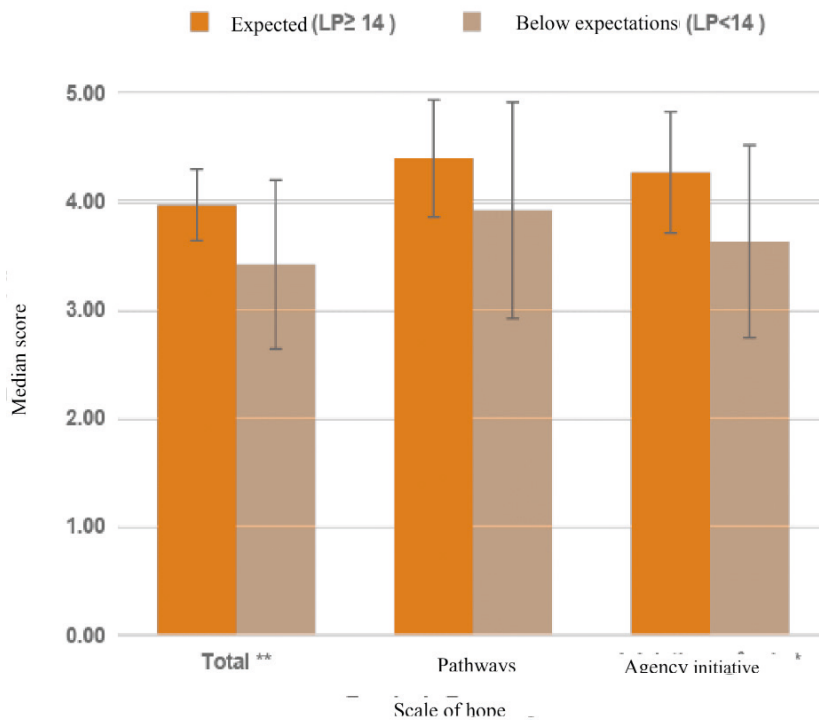
## Scale of hope in the Boston nomination ratings



**Graphic 2** – Mean Scores for Hope Scale, as per the Boston Nominating Rankings

Source: research data

## Scale of hope in the list of words



**Graphic 3** – Hope Scale on Word List Ratings

Source: research data

Next, Table 2 is displayed in full – with the correlation analysis and comparisons of the scale means. Graph 1 shows the average scores for the Hope Scale, according to the GDS Scale ratings.

## DISCUSSION

It was observed that there was a relationship between hope, cognitive functioning and depressive symptoms in the elderly. The results of this study refer to a sample of 81 investigated, predominantly female, 77.8% (n=63).

On the Dispositional Hope Scale, the total score averaged 3.9 (sd = 0.4). Considering that the scores for the scale can vary from 1 to 5 points, it is estimated that those investigated concentrated on the highest scores on the scale. Besides, regarding the dimensions of the referred scale, the estimates of the highest values were maintained, with an average of 4.2 (sd = 0.6) for the Agency and 4.4 (sd = 0.6) for ways. Individuals who remain with hopeful behaviors (Agency and Ways) have greater goals in various areas of life and perform more complex tasks and, when facing difficulties, are more flexible and find alternative goals and ways (HARTMANN JÚNIOR et al., 2018). The Hope of the Way, that is, planning, remaining or even changing the route or way of one's actions, in order to reach the desired goals, with motivation and persistence, were the most relevant factors in the perception of aging compared to other variables, such as satisfaction with life and socioeconomic status (YAGHOOBZADEH; SCHÜTZE, 2017).

With regard to the Word List, its results were related to the Dispositional Hope Scale, pointing to higher average Hope scores in the investigated group, with expected classification for the total Hope (p=0.001) and the Ways Dimension (p =0.011). As the majority of the sample was female, these results confirm that, in Verbal Fluency tests,

linked to language, women have higher scores than men (HARADA; NATELSON LOVE; TRIEBEL, 2013).

Regarding depressive symptoms, the elderly in this research did not present scores that would confirm this problem, as in the GDS scale, 86.4% (n=70). In the Boston CERAD Naming Battery, scores ranged from 4 to 15, with an estimated average of 14.5 (sd = 1.5) points. As for the classification of scores, 6.2% (n=5) classified themselves, presenting scores above expectations. It is noteworthy that hope is related to emotional and cognitive aspects (SNYDER et al. 2002). Thus, for the individual to have autonomy, it is necessary that cognition and mood are adequate (``ASSOCIAÇÃO AMERICANA DE PSIQUIATRIA``, 2016).

The ages of the present sample ranged from 60 to 88 years, and the estimated mean age was 67.6 (sd = 7.1) years. When approaching age by age groups, the highest concentration occurred among those investigated from 60 to 69 years old, 63.0% (n=51). As for paid activity, 54% (n=44) answered that they were still working, with 20.5% (n=9) being teachers; 13, 6% 9 (n=6), entrepreneurs/microentrepreneurs; 11.4% (n=5), vendors/traders.

With regard to the level of education, 50.6% (n=41) had Higher Education, followed by cases with Post-Graduation, 23.5% (n=19), with a low rate of school failure 26.0% (n=21). The level of education is an important aspect for the formation of a cognitive reserve (FARINA et al., 2020). It is noted that a large part of the sample is under 70 years old, has a high level of education and expected cognition, and does not suspect depressive symptoms. functional (DALE et al. 2018), which was not observed in this research. Lopes, Bastos and Argimon (2017) comment that these factors contribute to a “cognitive reserve” and that they can help to delay the

Hope Scales	Total		Ways		Agency Initiative	
	Average	DP	Average	DP	Average	DP
	GDS	$rs = -0,065$ ; $p=0,567$		$rs = -0,136$ ; $p=0,227$		$rs = -0,310$ ; $p=0,005$
GDS classification						
GDS > 5 suspected depression (n=11)	3,98	0,37	4,39	0,54	3,98	0,73
GDS <=5 without suspicion (n=70)	3,92	0,41	4,36	0,62	4,26	0,58
p¥	0,663		0,897		0,149	
Bateria CERAD Nomeação de Boston (Long Term Memory, Language and Gnosia)	$rs = 0,231$ ; $p=0,038$		$rs = 0,237$ ; $p=0,033$		$rs = 0,106$ ; $p=0,033$	
[rs; p]						
Boston Class nomination						
NB< 13 below expected (n=5)	3,24	0,83	3,40	1,01	3,80	1,18
NB>= 13 Expected (n=76)	3,97	0,32	4,43	0,52	4,25	0,55
p¥	<0,001		0,001		0,107	

**Table 2 - Complete** – Correlation analysis (Spearman) and mean comparisons of the Expectation/Hope scale and psychological tests Expectation/Hope and Cognitive Assessment tests

rs; Spearman correlation coefficient; ¥ Mann Whitney U test;

Very weak correlation |0.000| a |0.199|; weak correlation|0.200| a |0.399|, moderate correlation-; |0.400| a |0.699|; strong correlation |0.700| a |0.899|; and very strong correlation|0.900| to |1.00|.

onset of dementia, because different studies associate low education and increasing age with cognitive difficulties in the elderly.

With regard to marital status, most of the sample declared themselves married/living in a union, 58.0% (n=47); followed by widowhood, 21.0% (n=17). Because they are young elderly people, most of them continue to live with their partners, leading an active and independent life, and this is an important factor at this stage of life ((MORAES; MARINO; SANTOS, 2010). They also have, as a protection factor, social activities, participating in social groups and maintaining bonds of friendship (DACHS, 2002).

Physical activities were performed by 63.0% (n=42) of respondents, such as aerobic and anaerobic exercises, each representing 80.4% (n=41) and 47.1% (n=24). Many investigated practices more than one physical activity. Regarding the weekly frequency of these activities, 53% (n=27) perform them

four or more times, and 23.5% (n=12), twice a week. This pattern of behavior preserves their autonomy and independence (MORAES; MARINO; SANTOS, 2010), their self-esteem (DACHS, 2002). Besides, a healthy lifestyle is considered a protective factor (HÖTTING; RÖDER, 2013).

As for religion (spirituality), 95.1% (n=77) follow some type, and, regarding frequency, 37.7% (n=29) mentioned participating once a week; and 33.3% (n=19), never exercise it. Religious practices and spirituality are included as strategies for dealing with stress, as ways of relieving tension, suffering and unpleasant situations and even giving meaning to life. (SUDHIR; SANGU; AGOSTINHO, 2020).



## FINAL CONSIDERATIONS

Comparing the Dispositional Hope Scale and the CERAD instrument, a statistically significant and negative correlation was identified with the agency/initiative, indicating that high scores on the GDS are correlated with low scores on the initiative dimension. When the mean scores on the Hope Scale were compared to the GDS ratings, no significant differences were found between them. There was a significant difference in the Boston Nomination, whose group with expected classification had a higher average hope in the Total Hope and in the Ways Dimension.

Significant results were also maintained when the Boston Naming scores were

compared with the Dispositional Hope Scale, in which statistically significant and positive correlations were detected with the total Hope and with the Ways Dimension. The Word List was significantly related to the Dispositional Hope Scale, pointing to higher average Hope scores in the investigated group, with expected classification for Total Hope and the Initiative Dimension. On the Long-Term Memory, Language, Executive Function test, there was a statistically significant and positive correlation with the Ways Dimension, indicating that high scores in this item were correlated with high scores in Language. Therefore, it appears that there may be a relationship between hope, cognition and depressive symptoms.

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