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Original Article

Association between bio-sociodemographic profile and advanced activities of daily living in hospitalized elderly people

Associação entre perfil biossociodemográfico e atividades avançadas de vida diária em pessoas idosas hospitalizadas

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José Vitor da Silva[1]
Elaine Aparecida Rocha Domingues[2]
Fabiana de Souza Orlandi[1]
Edison Vitório de Souza Júnior[3]
Daniel Rodrigues Machado[4]

[1]Universidade Federal de São Carlos. São Carlos, SP, Brazil.
[2]Universidade Estadual de Campinas. Campinas, SP, Brazil.
[3]Universidade de São Paulo. Ribeirão Preto, SP, Brazil.
[4]Fundação Presidente Antônio Carlos. Ubá, MG, Brazil.

Corresponding author:
Elaine Aparecida Rocha Domingues
Travessa Costa de Lavos, 59, Portal do Panamá,
CEP: 17113114. Campo Grande, MS, Brazil.
E-mail: elainerocha.contato@gmail.com

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ABSTRACT
Objective: to evaluate the relationship between bio sociodemographic characteristics and advanced activities of daily living in hospitalized elderly people. **Methods:** cross-sectional study. Two hundred hospitalized elderly people participated. The instruments were used: Mental Status Assessment Questionnaire, Bio-sociodemographic and Health Characterization Instrument and Advanced Activities of Daily Living Scale. **Results:** age impacted social (p=0.024), leisure (p=0.004), intellectual (p=0.017) and religious (p=0.047) activities. Regarding gender, men presented higher scores in leisure (p=0.046) and intellectual (p=0.002) activities; on the other hand, women obtained better scores in religious activities (p=0.001). The variables "family income", "physical disability" and "physical activity" were significantly associated with the global score. **Conclusion:** there was an association of the variables "age", "education", "family income", "physical disability", "physical activity practice" and "health status perception" with the global score of the scale. Most of the bio sociodemographic variables showed association with the Leisure Activities domain. **Contributions to practice:** the elucidation of factors that may be related to the performance of advanced activities in hospitalized elderly people can support the improvement of care.
Descriptors: Aged; Hospitalization; Activities of Daily Living; Geriatric Nursing.

RESUMO
Objetivo: avaliar a relação entre as características biossociodemográficas e atividades avançadas de vida diária em pessoas idosas hospitalizadas. **Métodos:** estudo transversal. Participaram 200 pessoas idosas hospitalizadas. Utilizaram-se os instrumentos: Questionário de Avaliação do Estado Mental, Instrumento de Caracterização Biossociodemográfica e de Saúde e Escala de Atividades Avançadas de Vida Diária. **Resultados:** a idade impactou as atividades sociais (p=0,024), de lazer (p=0,004), intelectuais (p=0,017) e religiosas (p=0,047). Em relação ao gênero, os homens apresentaram maiores escores nas atividades de lazer (p=0,046) e intelectuais (p=0,002); por outro lado, as mulheres obtiveram melhores pontuações nas atividades religiosas (p=0,001). As variáveis "renda familiar", "incapacidade física" e "atividade física" se associaram significantemente com o escore global. **Conclusão:** houve associação das variáveis "idade", "escolaridade", "renda familiar", "incapacidade física", "prática de atividade física" e "percepção do estado de saúde" com o escore global da Escala. A maior parte das variáveis biossociodemográficas mostrou associação com o domínio Atividades de Lazer. **Contribuições para a prática**: a elucidação de fatores que podem estar relacionados com a realização de atividades avançadas em pessoas idosas hospitalizadas pode subsidiar a melhoria da assistência.
Descritores: Idoso; Hospitalização; Atividades Cotidianas; Enfermagem Geriátrica.

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Introduction

Functional capacity can be understood as the ability to plan and perform activities of daily living necessary to assist in the continuity of health and life satisfaction of the elderly[1]. Studies on the functional capacity of the elderly are essential to understand how these individuals experience the additional years gained by increasing longevity and thus support health actions that can contribute to active aging[2].

The impairment of functional capacity is conditioned to a situation predisposed to dependence, vulnerability and violent acts, which may have results during life, involving early death. Therefore, investigations on the functional capacity of the elderly have gained increasing relevance around gerontology, since aging without disability helps maintain quality of life[3].

From this perspective, functional capacity is usually measured by means of behavior in day-to-day activities. Such activities can be separated in three parts: (1) basic activities of daily living (BADLs) - habitual and proper occupations directly associated with life; (2) instrumental activities of daily living (IADLs) - occupations that concern the maintenance of life in society; and (3) advanced activities of daily living (AADLs) - constitute the third group of activities of daily living and refer to personal, contextual, and environmental factors. The latter still encompass social, physical, intellectual, productive, and leisure activities, developed at available moments, without direct dependence on the work activity, including the voluntary aspect of people, learning activities, and social activities, arising from personal reasons. Functional capacity refers to several indicators, health being one of them. In this sense, such an indicator is relevant in gerontological research, considering that this ability keeps the elderly active and healthy in relation to their daily activities and helps to establish life satisfaction. The performance of these tasks is influenced by the individual's health status, functional capacity, age, gender and socioeconomic aspects[4].

The performance of AADLs by elderly people can signal good overall health, while the decrease in the interconnection of these activities can be an important marker of cognitive and functional decline. Taking this into consideration, this reduction precedes the losses in IADLs and BADLs[5-7].

The state of the art reveals the existence of some investigations that associate the health conditions of the elderly with the AADLs, addressing few reflections regarding the bio sociodemographic profile. Thus, when practicing these activities, this population shows higher chances of presenting cognitive gain and less cognitive decline[8]. In line with this, another study indicates that non-institutionalized elderly people who perform these activities have fewer chances of cognitive decline[9].

Among the hospitalized elderly population, the advanced activities of daily living constitute an action with the possibility of promoting the well-being of these people and reducing the impacts of hospitalization. On the other hand, the lack of these activities may promote or exacerbate loneliness, challenges to maintain community contact and physical symptoms of hospitalized elderly people[10-12].

It should be considered that hospitalization is seen as an unsatisfactory event for the patient, since it provides changes in habits and distancing from the family and social circle. For the elderly, the negative impacts of hospitalization may be even more pronounced, since they are almost always restricted to bed and may live with the feeling of proximity to death, with hospital infections, polypharmacy and reduced functional capacity[13].

Considering, therefore, that there is evidence of some positive impacts of AADLs on the health of the elderly[14], it becomes necessary to study whether there is an association of bio sociodemographic variables with these activities to contribute to better planning of care for hospitalized elderly people.

In this context, the present study aimed to evaluate the relationship between bio sociodemographic characteristics and advanced activities of daily living in hospitalized elderly people.

Methods

This research is characterized as cross-sectional and followed the guidelines of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) instrument. It was carried out in the inpatient units of medical and surgical clinics of a university hospital, located in the south of the state of Minas Gerais, Brazil, between March and May 2022.

To estimate the sample size, we included ten participants per item of the AADLs Scale, which is composed of 20 items[15]. Thus, the number of participants in this study was 200 hospitalized elderly people. The sample was non-probabilistic, by convenience. In the first moment, the researchers contacted the nurses in charge of the inpatient units to schedule the field work. On the dates scheduled for data collection, the nursing staff contributed to the active search for possible study participants.

Elderly people aged 60 years or more, hospitalized for at least 48 hours with cognitive status (estimated by the Mental State Evaluation Questionnaire) were included, since studies argue the influence of cognition on the performance of AADLs[16-17]. Patients hospitalized in frail situations with impaired vital signs (hypotension and hypertension) and with less than 24 hours of hospitalization in that health institution were excluded.

After consenting to participate in the study, the elderly individuals were interviewed in a reserved, quiet place, with privacy and without interruptions (office, classroom, meeting room, bed). It is important to mention that, before data collection, meetings were held with the university hospital's board of directors, as well as with the nurses of the inpatient units, to obtain their consent for the research, as well as to explain and make the work group sensitive to the research's objective and the institution's need to participate.

The following research instruments were used: 1) Mental State Evaluation Questionnaire, 2) Bio sociodemographic and Health Characterization Instrument and 3) Scale of Advanced Activities of Daily Living[16-17].

The Mental Status Assessment Questionnaire is formed by ten questions that briefly analyze spatio-temporal conduction and mnemonic capacity for late events. Its use is widely recommended as a way to screen cases for further evaluation[9]. Therefore, it is fundamental to clarify that the questionnaire was used only to detect a certain cognitive alteration that would prevent the individual from participating in the study and did not intend to characterize the cognition of the participants.

The Biosociodemographic and Health Characterization Instrument was based on the Brazil Old Age Schedule (BOAS)[18], the Health, Well-Being and Aging Study (SABE) questionnaire[19] and the data collection instrument of the Longitudinal Study of the Health of Elderly Brazilians (ELSI-Brazil)[20]. It is composed of the following variables: age, gender, education, marital status, family income, perception of current health status, chronic disease, physical disability and practice of regular physical activity before hospitalization - all these conditions self-reported by the elderly.

The Scale of Advanced Activities of Daily Living is the result of the work performed by the first author of this research, after a vast literature review, added to his broad experience with the subject[17,21]. It consists of 20 items divided into four domains: Domain 1 - Social Activities (7 items); Domain 2 - Leisure Activities (8 items); Domain 3 - Intellectual Activities (2 items); and Domain 4 - Religious Activities (3 items). As a response, there are the following alternatives: I never did (1 point); I stopped doing (2 points); and I do (3 points).

In this context, the minimum score of the global scale corresponds to 20; and the maximum, to 60 points - knowing that the highest score reveals better practices of AADLs, and the lowest reflection the opposite situation. It is noteworthy that the investigations on these activities usually use questionnaires built by the authors of the studies themselves based

on the literature review, due to the incipiency of validated instruments on the subject, the high context of subjectivation associated with these activities, and the lack of consensus regarding the ideal assessment protocols, since this is a new concept[22]. After obtaining the data, they were typed, checked independently by two technical research assistants, and analyzed using SPSS 21.0.

The data collected in this study were evaluated using descriptive statistics (relative frequency, mean, and standard deviation). From the inferential statistics, the Mann-Whitney non-parametric tests were applied, as well as the Kruskal-Wallis and Tukey multiple comparison tests. It is noteworthy that the non-parametric tests were indicated after results from the Kolmogorov-Smirnov normality test, which indicated a non-normal trend.

Additionally, Spearman's correlation coefficient (r) was calculated to quantify the degree of association between variables. Thus, we adopted as cutoff points: r less than 0.40 for weak correlation; r between 0.40 and 0.69 for moderate correlation; r greater than 0.69 for strong correlation. The significance level adopted for all associations was 5% ($p<0.05$).

Regarding the ethical aspects of the present work, it received approval from the Committee for Ethics in Research with Human Subjects with consubstantiated opinion number 2,734,851/2018. Therefore, the precepts related to the ethics of research involving human beings were considered and respected, according to Resolution 466/12.

Results

Among the 200 participants included, most were female (56%); with incomplete elementary school education (47.5%); married (37.5%); with a family income of at most one minimum wage (61.5%). The mean age of the hospitalized elderly was 78.8 years (standard deviation [SD] = 6.2).

Analyzing the self-assessment of health, 43.5% classified it with the concept "good". Additionally, 77.5% said they were affected by a chronic disease. On the other hand, 72.5% denied having a physical disability, and most (70.5%) said they did not perform physical activity.

Table 1 highlights the correlation between age and the AADLs of the study participants. In this, it is evident that all domains (Social Activities ($p=0.024$), Leisure Activities ($p=0.004$), Intellectual Activities ($p=0.017$), Religious Activities ($p=0.047$) and the total score ($p<0.001$) were significant and with negative coefficients, i.e., the older the age, the lower the scores in the domains and in the total of the advanced activities of daily living.

Table 1 – Association between age and advanced activities of daily living of the study participants (n=200). Pouso Alegre, MG, Brazil, 2022

Domain	r (p-value)*
Social Activities	-0.160 (0.024)
Leisure Activities	-0.205 (0.004)
Intellectual Activities	-0.169 (0.017)
Religious Activities	-0.140 (0.047)
Advanced Activities of Daily Living Scale	-0.247 (<0.001)

*Statistical significance by Spearman's correlation coefficient ($p<0.05$)

Table 2 shows the association between the bio sociodemographic profile and the advanced activities of daily living. Regarding gender, men obtained higher scores in Leisure Activities ($p=0.046$) and Intellectual Activities ($p=0.002$); and women, in Religious Activities ($p=0.001$).

The variables "family income", "physical disability" and "physical activity" were significantly associated with the global score of the Scale of Advanced Activities of Daily Living. All bio sociodemographic variables were significantly associated with the Leisure Activities domain of the Advanced Activities of Daily Living Scale.

Table 2 – Association between the bio sociodemographic profile and the advanced activities of daily living of the study participants (n=200). Pouso Alegre, MG, Brazil, 2022

Variables	Average and standard deviation				
	Social Acticities (7-21)*	Leisure Activities (8-24)*	Intellectual Activities (2-6)*	Religious Activities (3-9)*	Global Score (20-60)*
Gender					
Male	15.6 (2.7)	12.7 (2.5)	4.2 (1.6)	6.9 (1.5)	39.4 (6.1)
Female	15.2 (2.5)	12.0 (2.1)	3.5 (1.5)	7.5 (1.3)	38.3 (5.3)
p-value	0.234	0.046†	0.002†	0.001†	0.272
Family income (minimum wage)					
Up to 1	14.9 (2.4)	12.0 (2.2)	3.4 (1.6)	7.1 (1.3)	37.5 (5.1)
> 1	16.2 (2.8)	12.8 (2.4)	4.4 (1.4)	7.4 (1.5)	40.8 (6.0)
p-value	<0.001†	0.013†	<0.001†	0.140	<0.001†
Chronic Illness					
Yes	15.2 (2.5)	12.2 (2.3)	3.7 (1.5)	7.3 (1.3)	38.4 (5.5)
No	16.0 (2.9)	13.0 (2.2)	4.1 (1.8)	7.2 (1.6)	40.2 (6.0)
p-value	0.056	0.023†	0.193	0.757	0.069
Physical disability					
Yes	13.7 (1.7)	11.5 (1.9)	3.1 (1.3)	6.6 (1.2)	35.0 (3.9)
No	16.1 (2.6)	12.7 (2.4)	4.1 (1.6)	7.5 (1.4)	40.3 (5.6)
p-value	<0.001†	0.002†	<0.001†	<0.001†	<0.001†
Physical activity					
Yes	16.4 (2.6)	12.8 (2.2)	4.2 (1.7)	7.6 (1.5)	41.0 (5.2)
No	15.0 (2.5)	12.1 (2.3)	3.7 (1.5)	7.1 (1.3)	37.8 (5.6)
p-value	<0.001†	0.012†	0.058	0.020†	<0.001†

*Minimum and maximum possible score; †Statistical significance by Mann-Whitney test (p<0.05)

Table 3 shows evidence that the variable "education" was associated with the domains Social Activities and Intellectual Activities. The variable "perception of health status" was associated with Leisure Activities and Religious Activities of the Advanced Activities of Daily Living Scale. Elderly people who perceived their own health as optimal had better overall performance in AADLs. The variables "level of education" and "perception of health conditions" were associated with the overall score of the AADLs scale; and with Leisure Activities and Religious Activities.

Table 3 – Association between the bio sociodemographic profile and advanced activities of daily living of hospitalized elderly people (n=200). Pouso Alegre, MG, Brazil, 2022

Variables	Average and standard deviation				
	Social Activities (7-21)*	Leisure Activities (8-24)*	Intellectual Activities (2-6)*	Religious Activities (3-9)*	Global Score (20-60)*
Marital Status					
Married	15.6 (2.6)	12.5 (2.7)	4.1 (1.5)	7.3 (1.4)	39.4 (6.2)
Single	15.9 (2.5)	12.3 (1.7)	3.6 (1.7)	7.3 (1.5)	39.2 (4.5)
Widowed	14.9 (2.6)	12.1 (2.1)	3.4 (1.6)	7.2 (1.3)	37.6 (5.3)
Divorced	15.7 (2.9)	12.7 (2.3)	4.3 (1.5)	7.1 (1.5)	39.7 (6.2)
p-value	0.382	0.682	0.052	0.866	0.193
Education					
None	14.4(1.6)‡	11.8 (1.7)	2.3 (0.9)‡	7.0 (1.2)	35.4 (3.2)
Elementary school incomplete	15.3 (2.8)	12.5 (2.5)	4.0 (1.5)‡	7.2 (1.4)	39.0 (5.8)
Elementary school complete	16.1 (2.6)‡	12.2 (2.3)	4.3 (1.4)‡	7.7 (1.4)	40.3 (5.9)
High School and above	15.9 (3.0)	13.4 (1.9)	4.6 (1.7)‡	7.0 (1.5)	40.9 (6.0)
p-value	0.028†	0.062	<0.001†	0.088	<0.001†
Perception of health					
Excellent	16.7 (3.3)	13.9 (2.5)‡	4.6 (1.5)	7.8 (1.3)‡	43.0 (6.6)‡
Very Good	15.5 (2.7)	12.4 (2.2)	3.7 (1.7)	7.5 (1.4)	39.0 (6.2)
Good	15.6 (2.6)	12.6 (2.4)	4.0 (1.6)	7.4 (1.4)	39.5 (5.5)
Fair	15.0 (2.4)	11.9 (2.0)	3.6 (1.5)	6.8 (1.3)‡	37.2 (4.8)‡
Bad/poor	14.6 (2.5)	11.2 (1.7)‡	3.2 (1.4)	6.6 (1.4)‡	35.6 (4.6)‡
p-value	0.275	0.022†	0.100	0.009†	0.002†

*Minimum and maximum possible score; †Statistical significance by Kruskal-Wallis test (p<0.05); ‡Statistical significance by Tukey's test (p<0.05)

Discussion

The results replicated those of other studies conducted with older people, showing that the older the person, the lower the AADLs; it is indicated that such activities tend to reduce over the human aging process due to possible biological issues that lead to health dysfunctions more frequently[17]. In the Northeast of Brazil, older people with higher age groups showed lower levels of independence for basic activities, instrumental and advanced activities of daily living[3].

The variable "gender" was significantly associated with the domains Leisure Activities, Intellectual Activities and Religious Activities, and both the elderly Men and women achieved high scores in the domain Religious Activities. Religiosity is a phenomenon present in the life of the population, especially among the elderly, in which it plays a prominent role in contributing to explaining the meaning of life. Thus, high levels of religiosity are related to lower conditions of depression in older adults when compared to those younger[22].

In the context of aging, religiosity contributes to the sense of well-being, reduces the levels of anguish and uselessness, and provides the development of resilience in the face of adverse situations common to aging, such as physiological vulnerability, comorbidity, social isolation, loss of a loved one, hospitalization, and violence. It leads to the understanding that the aging process is something positive that people

should go through, understanding in a more positive way the meaning of life itself. In the process of hospitalization, for example, the elderly tend to find themselves more sensitive and vulnerable, and often end up resorting to religiosity to cope with the disease[23].

There is an association between spirituality/religious practices and geriatric syndromes. Lower scores for "assiduity in mass and communion" were associated with frailty[12]. These results seem to be important in supporting the benefits of religious practices among hospitalized elderly people, as such activity may somehow collaborate in the recovery of health and promotion of psychospiritual well-being during hospitalization. In addition, religious practices may also generate benefits in the mental health of these individuals.

Family income, physical disability, physical activity, education, and perceived health status were variables that were associated with the global score of the Scale of Advanced Activities of Daily Living. This finding is congruent with other studies carried out with elderly people[7,18], ratifying the need for detection and management of bio sociodemographic conditions that may compromise the performance of AADLs in this age group.

It is known that the aging process brings about distinct anatomical and physiological changes. Furthermore, cognitive and behavioral changes may be present in this population. In this sense, according to research, regular physical activity allows elderly people to age healthily and independently, resulting in better quality of life and independence in advanced daily activities[24].

The perception of health by the elderly is directly linked to life satisfaction, which is a remarkable counterpart of physical capacity, as it conglomerates the addition of health factors and aspects considered essential for the elderly, which impact the well-being and advanced activities of daily living[2].

Regarding income, research has identified that purchasing power is considered a predictor of better performance of AADLs in the elderly, which is corroborated by the results of this research. Profitability allows the elderly to have access to different leisure and social activities, as well as to invest in their schooling[4]. Coupled with this, it is evident that the level of education, specifically high school and college, allowed better results regarding Intellectual Activities and the total score of AADL.

It is emphasized that, of the nine bio sociodemographic variables in the present study, seven were statistically associated with Domain 2 (Leisure Activities) of the Scale of Advanced Activities of Daily Living. This domain corresponds to the performance of activities considered important and that contribute to relaxation, self-actualization, entertainment, recreation, pleasure and personal development of the elderly. Thus, performing leisure activities when alone may help reduce the negative effects of hospitalization; it becomes an alternative to complete the available time, instigating the interrelationship with those around them (health professionals and other patients), among other advantages[10].

Elderly people over 65 years of age who were more active in leisure activities showed better satisfaction with self-esteem and lower scores on depressive symptom scores. Therefore, these recreations play a fundamental role in well-being and indicate better physical and mental health status[22]. However, when it comes to hospitalized elderly people, there is not much scientific evidence on activities that can be implemented in hospital settings[25-27].

The admission of the elderly to a hospital is a convenient time to identify leisure activities that are performed by the patient at home and that would be interesting to be continued in the hospital environment. Simple activities such as the use of magazines, games, books, crochet materials, radio, among other electronic devices, can be used to mitigate the effects of hospitalization and provide leisure to hospitalized elderly people[10].

It is up to the health team to evaluate the elderly during hospitalization aiming to apply measures to reduce their disabilities, in addition to preventing the

loss of functional capacity[28], through assistance that follows the principles of gerontology. Such principles consider the performance of AADLs (for example., intellectual stimulation through varied games) and cultural activities (e.g., art and music workshops) whenever possible. It should also be noted that hospitals and people have unique characteristics, and it is necessary to consider the interventions related to social, leisure, intellectual and religious activities in the face of specific realities.

Study limitations

A limitation of the present research is the fact that it is cross-sectional, which did not allow establishing causality between the bio sociodemographic variables and the AADLs. Another limitation is related to the non-inclusion of some clinical variables, such as: main medical diagnosis and total days of hospitalization. In addition, the scarcity of studies on such activities in hospitalized elderly people made it difficult to compare the findings of this research.

However, the present work is pioneering. Due to the little evidence of the theme related to the proposed audience, it is suggested a greater appreciation of the AADLs among hospitalized elderly people.

Contributions to practice

No matter how much we have already advanced considerably in the field of health praxis, disseminating discourses of integral and holistic care, it is still necessary to understand that the hospitalized elderly person also needs encouragement to perform advanced activities of daily living in the hospital environment. It focuses on specific pathological complaints and forgets that the stimulation of activities, even if inside the hospital environment, is a potential non-pharmacological therapeutic resource that can help in the recovery, cure and, consequently, in the hospital discharge.

Conclusion

It was concluded that the older the elderly, the worse the impact on the advanced activities of daily living, specifically in the domains of Social Activities, Leisure Activities, Intellectual Activities and Religious Activities. It was also evident that men presented a better performance in Leisure Activities and Intellectual Activities, while women presented a better performance in Religious Activities.

In relation to family income, physical disability and physical activity, an association with the global score of the Scale of Advanced Activities of Daily Living was highlighted. All bio sociodemographic elements were significantly associated with the Leisure Activities domain of the Advanced Activities of Daily Living Scale.

Authors' contribution

Conception and design or data analysis and interpretation: Silva JV, Domingues EAR, Orlandi FS, Souza Júnior EV, Machado DR.

Writing of the manuscript or relevant critical review of the intellectual content: Silva JV, Domingues EAR, Machado DR.

Final approval of the version to be published and agreement to be responsible for all aspects related to the accuracy or completeness of any part of the manuscript to be investigated and resolved: Silva JV, Domingues EAR, Orlandi FS, Souza Júnior EV, Machado DR.

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