REME • Rev Min Enferm. 2019;23:e-1266
DOI: 10.5935/1415-2762.20190114

RESEARCH

COGNITIVE DECLINE PREVENTIVE PRACTICES AND ASSOCIATED FACTORS CARRIED OUT BY ELDERLY PEOPLE

PRÁTICAS PREVENTIVAS DE DECLÍNIO COGNITIVO REALIZADAS POR IDOSOS E FATORES ASSOCIADOS

PRÁCTICAS PREVENTIVAS DE DETERIORO COGNITIVO REALIZADAS POR ADULTOS MAYORES Y FACTORES ASOCIADOS

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Funding: *Programa Nacional de Cooperação Acadêmica* (PROCAD) and *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* (CAPES).

Submitted on: 2019/03/31
Approved on: 2019/ 10/16

ABSTRACT

Objective: to analyze the prevalence of cognitive decline (CD) preventive practices among the elderly population and the associated socio-demographic and health factors. **Methodology:** a cross-sectional, analytical study, conducted with 557 older people assisted at family health units in the city of Tangará da Serra-MT. Data were obtained through interviews, using an instrument containing socio-demographic characteristics, health conditions and CD preventive practices performed by the older people and applying the abbreviated geriatric depression scale and the Barthel index. Bivariate analysis was performed between the independent variables and CD preventive practices to verify association ($p < 0.05$) using Pearson's x2 test. Variables with an association with $p < 0.20$ were selected for entry into the Poisson multiple regression model by the stepwise forward method. **Results:** the prevalence of CD preventive practices was 55.1%. An association was found between CD preventive practices and the variables education ($p < 0.001$), occupational status ($p < 0.001$), functional capacity ($p = 0.017$), gender ($p < 0.001$) and self-rated health ($p = 0.028$). **Conclusion:** preventive practices of CD were performed in most participants and were not previously documented in other studies. Female, functionally independent, highly educated elderly women who are working and self-rated their health as regular performed more CD preventive practices. These results are important since they show the characteristics of this population that should be taken into consideration when planning actions to promote cognitive health.

Keywords: Cognition; Aged; Disease Prevention; Geriatric Nursing.

RESUMO

Objetivo: *analisar a prevalência de práticas preventivas de declínio cognitivo (DC) entre idosos e os fatores sociodemográficos e de saúde associados.* ***Metodologia:*** *estudo transversal, analítico, desenvolvido com 557 idosos atendidos nas unidades de saúde da família do município de Tangará da Serra-MT. Os dados foram obtidos por meio de entrevista, com utilização de instrumento contendo características sociodemográficas, condições de saúde e práticas preventivas de DC realizadas por idosos e aplicação da escala de depressão geriátrica abreviada e do índice de Barthel. Foi realizada análise bivariada entre as variáveis independentes e práticas preventivas de DC para verificação de associação ($p<0,05$) por meio do teste x^2 de Pearson. As variáveis que apresentaram associação com valor de $p<0,20$ foram selecionadas para a entrada no modelo de regressão múltipla de Poisson pelo método stepwise forward.* ***Resultados:*** *a prevalência de práticas preventivas de DC foi de 55,1%. Foi encontrada associação entre práticas preventivas de DC e as variáveis escolaridade ($p<0,001$), situação ocupacional ($p<0,001$), capacidade funcional ($p=0,017$), sexo ($p<0,001$) e autoavaliação de saúde ($p=0,028$).* ***Conclusão:*** *a realização de práticas preventivas de DC se deu na maioria dos participantes e não foi previamente documentada em outros estudos. Idosos do sexo feminino, funcionalmente independentes, com alto nível de escolaridade, que estão trabalhando e autoavaliaram sua saúde como regular realizaram mais práticas preventivas de DC. Esses resultados são importantes, uma vez que mostram quais são as características dessa população que devem ser levadas em consideração no planejamento de ações para a promoção da saúde cognitiva.*

Palavras-chave: *Cognição; Idoso; Prevenção de Doenças; Enfermagem Geriátrica.*

How to cite this article:
Mendes PA, Reiners AAO, Azevedo RCS, Gaspar ACM, Segri NJ, Marcon SR. Cognitive decline preventive practices and associated factors carried out by the elderly people. REME – Rev Min Enferm. 2019[cited _____ ___ ___];23:e-1266. Available from: _____ DOI: 10.5935/1415-2762.20190114

RESUMEN

Objetivo: *analizar la prevalencia de prácticas preventivas del deterioro cognitivo (DC) entre ancianos y los factores sociodemográficos y de salud asociados.* ***Metodología:*** *estudio analítico transversal realizado con 557 personas mayores atendidas en unidades de salud familiar en la ciudad de Tangará da Serra-MT. Los datos se obtuvieron a través de entrevistas, con un instrumento que contenía características sociodemográficas, condiciones de salud y prácticas preventivas de DC realizadas por ancianos y aplicando la escala abreviada de depresión geriátrica y el índice de Barthel. Se realizó el análisis bivariado entre las variables independientes y las prácticas preventivas de DC para verificar la asociación (p <0,05) utilizando la prueba x2 de Pearson. Las variables con asociación p <0,20 se seleccionaron para ingresar en el modelo de regresión múltiple de Poisson mediante el método stepwise forward.* ***Resultados:*** *la prevalencia de prácticas preventivas de DC fue del 55,1%. Se encontró asociación entre las prácticas preventivas de DC y las variables educación (p <0.001), estado ocupacional (p <0.001), capacidad funcional (p = 0.017), género (p <0.001) y autoevaluación de la salud (p = 0,028).* ***Conclusión:*** *la mayoría de los participantes realizó prácticas preventivas de DC y no se documentaron previamente en otros estudios. Las mujeres mayores funcionalmente independientes, altamente educadas, que trabajan y autocalificaron su salud como regular realizaban más prácticas preventivas de DC. Estos resultados son importantes ya que muestran cuáles son las características que deben tenerse en cuenta al planificar acciones para promover la salud cognitiva de esta población.*

Palabras clave*: Cognición; Anciano; Prevención de Enfermedades; Enfermería Geriátrica.*

INTRODUCTION

The cognitive decline (CD) is significant in the aging population. Prevalence of mild cognitive impairment (MCI), the mildest form of CD, is higher at older ages, with 6.7% in 60 to 64 years old, 8.4% in 65 to 69 years old, 10.1% in 70 to 74 years old, 14.8% in 75 to 79, and 25.2% in 80 to 84 years old.[1] About 8 to 15% of MCI cases progress to dementia, 2 compromising a person's ability to perform activities of daily living (ADL), generating one of the syndromes that have most affected the elderly population, the cognitive impairment (CI).[3]

In 2010, 35.6 million people worldwide had dementia, and it is estimated that every 20 years, this number will be doubled. In Latin America, the prevalence of dementia in people 60 years old and older is 8.5%.[4] In Brazil, studies of mild CD are few and screened. The prevalence of MCI is 6.1% and the incidence of 13.2/1000 people/year aged 60 and over[5] and dementia is 15.2 to 16.3%.[6] Alzheimer's as the dementia subtype most common has a proportional prevalence of 50 to 75% of cases worldwide.[7]

Measures that help to maintain and improve the brain's information processing capacity and cognitive reserve and practices that protect the deterioration of cognitive functions[7] have been investigated, especially in developed countries.[8,9] Their results have been recommended by international bodies. They are intellectual and manual activities, such as computer use, games, book reading, crossword puzzles, and crafts. Also, they include regular physical activity practices, frequent social interactions, moderate alcohol consumption – especially wine, adoption of the Mediterranean diet – and control of cardiovascular risk factors.[7] In Brazil, where the elderly population is growing, studies on CD preventive measures are still incipient.[10]

Further research is needed for the development of actions to promote and prevent cognitive health in the elderly population and to increase the engagement of this population in the implementation of CD preventive practices. The investigations already existing, sought to determine the prevalence of the disease, risk and protective factors, as well as the impact on the elderly, family and health system.

However, little is known about the preventive practices of CD that older people perform daily and the associated factors with these practices. From what is known, advanced age, frailty, and presence of debilitating disease may limit the performance of these practices, as well as the mood, motivation and cognitive status of the older person. On the other hand, family support and places of social interaction are factors that improve the adherence of the elderly to the practices.[11]

The study aimed to analyze the prevalence of preventive practices of cognitive decline among the elderly population and the associated socio-demographic and health factors.

METHODS

This is a cross-sectional study developed in the municipality of Tangará da Serra-MT. The population was 5,096 older people assisted at the Family Health Units/Unidades de Saúde da Família (USF), and the probability stratified and proportional sample was 557 elderly, obtained by calculating finite populations, with 4% error, confidence level of 95%, and 50% event occurrence. The strata were determined from the amount of existing USF, and the number of participants in each stratum was obtained by calculating proportional to the representativeness of the stratum about the total population. The elderly from each stratum were randomly selected by lot.

Older people without cognitive impairment assessed by the Mini-Mental State Examination (MMSE) and able to communicate were included in the study. Those who did not meet the inclusion criteria and who, after three attempts to search at different times, were not found, as well as those who died were replaced by lottery. Due to the replacement of participants in the cases described above, there were no losses.

Data were obtained by the researcher from February to May 2015 through an interview conducted at the elderly's home. We used a questionnaire about socio-demographic data, health,

and preventive practices of CD based on knowledge, attitudes, and practices (CAP)[12] and recommendations contained in the literature.[7] After the pilot test, we adjusted the instrument.

The dependent variable of the study was the "preventive practices of cognitive decline," categorized as yes/no. The positive answer was considered when the elderly reported spontaneously performing activities in their daily lives, in multiple domains, according to the recommendations for more effective prevention of CD.[7] The elderly should perform at least one activity of the physical domain (activity healthy eating - eating fruits and vegetables, eating fish and little red meat, olive oil and/or moderately drinking alcohol, mental (using computer and/or playing video games; reading books and/or newspapers; playing cards, crossword puzzles, checkers or chess and/or craft activities - painting, crochet, embroidery, biscuit) and social (visiting friends and/or family, traveling, sightseeing and/or relaxing).

The independent socio-demographic variables were gender (male/female), age group (60 to 69 years old, 70 to 79 years old and 80 years old and over), marital status (married/with a partner, widowed , divorced/separated, single; years of study (not studied, one to three years of study, four years or more); family arrangement (spouse/partner, alone, family and others); occupational status (retired, not working, working, retired and working); individual income (no income up to one minimum wage, one to two minimum wages, two to three minimum wages and more than three minimum wages) and family income (no income up to one minimum wage, one to three minimum wages, of three or more minimum wages).

The independent variables of health conditions were self-rated health (excellent, good, regular, poor, very poor); reported health problem (yes, no); number of health problems (none, one problem, two or more); self-reported changes: vision (yes/no); hearing (yes/no); medication use (yes/no); nutritional condition (underweight - BMI ≤ 22, eutrophic - BMI> 22 and <27, overweight - BMI ≥ 27); mood, measured using the Geriatric Depression Scale (GDS) scale, classified as normal (zero to five points), mild depressive symptoms (six to 10 points) and severe depressive symptoms (10 to 15 points).[13] Their functionality was verified using the Barthel index scale. The elderly with a maximum score of 100 points were classified as independent.[14]

The data obtained were organized in a database, the absolute and relative frequencies of the variables were calculated, and bivariate analysis was used to verify the association between independent variables and preventive practices for CD using Pearson's x^2 test and the multiple regression analysis techniques. For the bivariate and multiple regression analysis, the socio-demographic variables: age, marital status, years of school, family arrangement, individual income, and family income; and health conditions: self-rated health and mood were recategorized.

Variables with an association with p <0.20 were selected for the Poisson multiple regression model with robust variance by the stepwise forward method. The variables with statistically significant association (p <0.05) were maintained in the final model.

After approval by the Research Ethics Committee of the Júlio Müller University Hospital, under Protocol 924.964/2014, the research was developed.

RESULTS

Among the surveyed participants (n=557), most of the elderly are female (61.8%), aged between 60 and 69 years old (50.8%), married (54.2 %), illiterate (42.2%) and living with family and/or another person (59.0%). Most of them (71.2%) are retired, receive up to one minimum wage (64.6%), and have a family income of one to three minimum wages (65.0%) (data not shown in the table).

Regarding their health conditions, most of the elderly participants (43.9%) self-rated their health as regular, 92.1% reported having two or more health problems, 83.3% were taking medication, and vision change was the most frequent (87.1%). Nutritional, functional, and depressive mood conditions show that the elderly are overweight (47.0%), independent (75.6%), and have no depression (77.2%) (data not shown in the table).

The prevalence of preventive practices was 55.1%, 95% CI. Table 1 shows the bivariate analysis between socio-demographic variables and CD preventive practices. There was a statistically significant association with gender (p=0.012), education (p <0.001), and occupational status (p=0.001).

Table 1 - Distribution of the elderly population according to their socio-demographic characteristics and prevalence of preventive practices of cognitive decline. *Tangará da Serra, Mato Grosso*, Brazil, 2015

Variables	N	Prevalence (%)	Gross PR (CI95%)*	p-value**
Gender				
Female	344	59.3	1.22 (1.04-1.44)	0.012
Male	213	48.4	1.00	
Age group				
60 – 69 years old	283	59.0	1.15 (0.99-1.34)	0.060
70 years or more	274	51.1	1.00	
Marital status				
With a partner	302	54.6	1.00	0.804
Without a partner	255	55.7	1.01(0.87-1.18)	
Education level				
0 to 4 years of study	485	51.8	1.00	<0.001
5 years of study or more	072	77.8	1.50 (1.29-1.74)	

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Table 1 - Distribution of the elderly population according to their socio-demographic characteristics and prevalence of preventive practices of cognitive decline. *Tangará da Serra, Mato Grosso*, Brazil, 2015

Variables	N	Prevalence (%)	Gross PR (CI95%)*	p-value**
Family organization				
Alone	084	56.0	1.01 (0.82-1.25)	0.867
Accompanied	473	55.0	1.00	
Occupational situation				
Retired	397	51.1	1.00	0.001
Does not work	095	57.9	1.13 (0.92-1.37)	
Works	039	84.6	1.65 (1.40-1.95)	
Retired and works	026	61.5	1.20 (0.87-1.65)	
Older adult´s Income				
Up to 1 MW	032	65.6	1.20 (0.92-1.56)	0.218
More than MW	525	54.5	1.00	
Family income				
Up to s2 MW	141	56.7	1.03(0.87-1.23)	0.654
More than 2 MW	416	54.6	1.00	

Source: the author. *CI – confidence interval; **p-value based on bivariate analysis.

Table 2 shows the bivariate analysis between the variables of health conditions and CD preventive practices. In the variables health conditions, there was a statistically significant association with preventive practices of CD, the variables self-rated health (p = 0.023), and functional capacity (p = 0.010). Prevalence of cognitive decline prevention practices was 46% (PR = 1.46; 95% CI = 1.06-2.00) and 27% higher (PR = 1.27; 95% CI = 1.04-1.56) in the elderly who self-rated their health as regular compared to those who self-rated as poor/very poor and in the independent elderly compared to the dependent ones, respectively (Table 2).

Table 2 - Distribution of the elderly population according to their health conditions and prevalence of preventive practices of cognitive decline. *Tangará da Serra, Mato Grosso*, Brazil, 2015

Variables	N	Prevalence (%)	Gross PR (CI95%)*	p-value**
Self-rated health				
Great/good	246	56.9	1.44 (1.05-1.98)	0.023
Regular	245	57.6	1.46 (1.06-2.00)	
Poor/Very poor	66	39.4	1.00	
Health problem reported				
Yes	550	55.3	1.28 (0.54-3.04)	0.512
No	7	42.9	1.00	

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Table 2 - Distribution of the elderly population according to their health conditions and prevalence of preventive practices of cognitive decline. *Tangará da Serra, Mato Grosso*, Brazil, 2015

Variables	N	Prevalence (%)	Gross PR (CI95%)*	p-value**
Number of health problems				
None	7	50.0	1.00	0.655
1 problem	37	62.2	1.24 (0.53-2.87)	
2 or more	513	54.7	1.09 (0.48-2.44)	
Self-reported changes				
Vision				
Yes	*485*	*56.3*	*1.19 (0.92-1.54)*	0.149
No	*72*	*47.2*	*1.00*	
Hearing				
Yes	*125*	*60.8*	*1.13 (0.96-1.34)*	0.147
No	*432*	*53.5*	*1.00*	
Use of medication				
Yes	464	55.4	1.03(0.83-1.26)	0.774
No	93	53.8	1.00	
Nutritional condition				
Low weight	61	47.5	1.00	0.258
Eutrophic	234	58.6	1.23 (0.92-1.63)	
Overweight	262	53.8	1.13 (0.84-1.50)	
Functional capacity				
Independent	421	58.2	1.27 (1.04-1.56)	0.010
Dependent	136	45.6	1.00	
Mood				
No depressive symptoms	430	56.7	1.14(0.94-1.38)	0.155
With depressive symptoms	127	49.6	1.00	

Source: the author. *C I– confidence interval; **p-value based on the bivariate analysis.

In the multiple regression analysis, all variables with a previous statistically significant association remained associated. In the elderly who studied five years or more, the preventive practices of CD were 43% higher (PR = 1.43; 95% CI = 1.23-1.67) than those who reported having studied up to four years, adjusted for age group and other variables of the regression model.

The elderly who work performed 56% (PR = 1.56; 95% CI = 1.28-1.89) more CD preventive practices than the retired elderly, adjusted for years of study, functional capacity, gender, age-range and self-rating.

Independent older people are also more preventive (PR = 1.28; 95% CI = 1.04-1.56) than the dependent, adjusted for age and other variables of the regression model. Regarding

their gender, the older women performed 39% (PR = 1.39; 95% CI = 1.18-1.65) more preventive practices than men, regardless of the other variables of the model. Prevalence of CD preventive practices was also higher (PR = 1.41; 95% CI = 1.03-1.93) among older people who rated their health as regular than their peers who rated it poor/very poor (Table 3). The goodness-of-fit test was performed, which showed that the model is appropriate (p = 0.3196).

DISCUSSION

The prevalence of CD preventive practices in this study (55.1%) was not previously documented in other studies. As we know, this is the first study to evaluate the prevalence of these practices and the factors associated with them. Some research is of intervention and has investigated some preventive practice or group of practices proposed in a program.[9,15] They verify people's adherence to a program for cognitive improvement[16] and demonstrate the effectiveness of these practices in cognitive performance.[9]

This prevalence is an important finding since it shows that the elderly studied have performed practices that can prevent CD and bring the benefit of maintaining their functional capacity, improvements in quality of life, and promotion of social interaction. Studies have shown that measures such as physical exercise, adoption of the Mediterranean diet as the main type of diet and cognitive stimulation are effective in preventing CD of the elderly population with their cognitive functions preserved[9] and/or their rehabilitation in those who have impaired them.[17] In a 10-year cohort study of the elderly population, cognitive training produced an improvement in cognitive skills for activities of daily living.[15]

The association between CD preventive practices and the high level of education of the older adults found in this study was similar in another study.[15] This association can be explained by the relationship between education and health. Highly educated people can achieve better health because they have more opportunities to lead a healthier life through health knowledge and more ability to select the best available resources.[18] The fact that the elderly in this study who have better education are performing more practices that prevent CD than their low-educated peers suggest that they may know more health issues and opt for healthy activities.

The association between CD preventive practices and occupational status found in this research is difficult to compare with results from other studies because, in this work, several CD preventive practices were analyzed together. In an investigation of only one practice, only one of them found an association between CD preventive practice and occupational status.[19]

Table 3 - Poisson multiple regression model: variables associated with preventive practices of cognitive decline in the elderly participants. *Tangará da Serra, Mato Grosso*, Brazil, 2015

Variables	Prevalence (%)	Gross PR (CI95%)*	Adjusted PR (CI95%)**	p-value***
Education level				
0 to 4 years	51.8	1.00	1.00	<0.001
5 years or more	77.8	1.50 (1.29-1.74)	1.43 (1.23-1.67)	
Occupational situation				
Retired	51.1	1.00	1.00	<0.001
Not working	57.9	1.13 (0.92-1.37)	1.08 (0.89-1.32)	
Working	84.6	1.65 (1.40-1.95)	1.56 (1.28-1.89)	
Retired and working	61.5	1.20 (0.87-1.65)	1.30 (0.94-1.78)	
Functional capacity				
Independent	58.2	1.27 (1.04-1.56)	1.28 (1.04-1.56)	0.017
Dependent	45.6	1.00	1.00	
Gender				
Female	59.3	1.22 (1.04-1.44)	1.39 (1.18-1.65)	<0.001
Male	48.4	1.00	1.00	
Health self-assessment				
Great/good	56.9	1.44 (1.05-1.98)	1.36 (0.99-1.86)	0.028
Regular	57.6	1.46 (1.06-2.00)	1.41 (1.03-1.93)	
Poor/Very poor	39.4	1.00	1.00	

Source: the author. *RP – prevalence ratio; **CI – confidence interval; ***p-value adjusted by age group.

One possible explanation for this association is that economically active older adults may have better incomes. Improved income, among other things, may allow for a more active social insertion. Other factors may motivate the elderly to keep working, including the desire to exercise mentally and physically,[20] and consequently, helping in the prevention of CD.

The association between CD preventive practices and functional independence is a not surprising finding. Older people with better physical conditions and lower mobility limitations have more adherence to physical exercise programs.[15] This is because, as the elderly are independent to perform their daily tasks, they may feel in a position to develop CD preventive health practices. Also, as it is one of the main determinants of health perception of the elderly, functional independence can contribute to the elderly positively assess their health and be considered able and motivated to perform the preventive practices of CD. In a study with the elderly, great/very good self-assessment was associated, among other factors, with physical activity, more fruits and vegetables, computer use and not obese.[21]

The association between CD preventive practices and regular self-rated health was not observed in other studies. Probably, this association occurred because most of these older people reported two or more health problems and, therefore, they perceived their health as regular. Self-rated health is an indicator that also encompasses emotional components, aspects of well-being and life satisfaction.[22] These components may be motivating older people to undertake CD preventive practices to improve their health condition or, at least not to make it worse.

The association of CD preventive practices with females found in this study is similar to another study that investigated the association between physical activity practice and socio-demographic factors.[19] This is because women are more predisposed to perform health care activities and seek health services for disease prevention.[23]

The findings of this research should be interpreted with some limitations, as data from preventive practices were obtained from the population of only one place. However, the methodology applied to the selection of participants allows the inference of the results found.

CONCLUSION

This study showed that the prevalence of CD preventive practices occurred in most older adults and was not previously documented in other studies. The functionally independent older adults, highly educated older women who are working and self-rated their health as regular performed more CD preventive practices. These results are important because they reveal the characteristics of this population that should be taken into consideration when planning actions to promote cognitive health.

The absence of similar studies showed that more efforts should be undertaken in research that broadens the knowledge about performing CD preventive practices in the elderly. We also suggest that health professionals should develop CD prevention programs to increase the number of older adults who practice CD prevention practices, paying special attention to the functionally dependent male elderly, those with low levels of education, retirees, and those who have negative self-rated health.

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