



ORIGINAL ARTICLE

Intervening factors in the perception of memory decline and life purpose in older adults

Fatores intervenientes na percepção de declínio de memória e propósito de vida em idosos

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KEYWORDS

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ABSTRACT

Objective: To investigate the relationship between the perception of memory decline and the purpose of life in the elderly.

Methods: A cross-sectional study that evaluated 235 older adults living in the city of Maringá, Paraná. A sociodemographic questionnaire, the Life Purpose Scale and the Subjective Cognitive Decline Initiative (SCD-I) were used. Data analysis was conducted using the Kolmogorov-Smirnov, Mann-Whitney “U”, Kruskal-Wallis, and Pearson’s Chi-square tests ($p < 0.05$).

Results: The results showed a higher prevalence of women with a perception of memory decline ($p = 0.011$) and that the elderly with more than three minimum wages had higher scores on the life purpose scale than the elderly with lower income. It was found that the elderly who does not consider that the deterioration of memory affects activities of daily living (ADL) had a greater purpose in life than the elderly who considers that the deterioration of memory impairs their ADL ($p = 0.004$).

Conclusion: female gender seems to be a factor associated with memory decline, while higher monthly income seems to be an intervening factor in the greater purpose of life of the elderly. Not considering that memory loss harms ADLs, it seems to intervene in the best purpose of life.

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PALAVRAS-CHAVE

Bem-estar
Envelhecimento
Memória

RESUMO

Objetivo: investigar a relação entre percepção do declínio de memória e o propósito de vida de idosos.

Métodos: Estudo transversal que avaliou 235 idosos residentes no município de Maringá, Paraná. Foram utilizados um questionário sociodemográfico, a Escala de Propósito de Vida e o *Subjective Cognitive Decline Initiative (SCD-I)*. A análise dos dados foi conduzida por meio dos testes de Kolmogorov-Smirnov, “U” de Mann-Whitney, Kruskal-Wallis e Qui-quadrado de Pearson ($p < 0,05$).

Resultados: Os resultados evidenciaram maior prevalência de mulheres com percepção de declínio da memória ($p = 0,011$), e que os idosos com mais de três salários-mínimos apresentaram pontuações mais elevadas na escala de propósito de vida do que os idosos com renda mais baixa. Verificou-se que os idosos que não consideram que a piora da memória prejudica as atividades de vida diária (AVD) apresentaram maior propósito de vida do que os idosos que consideram que a piora da memória prejudica as AVD ($p = 0,004$).

Conclusão: o sexo feminino parece ser um fator associado ao declínio de memória, enquanto a maior renda mensal parece ser um fator interveniente no maior propósito de vida dos idosos. Não considerar que a perda de memória prejudica as AVD, parece intervir no melhor propósito de vida.

INTRODUCTION

Currently, the elderly population is the fastest-growing in the world due to the increase in life expectancy. In this sense, we need initiatives aimed at this population to develop activities that promote aging with autonomy, independence, and quality of life¹.

The aging process results in a wide variety of molecular and cellular damage over time, leading to a gradual decrease in physical and mental capacities and vulnerability to disease¹. For Nieman², these changes become more significant after 65 years old, causing declines in visual and auditory functions, in addition to mental impairment, especially the gradual loss of memory, which is associated with anxiety, depression, stress, adverse reactions to certain medications, and sleep disorders³.

It is possible to find a study involving the relationships between depression and isolation in the elderly population⁴, a longitudinal study on the functional capacity and physical performance of the elderly community⁵, a study evaluating the auditory and cognitive functions⁶, among others. However, we found few recent studies addressing issues related to memory decline or loss in the elderly population and other associated variables⁷⁻⁹.

A variable widely explored recently is the purpose of life, characterized by the responsibility and reason of men for their existence (inner strength)^{10,11}. It is a psychological construct that refers to finding meaning in experiences and establishing goals and objectives in their life, whether short, medium, or long term¹⁰. Regarding the elderly population, the most recent study found was Santos et al.¹¹, which investigated the association of social participation with the variables of gender, age, education, number of diseases, mobility, and purpose of life in the elderly people.

Thus, there is a scientific gap in investigations that address the decline in memory and life purpose in elderly populations. Because of the above considerations, this study investigated the relationship between the perception of memory decline and the purpose of life in the elderly population.

METHODS

This quantitative, observational, analytical, and cross-sectional study was approved by the Research Ethics Committee of the Centro Universitário Metropolitano de Maringá (CAAE 92406318.0.0000.8036, opinion number 2.789.375).

Participants

The sample was chosen for convenience, composed of 235 elderly people of both genders, living in Maringá, Paraná. We included people aged 60 years or older who were present at an Academy for the Elderly (*Academia da Terceira Idade - ATI*) and who agreed to participate in the research.

We excluded elderly people with hearing and/or cognitive deficits that prevented data interpretation. This possible cognitive deficit was assessed by the Mini-Mental State Examination (MMSE)^{12,13}.

Instruments

To characterize the demographic profile of the elderly participants, the authors applied a questionnaire containing questions regarding age, age group, gender, monthly income in minimum wages (MW), marital status, education, and retirement. A question about self-perception of memory decline with advancing age was also included.

To assess the purpose of life, we used an instrument with ten items derived from the original scale by Ryff and Keyes¹⁴, validated by Ribeiro, Neri, and Yassuda¹⁵. This is a self-reported measure, whose responses are indicated on a scale from 1 (strongly disagree) to 6 (strongly agree). To interpret the results, higher scores indicate greater purpose in life.

To assess the perception of memory decline, we used the Subjective Cognitive Decline Initiative (SCD-I). This instrument in the elderly population is increasingly recognized as a potential indicator of non-normative

cognitive decline and possible progression to dementia¹⁶. Oliveira et al.¹⁷ observed that this instrument in elderly Brazilians is a good potential indicator of non-normative cognitive decline and eventual progression to dementia.

Procedures

Before starting the data collection, a team of researchers was adequately trained, and we also used a pilot test with 20 elderly people. The elderly volunteers were approached by the responsible researcher or the research team, informed about the justification, objectives, and procedures to be performed, according to guidelines for research with human beings contained in Resolution 196/96 of the National Health Council.

After these procedures, those who agreed to participate in the research signed the informed consent form. The collection was conducted at ATI, on different days, shifts, and times, according to the researchers' availability, from March to July 2019.

A direct interview was chosen to apply the questionnaires due to the possible difficulties in reading, visual problems, and understanding the questions.

Data analysis

Data analysis was performed using SPSS software (IBM SPSS Statistics for Windows, Version 23.0. Armonk, NY: IBM Corp.), using descriptive and inferential statistics. Frequency and percentage were used as descriptive measures for categorical variables. For numerical variables, the normality of the data was initially verified using the Kolmogorov-Smirnov test. As the data did not present a normal distribution, median (Md) and quartiles (Q1; Q3) were used to characterize the results. The comparison of the purpose of life as a function of sociodemographic variables and the perception of memory impairment was performed using the Mann-Whitney and Kruskal-Wallis "U" tests. Pearson's chi-square test (χ^2) was used to verify the association of the perception of memory impairment with the sociodemographic variables of the elderly participants. Statistical significance was adopted if $p < 0.05$.

RESULTS

The study had 235 elderly participants, between 60 and 92 years old, and a mean age of 69.9 ± 7.7 years. According to the results in Table 1, we observed that most of the elderly participants were female (52.8%), under 70 years old (57.0%), with a monthly income of 1 to 2 minimum wages (51.2%), having completed high school (55.0%) and retired (71.2%). Notably 61.7% of elderly people did not notice deterioration in memory with aging.

Regarding the perception of memory impairment according to sociodemographic aspects (Table 2), there was a significant difference between genders ($p = 0.011$), indicating a higher prevalence of women with the perception of memory decline (63.3%). There was no significant association between the perception of

Table 1 – Sociodemographic profile and poorer memory perception of the elderly evaluated (N = 235).

Groups	n	%
Gender		
Male	111	47.2
Female	124	52.8
Age group		
60 to 69 years old	134	57.0
70 to 79 years old	68	28.9
80 years old or more	33	14.0
Marital status*		
With a partner	156	68.1
Without a partner	73	31.9
Monthly income (minimum wages)		
1 to 2	84	51.2
2,1 to 3	39	23.8
> 3	41	25.0
Retirement		
Yes	153	71.2
No	62	28.8
Education level		
Did not study	12	5.1
Incomplete elementary school	26	11.0
Complete elementary school	36	15.3
High School	129	55.0
Higher education	32	13.6
Perception of memory impairment		
No	145	61.7
Yes	90	38.3

* variable with missing cases.

memory impairment and age ($p = 0.109$), marital status ($p = 0.149$), monthly income ($p = 0.547$) and retirement ($p = 0.224$).

When comparing the purpose of life according to sociodemographic variables and the perception of poor memory (Table 3), there was a significant difference only for monthly income ($p = 0.049$), indicating that the elderly persons with more than three minimum wages (Md = 41.0) had higher scores on the life purpose scale than older adults with lower incomes.

Of the 90 elderly people who noticed a deterioration in memory throughout aging (Table 4), most of them stated that the decline was not significant (63.3%), that the people living around them did not notice the deterioration (58.0%), that the memory was not lower than expected (64.8%), that it did not affect the ADLs (72.7%), that the deterioration did not occur in the last year (72.7%) and that it is not something to worry about health (68.2%).

When comparing the life purpose of the elderly person with the perception of memory impairment as a function of the variables related to the memory decline profile (Table 5), there was a significant difference between the groups only as a function of the impairment in performing the ADL ($p = 0.004$), indicating that the

elderly participants who do not consider that the deterioration of memory harms their ADL (Md = 40.0) had a greater purpose in life than the elderly participants who consider that the deterioration of memory impairs

their ADL (Md = 35.0). There was no significant difference ($p > 0.05$) in the purpose of life of the elderly population in terms of other variables related to the profile of memory decline.

Table 2 – Association of the perception of memory impairment with sociodemographic variables of the elderly population (N = 235).

Groups	Perception of memory impairment		χ^2	p*
	No (n = 145) n (%)	Yes (n = 90) n (%)		
Gender				
Male	78 (53.8)	33 (36.7)	6.535	0.011
Female	67 (46.2)	57 (63.3)		
Age group				
60 to 69 years old	88 (60.7)	46 (51.1)	2.569	0.109
70 to 79 years old	40 (27.6)	28 (31.1)		
80 years old to more	17 (11.7)	16 (17.8)		
Marital status				
With a partner	101 (71.6)	55 (62.5)	2.08	0.149
Without a partner	40 (28.4)	33 (37.5)		
Monthly income (minimum wages)				
1 to 2	47 (49.0)	37 (54.4)	0.362	0.547
2,1 to 3	24 (25.0)	15 (22.1)		
> 3	25 (26.0)	16 (23.5)		
Retirement				
Yes	90 (68.2)	63 (75.9)	1.481	0.224
No	42 (31.8)	20 (24.1)		
Education level				
Did not study	7 (4.8)	5 (5.5)	0.566	0.063
Incomplete elementary school	16 (11.0)	10 (11.1)		
Complete elementary school	18 (12.4)	18 (20.0)		
High School	79 (54.5)	50 (55.5)		
Higher education	25 (17.2)	7 (7.7)		

*Chi-Square test for proportions.

DISCUSSION

In this study, the perception of memory decline was not associated with the purpose of life. We observed that less than half of the sample reported memory impairment, whose complaints were more frequent among women. Older adults with higher incomes scored higher on the purpose of life scale. When considering only the elderly person with the perception of memory decline, difficulties in ADLs were associated with low purpose in life.

Cognitive decline is associated with poor physical performance¹⁸, social isolation¹⁹, and negative emotional state resulting from increased depressive and anxiety symptoms²⁰. The interaction between these factors can make the elderly more susceptible to difficulties in ADLs²¹, low social involvement²², and the perception of loneliness²³. Therefore, it was thought that the perception of memory decline would be associated with low life purpose in the elderly population.

We believe that our hypothesis was not supported due to the characteristics of the participants. Despite being elderly people, there was a greater concentration

in the age group between 60 and 69 years, making the sample unrepresentative in older elderly people. Some skills, such as vocabulary, seem to resist the aging process and may improve over time²⁴. Memory decline tends to be more noticeable over the years²⁴, which would justify the low prevalence of elderly people with the perception of memory deterioration.

Another relevant aspect concerns education, in which the theoretical model suggests that elderly people with more years of education have a stronger cognitive reserve, being less vulnerable to neurodegenerative events²⁵. In this study, the sample was concentrated between complete high school and higher education, differing considerably from the Brazilian elderly population, where approximately 80% have less than eight years of education²⁶. Income may also have influenced the results, as privileged socioeconomic conditions facilitate access to different forms of socio-environmental interaction, stimulating the formation of a cognitive reserve. In this sense, in a study conducted in Minas Gerais, elderly people with cognitive decline had a 36% lower income compared to elderly people without cognitive impairment²⁷. Age, education, and

Table 3 – Comparison of the purpose of life of the elderly as a function of sociodemographic variables and the perception of memory impairment.

Groups	Life purpose Md (Q1-Q3)	p*
Gender		
Male	38.5 (33.0-42.0)	0.335
Female	37.0 (33.0-43.0)	
Age group		
60 to 69 years old	38.0 (34.0-42.0)	0.125
70 to 79 years old	40.0 (33.0-44.0)	
80 years old or more	34.0 (31.0-40.0)	
Marital status		
With a partner	38.0 (33.0-43.0)	0.541
Without a partner	38.5 (33.0-42.0)	
Monthly income (minimum wages)		
1 to 2	37.0 (32.3-42.0)	0.049
2,1 a 3	37.0 (32.0-42.0)	
> 3	41.0 (36.0-43.8) [†]	
Retirement		
Yes	38.0 (32.0-43.0)	0.466
No	39.0 (34.0-42.0)	
Education level		
Did not study	38.0 (34.0-42.0)	0.087
Incompl. element. school	40.0 (33.0-44.0)	
Compl. element. school	34.0 (31.0-40.0)	
High School	38.0 (33.0-42.0)	
Higher education	34.0 (31.0-37.0)	
Perception of memory impairment		
No	38.0 (33.0-43.0)	0.973
Yes	37.0 (34.0-42.0)	

*Mann-Whitney and Kruskal-Wallis “U” test. [†]More than 3 MW with 1 to 2 MW and 2.1 to 3 MW.

Table 4 – Profile of memory decline in elderly people who perceive themselves as having poorer memory with aging (n = 90).

Variables	n	%
Is the worsening significant?		
No	57	63.3
Yes	33	36.7
Did other people notice the worsening? ^a		
No	51	58
Yes	37	42
Is the memory below expectations? *		
No	57	64.8
Yes	31	35.2
Does memory impairment affect ADLs? *		
No	64	72.7
Yes	24	27.3
Has the deterioration been greater in the last year? *		
No	64	72.7
Yes	24	27.3
Is the memory impairment worrying? *		
No	60	68.2
Yes	28	31.8

*variable with absent cases. ADL, activities of daily living.

Table 5 – Comparison of the purpose of life of elderly people with the perception of memory impairment as a function of variables related to the profile of memory decline (n = 90).

Group	Life purpose Md (Q1-Q3)	p*
Is the worsening significant?		
No	39.0 (35.5-42,5)	0.1
Yes	36.0 (32.0-43,0)	
Did other people notice the worsening?		
No	39.0 (35.0-43,0)	0.334
Yes	37.0 (32.0-42,5)	
Is the memory below expectations?		
No	39.0 (34.0-42,0)	0.927
Yes	38.0 (34.0-44,0)	
Does memory impairment affect ADLs?		
No	40.0 (36.3-43,0)	0.004
Yes	35.0 (29.0-40,0)	
Has the deterioration been greater in the last year?		
No	39.0 (34.3-43,0)	0.114
Yes	37.0 (30.0-40,8)	
Is the memory impairment worrying?		
No	39.0 (34.3-43,0)	0.262
Yes	37.0 (33.3-42,0)	

*Mann-Whitney “U” test. ADL, activities of daily living.

income may be confounders for the relationship between cognitive decline and life purpose, which can be investigated in future studies.

The most prevalent memory complaints in females can be due to factors such as education and income, which are generally lower among women^{1,26}, higher prevalence of depressive symptoms¹ and chronic diseases²⁶, and aspects related to the culture of self-care. In this sense, women have greater adherence to methods of prevention, diagnosis, and treatment of diseases and are the main users of basic health units²⁸. These characteristics reveal that women are more concerned with self-care, perceiving their cognitive declines more accurately than men.

Regarding the association of income with purpose in life, a nine-year longitudinal study revealed that higher levels of income and wealth indicated a greater purpose in life, noting that this relationship strengthened with advancing age²⁹. In addition to the fact that high income is related to better living conditions, as mentioned above, Hil et al.²⁹ suggest that people with low income spend most of their time with activities aimed at their subsistence, having little availability of time and financial resources for planning the future.

As limitations, we observed that the investigated

sample had different socioeconomic characteristics from the rest of the elderly population, reducing the generalizability of the results. Also, the perception of memory decline was identified through self-report, making it susceptible to gender bias, as discussed above.

CONCLUSION

We concluded that female gender seems to be a factor associated with memory decline, while higher monthly income seems to be an intervening factor in the

greater purpose of life of elderly people. Also, not considering that memory loss harms ADL seems to intervene in the best purpose of life.

In practical terms, these findings show that special attention should be given to elderly women, especially in cases of memory decline, to circumvent the possible adverse situations triggered by this comorbidity. Additionally, we should always encourage the elderly people to be more physically active in their daily lives, especially about performing different tasks of daily living, so that the elderly person is constantly motivated to live, reflected by a greater purpose of life.

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