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Original Article

COGNITION AND FUNCTIONAL CAPACITY OF ELDERLY PEOPLE WHO LIVE ALONE AND WITH RELATIVES

COGNIÇÃO E CAPACIDADE FUNCIONAL DE IDOSOS QUE RESIDEM SÓS E COM FAMILIARES

COGNICIÓN Y CAPACIDAD FUNCIONAL DE ANCIANOS QUE RESIDEN SOLOS Y CON FAMILIARES

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Objective: to evaluate the association between cognition and functional capacity of elderly people living alone and with relatives. Method: This study is cross-sectional, analytical with a sample of 368 elderly people living in an urban area of a municipality in the interior of Rio Grande do Sul, Brazil, between March 2011 and July 2012. A Specific sociodemographic characterization, the Mental State Miniexame and the Lawton-Brody Scale were used to obtain the data. Results: of the elderly participants, 79.4% lived with family members and 20.6% lived alone. Regarding the cognitive level, 43.8% of the elderly had no deficit and 55.4% had cognitive deficits. Regarding functional capacity, 88.9% of the elderly were independent and 11.1% had partial dependence for performing the instrumental activities of daily living. Conclusion: there was no significant association between cognition and functional capacity in the elderly who lived alone and with relatives.

Descriptors: Elderly. Cognition. Daily activities. Family.

Objetivo: avaliar a associação entre cognição e capacidade funcional de idosos que residem sós e com familiares. Método: estudo transversal, analítico, realizado com uma amostra de 368 idosos residentes em zona urbana de um município do interior do Rio Grande do Sul, Brasil, entre março de 2011 a julho de 2012. Para obtenção dos dados utilizou-se um instrumento de caracterização sociodemográfico específico, o Miniexame do Estado Mental e a Escala de Lawton-Brody. Resultados: dos idosos participantes, 79,4% residiam com familiar(es) e 20,6% moravam sós. Em relação ao nível cognitivo, 43,8% dos idosos não apresentaram déficit e 55,4% possuíam déficit cognitivo. Quanto à capacidade funcional, 88,9%

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idosos eram independentes e 11,1% tinham dependência parcial para a realização das atividades instrumentais de vida diária. Conclusão: não houve associação significativa entre cognição e capacidade funcional nos idosos que residiam sós e com familiares.

Descritores: Idoso. Cognição. Atividades cotidianas. Família.

Objetivo: evaluar la asociación entre cognición y capacidad funcional de ancianos que residen solos y con familiares. Método: estudio transversal, analítico, realizado con una muestra de 368 ancianos residentes en zona urbana de un municipio del interior de Rio Grande do Sul, Brasil, entre marzo de 2011 a julio de 2012. Para obtener los datos, se utilizó un instrumento de caracterización socio-demográfico específico, llamado de Miniexamen del Estado Mental y la Escala de Lawton-Brody. Resultados: de los ancianos participantes, 79,4% residían con familiar(es) y 20,6% vivían solos. En relación al nivel cognitivo, 43,8% de los ancianos no presentaron déficit y 55,4% poseían déficit cognitivo. Sobre la capacidad funcional, 88,9% ancianos eran independientes y 11,1% tenían dependencia parcial para la realización de las actividades instrumentales de vida diaria. Conclusión: no hubo asociación significativa entre cognición y capacidad funcional en los ancianos que residían solos y con familiares.

Descriptores: Anciano. Cognición. Actividades cotidianas. Familia.

Introduction

In different countries, there has been a need for some time to deal with aging issues[1]. As the population ages, the need to identify demographic and epidemiological trends increases. The increase in the proportion of elderly people in the population brings the discussion about chronic noncommunicable diseases and their consequences, such as loss of cognition and functional dependence. Functional capacity is defined, according to the International Classification of Commitment, Disabilities, and Disadvantages (ICIDH), by the absence of difficulties in the performance of certain gestures and certain activities of daily life[2].

The Instrumental Activities of Daily Living (IADL) are among the areas that make up the functionality, related to the capacity to manage the living environment, inside and outside the home. The IADLs are linked to care actions with the home, dependent relatives, administration, and sanitation of the environment, taking care of clothes, food, using household equipment, shopping, using personal or public transportation, controlling own and finances medication[2].

Cognitive losses are the ones that have the greatest negative impact on the elderly, on their families and on society in the various losses that occur with the aging process, due to the amplitude of their repercussions and the unavailability of effective treatments that can reverse the deficits already installed[3]. Some losses can be highly resistant over time, such as practical and motor skills, while others deteriorate more rapidly with age, such as learning unfamiliar information, language expression (naming), and abstract content[4].

Regarding the issues involved in aging, the Mild Cognitive Decline (MCD) or Mild Cognitive Impairment (MCI) is an expected deficit for the age and education of the elderly people[5-6]. A study showed that there is a relationship between the severity of cognitive changes and functional performance in daily activities. Thus, based on the mild cognitive impairment, losses are detected as a priority in the IADLs[7].

Although old age is not considered an illness, at this stage of life the risk of becoming ill increases, losing autonomy and functionality. As a result, the elderly require more attention and care. Faced with this situation, the effective presence of the social network is important, since the elderly without family support or with an inadequate socio-familial structure have higher mortality, depression, cognitive alterations and a worse perception of their health state than those who have the support of relatives[8-9]. Studies have highlighted that the elderly people living with the family have better functional and cognitive performance [9,1]. This evidence raises the importance of the family in the care of the

elderly, mainly in safety, quality of life and other aspects involved with the health and the needs of these individuals.

The adaptations resulting from aging are related to the role of the elderly in society and the acceptance of family members. In old age, the individual tends to need more support, and the family is still the largest provider of support for the elderly[10]. In this study, "[...] family is who its members say they are"[12:24].

Thus, assessing the different cognitive abilities in the elderly population contributes to the identification of neuropsychological and functional transition profiles that may occur between benign aging and dementia syndromes[13]. The screening of cognitive and functional conditions is fundamental for the planning of actions and interventions that favor the promotion and maintenance of functional capacity of the elderly[14-15].

Based on the mentioned aspects, this study aims to evaluate the association between the cognitive and functional capacity of elderly individuals living alone and with relatives.

Method

This is a cross-sectional, analytical study carried out in a municipality in the northern part of the state of Rio Grande do Sul, Brazil, from March 2011 to July 2012.

The sample consisted of 368 elderly men and women living in urban areas, calculated based on the population of 4,421 elderly. The sample calculation was carried out for analytical studies with the probabilistic sample, of the simple random type, using the formula: $n0 = 1/(E0)^2$ and $n=(N*n0)/(N+n0)$. They were: N=population size (4,421 elderly), E0=tolerable sample error (5%), n0=first approximation of sample size (400 elderly) and n=sample size (368). Participants were located by the identification and address provided by the City's Family Health Strategies (FHS). Inclusion criteria were to be 60 years old or older, have verbal, comprehension and non-institutionalized conditions.

The data were obtained at the home of each elderly person, with the help of a questionnaire containing sociodemographic questions called the of the Mini Mental State Exam (MMSE) for cognition evaluation, and the Lawton and Brody Scale, to evaluate the ability to perform the IADLs. The MMSE is an instrument to detect cognitive losses, composed of questions grouped into seven categories, evaluating components of cognitive function related to temporoal-spatial orientation (5 points each), data retention or recording (3 points), attention (5 points), memory (3 points), language (8 points) and constructive and visual capacity (1 point). The MMSE score can range from 0 to 30 points. It has a score of differentiated cuts, in which the cutoff point for the elderly without education is 20. Scores below this value are indicators for cognitive deficit. For the elderly with education, the cutoff point is 25, and scores below this value are indicative of cognitive decline[16]. For this study, these scores were adopted and the elderly were classified as "with cognitive deficit" and "without cognitive deficit".

The Lawton and Brody Scale[17] is based on the self-report of the skills needed to live in community and assesses the capacity for the realization of IADLs. The scale contains questions about the ability to prepare meals, perform household chores, do laundry, handle medications, use the telephone, handle money, shoping, and use of transportation. Each of these actions are classified as 1 to 3, where 1 represents dependence for such a function, 2 means that the elderly need help and 3 expressing total independence for the function. The maximum score is 27 points and the score has meaning only individually, as a comparative character for the evolution of the overall picture, with total dependence of the elderly with a score = ≤ 5, partial dependence if score => 5 <21 (between 5 and 21) and independence if score => 21 (greater than 21)[17]. In this case, the variables "partial dependence" and "independence" were used to show the results.

Statistical Package for Social Sciences (version 21.0) was used to analyze and organize the data. An absolute and relative frequency analysis of the qualitative variables were performed. Pearson's chi-square test with Yates correction

was performed to verify the association between the groups (residing with family members and living alone) and the variables (cognitive ability and functional capacity). The 95% confidence interval for the results was adopted.

The research was approved by the Committee on Ethics in Research with Human Beings, under the number of Process 23081.004702/2011-76, and observed the Regulatory Directives and Norms of Resolution n. 466/2012 of the National Health Council (CNS). Participants signed the Free and Informed Consent Term (TCLE).

Results

A total of 368 elderly people participated in the study. There were 292 of them living with relatives (61.0%) and 76 (39.0%) living alone. As to gender of the elderly who lived with relatives, 178 (61.0%) were female, and 114 (39.0%) were male. In the elderly living alone, 61 (80.2%) were female, and 15 (19.8) were male. In this study, residing with family members including spouse or partner, child (ren), grandchild (s), brother (s), brother-in-law, cousin (s) and friend (s).

Regarding the age, 33 of the elderly who lived alone (43.4%) had 70 to 80 years old and the 140 elderly who lived with family (47.9%), were 60 to 70 years old. Most of them, 161 (43.8%) of the study participants were between 60 and 70 years old; and 273 (74.2%) had an incomplete primary education.

The prevalent family income was up to a minimum wage, which, for the elderly who lived alone, accounted for 43 (57.9%) individuals and 112 (39.0%) for those who lived with their families.

Regarding health aspects, 321 elderly (87.2%) reported using medication. Regarding the presence of diseases, 67 (88.1%) elderly individuals living alone and 241 (82.5%) elderly individuals living with relatives reported one or more diseases. The most prevalent diseases were cardiovascular diseases (72.3% and 65.7%) and osteoarticular diseases (30.2% and 17.5%) for the elderly who lived alone and with relatives, respectively.

The practice of physical activity was investigated and most of the elderly admitted that they did not exercise: 41 (53.9%) elderly individuals living alone and 171 (58.5%) elderly people living with relatives.

Regarding the cognitive level, 161 (43.8%) elderly had no deficit, 204 (55.4%) had a cognitive deficit and three (0.8%) did not respond. Regarding functional capacity, 327 (88.9%) elderly were independent and 41 (11.1%) presented partial dependence for the IADLs. Regarding the number of falls episode, 51 (67.1%) elderly individuals living alone and 144 (49.3%) living with relatives have already fallen.

Table 1 shows the associations between the groups: they lived alone and lived with family members, and the variables: cognition and functional capacity.

Table 1 – Association between elderly people living alone and elderly living with family members, with cognition and functional capacity. Palmeira das Missões, Rio Grande do Sul, Brazil - 2012. (N=365)

Variable	Living alone	Living with relatives	p-value
	n= 76	n= 292	
Mini Mental State Exam*w			
With cognitive *déficit*	49	157	0.313
Without cognitive *déficit*	24	135	
Instrumental Activities of Daily Living			
Partial dependency	06	35	0.157
Independency	70	257	

Source: Created by the authors.

* Three participants residing alone did not respond; P-value: chi-square.

There was no significant association between cognition, χ^2 (1) = 3.7 (p = 0.157) and functional capacity, χ^2 (1) = 1.0 (p = 0.313), in the elderly living alone and living with relatives.

Discussion

There was a predominance of elderly people who lived with relatives (61.0%) when compared to the elderly who lived alone (39.0%). The family context is an essential element for the well-being of the elderly, who find in this environment support and familiarity for the different situations they experience and also relationships that guarantee a space of belonging with the family members[11].

In a review study that aimed to establish bases of argumentation to understand the reasons that lead an elderly person to live alone, it was highlighted that better socioeconomic and health conditions, older age and absence of children seem to contribute to the elderly being alone[10].

For some elderly people, family co-dependency is necessary, since it helps solve daily issues of an affective, physical or financial nature, as well as to share daily coexistence[10]. For others, socializing may be unwanted, but it has as the only option, to the detriment of an institutionalization. Living alone can be an alternative for older people who maintain their independence and autonomy or even be unavoidable for those who, even if they feel lonely or abandoned, do not have other people with whom they can cope[11].

It is worth emphasizing that family and friendship relationships are significant for coping with everyday situations and the feeling of loneliness that can emerge in old age. Thus, the family context is the first place of care, the one that is increasingly reduced to its essential nucleus and the provision of quality care to the older member who has some dependence[18].

Regarding the study population, most elderly individuals living alone were between 70 and 80 years old. In older family arrangements, an investigation revealed that, after 80 years old, physical, economic or psychological dependence increases, leading to the need for the family to move in with the elderly or vice-versa, favoring the younger and older generations[19].

Regarding the falls, 67.1% of the elderly who lived with relatives and 49.3% of the elderly who lived alone fell, differently from a survey conducted with 138 elderly participants of the Veranópolis project in Rio Grande do Sul, Brazil. Evaluated the functionality and prevalence of falls using the Lawton and Brody scale and others. In the investigated group, 31.9% of the participants who lived with relatives reported a decrease in the last year. The study also concluded that for the elderly, living with a relative is an important predictor of increased risk of falls[20].

A Dutch study[22] explored the impact of the fall for the older, community-dwelling elders and their families who had a cognitive deficit and had recently fallen. In the results found, most of the participants did not know the cause of the fall due to their own cognitive problems. The authors also suggest that actions and programs aimed at preventing falls among the elderly, especially those with cognitive disabilities, should include the family, aiming to enable it to act as a co-therapist, overcoming problems related to functional disability and impaired cognitive learning of the elderly.

The results of this study showed that there was no significant association between cognition (p=0.157) and functional capacity (p=0,313) in the elderly who lived alone and with relatives. This condition may be associated with the fact that the family usually takes responsibility for elderly care, especially when the family is dependent or having weak health. In many cases, by accommodating the elderly in their residence, the family can benefit them as well as limit their potential for autonomy and functionality. Thus, living alone meant having greater independence and autonomy.

The prevalence of factors associated with the cognitive deficit was evaluated in a survey of 1,593 elderly people, using the MMSE at home, and the probability of presenting cognitive deficit ($p < 0.05$) was higher, among other factors, among elderly individuals without a partner and

who lived alone[21]. Another study that evaluated the mental state of 74 elderly people found a prevalence of cognitive decline in 36.5%; Of them, 18.9% were married[23].

The need for help - physical, financial and emotional - causes many older people to stop living in their own homes to live with their families. Among other factors, functional or cognitive incapacity tends to make the elderly dependent on the greater need for care[19] and, consequently, more susceptible to new home arrangements[8]. In this new scenario, the elderly need to adapt to a new family dynamics and a different daily routine.

A study carried out in Brazil showed that the variable "living alone" proved to be a protective factor for the impairment of functional capacity, confirming that an elderly person who can live alone demonstrates that he is independent and autonomous[24].

Developing studies about the cognitive and functional capacity of elderly individuals living alone or with family members can contribute to the planning of actions and interventions that promote health promotion and maintenance of these functions. Also, it can be used to monitor the living and health conditions of elderly residents in the community, with the family having the important role of providing social support and care for the elderly.

Conclusion

The results showed that most of the elderly lived with relatives were between 60 and 70 years old, had incomplete elementary school, presented cognitive deficit and were independent for the accomplishment of the instrumental activities of daily life. It was verified that there was no significant association between cognition and functional capacity in the elderly who lived alone and with relatives.

In this scope, the study reinforced the importance of including and inserting the family as an active subject in the aging process, especially as the elderly population increases their age since this can directly influence the quality of life of the elderly. After all, it is at this stage of life that physical, financial, and affective difficulties tend to emerge with greater intensity.

The limitations of the study were related to the cross-sectional design, which did not allow a cause-and-effect relationship since it was restricted to the elderly living in urban areas and linked to the FHS of the city surveyed. In this sense, it is suggested the development of investigations that extend the geographical region of origin of the participants, since the presented results can not be taken as absolute and that may include the family of the elderly as an active participant.

Collaborations

1. design, project, analysis and interpretation of data: Bruna Stamm, Marinês Tambara Leite, Leila Mariza Hildebrandt and Rosane Maria Kirchner;

2. article writing, relevant critical review of intellectual content: Bruna Stamm, Marinês Tambara Leite, Leila Mariza Hildebrandt, Rosane Maria Kirchner, Nara Marilene Oliveira Girardon-Perlini and Margrid Beuter;

3. final approval of the version to be published: Bruna Stamm.

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