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CONDITIONS ASSOCIATED WITH COGNITIVE STATUS IN OLDER ADULTS ATTENDING PRIMARY HEALTH CARE

CONDIÇÕES ASSOCIADAS AO ESTADO COGNITIVO EM PESSOAS IDOSAS ATENDIDAS NA ATENÇÃO PRIMÁRIA À SAÚDE

CONDICIONES ASOCIADAS AL ESTADO COGNITIVO EN PERSONAS MAYORES ATENDIDAS EN ATENCIÓN PRIMARIA DE SALUD

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ABSTRACT

Introduction: Cognitive decline, a common condition among older adults, poses a serious public health problem due to its association with increased care demand and dependency on older individuals.

Objectives: To analyze the conditions associated with cognitive status in older adults attending Primary Health Care services.

Methods: A cross-sectional study with a quantitative approach was conducted with older adults attending Primary Health Care services. Data collection took place from July to December 2023, encompassing sociodemographic and clinical data assessing the risk of falls, malnutrition, functional decline, vulnerability, frailty, and quality of life. Descriptive analysis was performed, and Pearson's chi-square test and Fisher's exact test were used to assess the association between cognitive status and other variables, using a significance level of 5%.

Results: The study included 200 older adults, of whom 88.5% had preserved cognitive function and 11.5% had low cognition. Preserved cognition was associated with younger age group (60 to 79 years) ($p < 0.001$), literacy ($p < 0.001$), absence of functional decline risk ($p = 0.001$), vulnerability ($p = 0.003$), depression ($p = 0.030$), and nutritional risk ($p = 0.039$), while low cognitive function was associated with frailty ($p = 0.001$).

Conclusion: Older adults attending Primary Health Care services predominantly exhibit preserved cognitive function, which is associated with sociodemographic and clinical conditions that are essential in proposing actions aimed at maintaining preserved cognitive status.

Keywords: Aged; Cognitive Dysfunction; Primary Health Care.

RESUMO

Introdução: O declínio cognitivo, condição frequente na população idosa, é um grave problema de saúde pública por levar a maior demanda de cuidado e dependência da pessoa idosa.

Objetivo: Analisar as condições associadas ao estado cognitivo em pessoas idosas atendidas na Atenção Primária à Saúde.

Métodos: Estudo transversal com abordagem quantitativa realizado com pessoas idosas atendidas na Atenção Primária à Saúde. A coleta de dados ocorreu de julho a dezembro de 2023 sendo coletados dados sociodemográficos e clínicos, que avaliaram o risco de quedas, desnutrição e declínio funcional, vulnerabilidade, fragilidade e qualidade de vida. Foi realizada análise descritiva e utilizados os testes qui-quadrado de Pearson e exato de Fisher

para avaliar a associação entre o estado cognitivo e as demais variáveis, utilizando um nível de significância de 5%.

Resultados: Participaram do estudo 200 pessoas idosas, das quais 88,5% apresentaram função cognitiva preservada e 11,5% baixa cognição. A cognição preservada foi associada à faixa etária mais jovem (60 a 79 anos) ($p < 0,001$), ser alfabetizado ($p < 0,001$), não apresentar risco de declínio funcional ($p = 0,001$), vulnerabilidade ($p = 0,003$), depressão ($p = 0,030$) e risco nutricional ($p = 0,039$), enquanto a baixa função cognitiva foi associada a presença de fragilidade ($p = 0,001$).

Conclusão: As pessoas idosas atendidas na Atenção Primária à Saúde apresentam, em sua maioria, função cognitiva preservada, que está associada a condições sociodemográficas e clínicas que se apresentam como fundamentais na proposição de ações que visem a manutenção do estado cognitivo preservado.

Palavras-chave: Atenção Primária à Saúde; Disfunção Cognitiva; Idoso.

RESUMEN

Introducción: El deterioro cognitivo, una condición común en personas mayores, constituye un grave problema de salud pública debido a su asociación con una mayor demanda de cuidados y dependencia en personas mayores.

Objetivos: Analizar las condiciones asociadas al estado cognitivo en personas mayores atendidas en Atención Primaria de Salud.

Métodos: Se realizó un estudio transversal con enfoque cuantitativo con personas mayores atendidas en servicios de Atención Primaria de Salud. La recolección de datos tuvo lugar de julio a diciembre de 2023, abarcando datos sociodemográficos y clínicos que evaluaron el riesgo de caídas, desnutrición, declive funcional, vulnerabilidad, fragilidad y calidad de vida. Se realizó un análisis descriptivo y se utilizaron la prueba de chi-cuadrado de Pearson y la prueba exacta de Fisher para evaluar la asociación entre el estado cognitivo y otras variables, utilizando un nivel de significancia del 5%.

Resultados: El estudio incluyó a 200 personas mayores, de las cuales el 88,5% tenían función cognitiva preservada y el 11,5% presentaban baja cognición. La cognición preservada se asoció con un grupo de edad más joven (60 a 79 años) ($p < 0,001$), alfabetización ($p < 0,001$), ausencia de riesgo de declive funcional ($p = 0,001$), vulnerabilidad ($p = 0,003$), depresión ($p = 0,030$) y riesgo nutricional ($p = 0,039$), mientras que la baja función cognitiva se asoció con fragilidad ($p = 0,001$).

Conclusión: Las personas mayores atendidas en servicios de Atención Primaria de Salud muestran predominantemente una función cognitiva preservada, la cual está asociada con

condiciones sociodemográficas y clínicas que son fundamentales en la propuesta de acciones dirigidas a mantener el estado cognitivo preservado.
Descriptores: Anciano; Atención Primaria de Salud; Disfunción Cognitiva.

INTRODUCTION

The rapid aging of the global population is causing an inversion in the age pyramid in countries like Brazil. This demographic shift is leading to changes in health profiles, particularly due to conditions associated with aging, such as greater dependency and consequently an increased demand for care, which drives social and healthcare transformations to meet the health needs of the older adult population[1].

These demands are commonly observed within the Primary Health Care (PHC) context, as it serves as the entry point to the Unified Health System (SUS) and organizes healthcare in the care networks[2]. In this sense, PHC plays a fundamental role in caring for older adults with cognitive decline, requiring the identification of individuals with this condition and the professional qualification of those involved in the care process.

Moreover, it is proven that, with an increasingly aging population, there will be a growing number of patients with cognitive decline, especially neurocognitive disorders, which affect tens of millions of people worldwide, posing a significant burden on contemporary society[3].

Among cognitive impairments, Mild Cognitive Impairment (MCI) stands out as a loss of cognitive abilities that does not significantly affect functional capacity, unlike dementia. Major Neurocognitive Disorder (MND), on the other hand, is characterized by loss of cognitive abilities across multiple domains, leading to significant functional impairment. It has underlying etiologies, such as Alzheimer's disease (AD), vascular dementia (VD), mixed dementia, among others[4].

Dementia affects between six and 50 million people globally, with rising estimates[2]. Reports indicate that neurological disorders are the second leading cause of death, totaling approximately 90 million[5]. The Alzheimer's Association (2021) reports that global costs for individuals with dementia exceed one billion dollars, including primary, medium, or high-complexity care[6].

Cognitive decline thus becomes a serious public health issue, necessitating the assessment of conditions associated with it, especially within PHC, a level of care that emphasizes disease prevention and health promotion actions aimed at maintaining the independence and autonomy of older adults. Thus, this study seeks to analyze the conditions associated with cognitive status in older adults attending Primary Health Care.

MATERIAL AND METHOD

This is a cross-sectional study with a quantitative approach, as part of a longitudinal, multicenter project of the International Research Network on Vulnerability, Health, Safety, and Quality of Life of Older Adults: Brazil, Portugal, Spain, and France. This study was approved by the Research Ethics Committee of the Onofre Lopes University Hospital at the Federal University of Rio Grande do Norte, approval no. 4267762, CAAE: 36278120.0.1001.5292.

The study was conducted with the older adult population served by PHC in the municipality of Santa Cruz, located in the state of Rio Grande do Norte (RN), in northeastern Brazil, between July and December 2023.

The sampling process used probabilistic sampling based on an estimated finite population of older adults served by PHC. The sample calculation considered a 95% confidence level (Z = 1.96), sampling error (e = 0.05), estimated proportion (P) of 50%, and expected error (Q) of 50%, resulting in an estimated sample of 200 older adults.

Inclusion criteria were aged 60 years or older and being registered or a user of a PHC unit. Older adults who were deemed unable to participate in the study, as evaluated by the researchers and PHC professionals, were excluded. Eligible older adults who agreed to participate were informed about the study and invited to sign the Free and Informed Consent Form (ICF).

Cognitive function was assessed using the Mini-Mental State Examination (MMSE), in its version validated for Brazil. This test comprises questions grouped into seven categories: temporal orientation (up to five points), spatial orientation (up to five points), word registration (up to three points), attention and calculation (up to five points), recall memory (up to three points), language (up to eight points), and visual-constructive capacity (up to one point). The total score ranges from zero (minimum) to 30 (maximum), with higher scores indicating better cognitive status. In this study, cognitive function was considered preserved with a score ≥ 17 points.

Based on information recorded in the Health Handbook for Older Adults, the following data were collected: gender (female; male), age group (60 to 79 years; ≥ 80 years), race/ethnicity (white; non-white), literacy (literate; illiterate), polypharmacy (use of five or more medications) (yes; no), self-reported diseases (yes; no), and falls (yes; no).

Nutritional risk was assessed using the Mini Nutritional Assessment (MNA), while sarcopenia risk was evaluated with the Brazilian Sarcopenia Screening Tool (SARC-Calf). Depressive symptoms were assessed using the Geriatric Depression Scale (GDS-15). Frailty was evaluated by the Edmonton Frail Scale (EFS), fall risk by the Downton Fall Risk Index, quality of life by the Short Form-36 (SF-36) questionnaire, and functional decline risk by the Program of Research on the Integration of Services for the Maintenance of Autonomy (PRISMA-7).

Data was tabulated and analyzed using the Statistical Package for the Social Sciences (SPSS) software, version 23.0. Descriptive analyses (absolute and relative frequencies) were conducted, and Pearson's chi-square test and Fisher's exact test were used to assess the association between cognitive status and sociodemographic and health variables. A significant level of 5% was adopted.

RESULTS

The study included a total of 200 older adults attending PHC. Table 1↗ presents the sociodemographic characterization according to cognitive function. Among the participants, the majority were female (68.0%), aged between 60 and 79 years (71.5%), of non-white race/color (61.0%), and literate (75.0%).

Between the study participants, 88.5% (n = 177) had preserved cognitive function, while 11.5% (n = 23) exhibited low cognition. Among those aged 60 to 79, most older adults showed preserved cognition (67.5%), while 21.0% were aged above 80. Nevertheless, among those with low cognition, the majority were aged over 80 years (7.5%). Additionally, when examining literacy, it was noted that literate older adults predominantly had preserved cognition (19% of 25%), while a minority exhibited low cognition (5.5% of 75.0%). Among non-literate individuals (25%), 6.0% had low cognition. Preserved cognition was associated with the younger age group (60 to 79 years) ($p < 0.001$) and literacy ($p < 0.001$) (Table 1↗).

Among the health conditions evaluated, there was a predominance of self-reported diseases (81.0%), falls (63.5%), and lower quality of life (63.5%). In individuals with low cognitive function, there was a predominance of frailty (9.5%), functional decline risk (9.5%), vulnerability (8.5%), lower quality of life (8.5%), and fall risk (8.0%) (Table 2↗).

Furthermore, as observed in Table 2↗, low cognitive function was associated with frailty ($p = 0.001$), while preserved cognition was associated with absence of functional decline risk ($p = 0.001$), absence of vulnerability ($p = 0.003$), absence of depression ($p = 0.030$), and absence of nutritional risk ($p = 0.039$).

DISCUSSION

Aiming to analyze the cognitive profile of older adults attending PHC, it is initially essential to link sociodemographic characteristics to cognitive status, as they can significantly influence cognitive decline in this population. One study reported a higher prevalence of Mild Cognitive Impairment (MCI) among older adults aged over 80, with lower rates among those aged 60 to 64[7]. Thus, it is evident that cognitive decline is directly associated with aging, with the risk of cognitive decline increasing with age, a finding confirmed by other studies[7-10].

This data is corroborated by the present study, as there is a higher number of older adults with cognitive impairment in the age group above 80 compared to those aged 60 to 79. However, a cross-sectional study on cognitive impairment in older adults with non-communicable diseases suggested that younger age could also be a risk factor[11].

Another important sociodemographic characteristic related to cognitive status is the level of education. In this context, a 2021 study examined this variable and its differentiated contribution to cognitive reserve across racial/ethnic groups. The study highlighted the protective effect of higher education levels against cognitive decline with age, noting that higher education levels protected white matter integrity in white patients but not for non-white individuals. Additionally, it showed that increased social engagement (regardless of education level) also appeared to protect against cognitive decline[12].

This, along with other studies[10,13], aligns with the results of this research, as literate older adults (with a higher level of education) predominantly showed preserved cognition, with only a minority exhibiting low cognition. On the other hand, a significant proportion (one-quarter) of individuals with lower education (non-literate) showed low cognition.

Another study also underscores how low education should be considered a significant risk factor, along with access to healthcare. Both variables are advocated in strategies for preventing cognitive deficits, where mitigating these risk factors reduces the chances of cognitive decline[3].

Regarding clinical variables, frailty is highlighted in the literature as a component of cognitive impairment. In this line of reasoning, the association between frailty and low cognition is evidenced not only in the present research but also in a series of cross-sectional and longitudinal studies, which have found a significant link between these two phenomena[14-16].

Another study suggests that frailty is triggered by mechanisms such as atherosclerosis, sarcopenia, cognitive deterioration, and malnutrition, along with their respective metabolic alterations. This further supports the association between frailty and cognitive deficits, as well as malnutrition, another variable studied in this research[17].

When analyzing nutritional status, a significant association is observed between this variable and cognitive impairment. This is consistent with research indicating that inadequate nutritional status predisposes individuals to cognitive frailty, although there are controversies regarding which diet or micronutrients may help prevent the transition from cognitive frailty to dementia[1], also confirmed by another study[18].

Furthermore, a significant association was also observed between functional decline risk and low cognition. The previously mentioned study by Gómez-Gómez (2019) also states that there is an association between functional loss and cognitive frailty, aligning with the literature[1].

A predictive model for cognitive impairment risk in middle-aged and older adults identifies depression as an important predictor of cognitive impairment. This analysis shows a statistically significant association between depression and low cognition. Moreover, this model also affirms that age is the most significant contributor to cognitive impairment, along with education level[10] – variables that have already been analyzed and discussed earlier. Another study also corroborates this association[19].

Regarding fall risk, the literature states that aging itself is associated with falls[20]. However, cognitive alterations may lead to imbalance, thereby increasing the chances of falls[21]. Additionally, the psychological effects resulting from low cognition (such as stress and depression) further contribute to an increased fall risk among cognitively impaired older adults[19].

CONCLUSION

This study allowed for the analysis of conditions associated with cognitive status in older adults attending PHC. Most older adults showed preserved cognitive function, which was associated with being aged between 60 and 79, being literate, and the absence of risks related to functional decline, nutritional risk, vulnerability, and depression. In contrast, low cognitive function was associated with frailty.

These findings underscore the importance of education, functional performance, adequate nutritional status, and mental health in the cognitive performance of older adults. Preventive actions against cognitive decline should address these findings, considering all aspects of an older adult's life, aiming to maintain cognitive function and avoid/minimize its effects, which lead to dependency and loss of autonomy and quality of life.

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EF: Writing – original draft.
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GT: Formal analysis, supervision, writing – review & editing.
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Table 1 – Sociodemographic characterization of older adults attending PHC according to cognitive function. Santa Cruz, Brazil, 2024.[↖↖]

Sociodemographic characteristics		Cognitive function		Total n (%)	p-value
		Low n (%)	Preserved n (%)		
Gender	Female	14 (7.0)	122 (61.0)	136 (68.0)	**0.479**
	Male	9 (4.5)	55 (27.5)	64 (32.0)	
Age group	60 to 79 years	8 (4.0)	135 (67.5)	143 (71.5)	< 0.001
	80 years or older	15 (7.5)	42 (21.0)	57 (28.5)	
Race/color	White	9 (4.5)	69 (34.5)	78 (39.0)	0.989
	Non-white	14 (7.0)	108 (54.0)	122 (61.0)	
Literacy	Literate	11 (5.5)	139 (69.5)	150 (75.0)	< 0.001
	Non-literate	12 (6.0)	38 (19.0)	50 (25.0)	

Table 2 – Clinical/health characterization of older adults attending PHC according to cognitive function. Santa Cruz, Brazil, 2024.[↖↖]

Clinical characteristics		Cognitive function		Total n (%)	p-value
		Low n (%)	Preserved n (%)		
Self-reported diseases	Yes	20 (10.0)	142 (71.0)	162 (81.0)	0.578*
	No	03 (01.5)	35 (17.5)	38 (19.0)	
Falls	Yes	14 (07.0)	113 (56.5)	127 (63.5)	0.781
	No	09 (04.5)	64 (32.0)	73 (36.5)	
Quality of life	Worse	17 (08.5)	110 (55.0)	127 (63.5)	0.270
	Better	06 (03.0)	67 (33.5)	73 (36.5)	
Frailty	Yes	19 (09.5)	81 (40.5)	100 (50.0)	0.001*
	No	04 (02.0)	96 (48.0)	100 (50.0)	
Functional Decline Risk	Yes	18 (09.0)	73 (36.5)	91 (45.5)	0.001
	No	05 (02.5)	104 (52.0)	109 (54.5)	
Vulnerability	Yes	17 (08.5)	73 (36.5)	90 (45.0)	0.003
	No	06 (03.0)	104 (52.0)	110 (55.0)	
Nutritional Risk	Yes	13 (06.5)	61 (30.5)	74 (37.0)	0.039
	No	10 (05.0)	116 (58.0)	126 (63.0)	
Fall Risk	Yes	16 (08.0)	55 (27.5)	71 (35.5)	0.001
	No	07 (03.5)	122 (61.0)	129 (64.5)	
Sarcopenia Risk	Yes	10 (05.0)	60 (30.0)	70 (35.0)	0.365
	No	13 (06.5)	117 (58.5)	130 (65.0)	
Depression	Yes	10 (05.0)	40 (20.0)	50 (75.0)	0.030
	No	13 (11.3)	137 (68.5)	150 (75.0)	
Polypharmacy	Yes	06 (03.0)	25 (12.5)	31 (15.5)	0.137
	No	17 (08.5)	152 (76.0)	169 (84.5)	