

Functional dependence on instrumental activities of daily living: prevalence and characterization of elderly people

Dependência funcional para atividades instrumentais de vida diária: prevalência e caracterização de pessoas idosas

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Resumo

INTRODUÇÃO: O processo de envelhecimento, quando associado a condições crônicas, podem levar o idoso a apresentar redução na funcionalidade. **OBJETIVO:** Verificar a prevalência e características de pessoas idosas com dependência para atividades instrumentais de vida diária (AIVD), assistidos por uma Unidade de Saúde da Família (USF) de Vitória-ES. **MÉTODOS:** Estudo transversal realizado com amostra sistemática de 241 idosos. Coletou-se por meio de questionário semiestruturado as características sociodemográficas, comportamentais, e condições de saúde dos idosos. Foi aplicado as escalas de Tinetti, SF-36 e Lawton e Brody. Os dados foram analisados de forma descritiva. **RESULTADOS** A prevalência de dependência para a realização das AIVD foi de 34%. O perfil dos idosos dependentes para AIVD foi majoritariamente do sexo feminino (65,9%) entre 60 e 74 anos (54,9%), pardos/pretos (73,2%), com escolaridade de até quatro anos (68,3%), com companheiros (51%), vivendo em residência multigeracional (51,2%), sem restrição ao lar (51,2%), que não fazem uso de cigarro ou álcool (82,9%), não costumam praticar atividades físicas (81,7%), que apresentam multimorbidade (75,6%), sem polifarmácia (51,2%), não apresentam sintomas depressivos (51,2%), possuem maior risco de quedas (73,2%) e percepção regular/negativa da qualidade de vida (85%). **CONCLUSÃO:** É importante a aplicação de estratégias considerando o perfil encontrado, atuando de forma preventiva, estimulando o acompanhamento com a equipe multidisciplinar, e a elaboração de grupos de exercícios e danças para promover a prática de atividades físicas e de lazer, bem como a socialização desses idosos.

Palavras-chave: Atividades cotidianas; Saúde do idoso; Condições de saúde.

Abstract

INTRODUCTION: The aging process, when associated with chronic conditions, can lead the elderly to a reduction in functionality. **OBJECTIVE:** Verifying the prevalence and characteristics of elderly people with dependence on instrumental activities of daily living (IADL), assisted by a Family Health Unit (FHU) in Vitória-ES. **METHOD:** A cross-sectional study was conducted with a systematic sample of 241 elderly people. A semi-structured questionnaire was used to collect the sociodemographic and behavioral characteristics and health conditions of the elderly. The Tinetti, SF-36, and Lawton and Brody scales were applied. The data was analyzed descriptively. **RESULTS:** The prevalence of dependence for performing IADL was 34%. The profile of dependent elderly for IADL was mostly females (65.9%) between 60 and 74 years old (54.9%), brown/black (73.2%), with up to four years of schooling (68.3 %), with partners (51%), living in a multigenerational household (51.2%) without household restrictions (51.2%), do not use cigarettes or alcohol (82.9%), do not usually practice physical activities (81.7%), have multimorbidity (75.6%), without polypharmacy (51.2%), do not have depressive symptoms (51.2%), have a higher risk of falls (73.2%) and have a regular/negative perception of quality of life (85%). **CONCLUSION:** It is important to apply strategies considering the profile found, acting preventively, encouraging follow-up with the multidisciplinary team, and setting up exercise and dance groups to promote the practice of physical and leisure activities, and the socialization of these elderly people.

Keywords: Activities of daily living; Health of the elderly; Health conditions.

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Introdução

World population growth tripled between 1950 and 2020. Due to the epidemiological transition and increased life expectancy, the elderly population has grown the most¹. The last demographic census carried out in 2022, showed that the population aged 60 and over reached 32,113,490 (15.6%), an increase of 56.0% compared to 2010, when it was 20,590,597 (10.8%). In Espírito Santo, there was an increase of 181,366 people aged 65 or over from 2010 to 2022, an increase of more than 72%.^{2,3}

Aging can be understood as a continuous process in which there is cumulative, irreversible, and non-pathological stress, causing a set of morphofunctional changes and leading to a greater propensity to develop diseases and disabilities⁴. With the aging process, physiological changes result in a reduction in aerobic capacity and skeletal muscle which, combined with chronic conditions, leads to functional incapacity and consequently dependence on instrumental activities of daily living (IADL)⁵.

Good functional capacity is associated with a better perception of quality of life, since it interferes with the elderly's mobility, social interaction, and autonomy, increasing the risk of death, and generating a greater chance of hospitalization and costs for the Unified Health System (*Sistema Único de Saúde*, SUS)⁶. Functional dependence begins with more complex activities, and subsequently with more basic activities, affecting self-care and personal management⁷.

When assessing basic activities of daily living (BADLs), the essential habits of self-care are studied, comprising simpler tasks such as the ability to feed, bathe, and dress oneself. IADL, on the other hand, present a higher level of difficulty and require higher-level cognitive functions, memory, and attention, such as food preparation, household chores, taking one's

medication, dealing with finances, and other items related to autonomy and social participation⁸.

Reduced functional capacity can lead to feelings of emotional uselessness, suffering, and mental illness, resulting in changes to the individual's lifestyle⁶. Therefore, it is important to examine functional capacity in the elderly and its related factors and thus define appropriate interventions, helping to promote quality of life, since it is highly related to socialization activities and habits that promote better living conditions^{9,10}.

In this sense, and to provide more scientific support for understanding the characteristics of individuals with dependence for IADL, this study aimed to verify the prevalence and characterize the profile of elderly people with dependence for performing instrumental activities of daily living, assisted by a Family Health Unit (FHU) in Vitória-ES.

Materiais e Métodos

Sample and type of study

This is a secondary analysis of the database of an observational, cross-sectional, quantitative study carried out at the Jesus de Nazareth Health Unit, located in Vitória - ES. The sample consisted of elderly people who were registered with the Bem-Estar Network and assisted by the Family Health Strategy in the territory of the FHU studied.

For primary research sampling, a sample calculation was carried out for different prevalences, based on the number of elderly people enrolled in the FHU in April 2018 with a margin of error of 0.05 and an estimated proportion of 0.5 with an increase of 30% for possible losses, the target *n* was 246 elderly people and 241 elderly people were interviewed. The selection was made randomly, where the elderly were organized in alphabetical order and according to the micro-area in which they lived, and then two out of three were randomly selected. Only those who agreed



to sign the Free and Informed Consent Form – FICF were eligible for the study.

Inclusion and Exclusion Criteria

The study included individuals aged 60 and over who lived in the studied community and were enrolled in the local health unit. Exclusion factors were those who were unable to answer the questionnaire, any impediment to access due to family refusal or restriction, cases of death and/or moving to another region close to the time of the interviews/evaluations, and data relevant to the outcome analyzed pending.

Research design and procedures

The primary research data was collected in April 2018 by previously trained undergraduate students. The interviews and evaluations were carried out at the homes of the elderly through the mediation of Community Health Agents, with advance scheduling, and are based on the application of a semi-structured questionnaire and scales designed to evaluate the sociodemographic profile, behavioral characteristics, and the health and functional conditions of these individuals.

The sociodemographic variables used in the semi-structured questionnaire were: gender, age by age group, color, schooling, marital status (with partner, without partner), home restriction (inability of the elderly to go out alone), and multigenerational household. For this last variable, it was asked whether people of different age groups lived together in the same home; if the answer was yes, the home was considered multigenerational.

In addition to these, information was obtained on the behavioral characteristics of the elderly, such as: cigarette use, alcohol use, and practice of physical activity and leisure. The health conditions that made up

the questionnaire were: polypharmacy, defined as the daily use of five or more medicines, and multimorbidity, the presence of two or more chronic diseases.

The other health status variables were assessed using scales. The Tinetti Scale was used to identify the risk of falls by evaluating balance and walking. Its score ranges from 0 to 28 points and a score of 24 or less was adopted as the cut-off point, indicating a risk of falls¹³. The presence of depressive symptoms was identified using the Geriatric Depression Scale (GDS-15), a widely used instrument that guarantees clarity and objectivity for the evaluation of depressive symptoms in the elderly. The 5/6 cut-off point defines, respectively, the absence/presence of depressive symptoms¹⁴.

Finally, the Short-Form Health Survey (SF-36) was used to evaluate quality of life. It is a multidimensional instrument that evaluates 8 domains of quality of life and has a score ranging from 0 to 100, with 0 being the worst state of quality of life and 100 the best¹⁵. For this study, scores above 75 were considered indicative of a positive perception of quality of life. This cut-off point was adopted by dividing the total score into quartiles, and the 3rd quartile, equivalent to a score of 75 or more, was adopted as indicative of a positive perception of quality of life.

The outcome variable is dependence on performing instrumental activities of daily living, evaluated using the Lawton and Brody Index. This instrument has been validated and translated for the Brazilian population and is widely used in the clinical and scientific community due to its easy application and interpretation, low cost, short completion time and usefulness for early disability screening¹¹.

The Lawton and Brody Index evaluates a person's level of independence in performing IADL, including tasks such as using the telephone, shopping, preparing food, cleaning the house, washing clothes, using transport, preparing medication, and

managing money. It is scored according to the level of help needed to perform the evaluated tasks¹¹. Each question could be scored from 1 to 3, where 1 means complete dependence, 2, partial dependence and 3, independence, and the score could vary from 9 to 27^{11,12}. For this study, the elderly who reported dependence for one or more activities during the application of the index were considered dependent for IADL.

The data was analyzed descriptively using Microsoft Excel software and reported in absolute and relative frequency tables. This study is part of a primary project entitled “Health conditions and functionality of elderly people assisted by the family health strategy in Vitória-ES” (*Condições de saúde e funcionalidade de idosos assistidos pela estratégia saúde da família em Vitória-ES*) which was submitted to the CEP/EMESCAM and approved under number 2.142.377. The standards established in the Guidelines and Regulatory Norms for Research Involving Human Beings of Resolution 466/12 were respected at all stages of this study.

Resultados

Of the 241 elderly people interviewed, 82 had IADL dependency, representing a prevalence of 34% (95% CI: 27.0 – 40.2). Thus, for a descriptive analysis of the sociodemographic and behavioral characteristics and health conditions of the elderly dependent for IADL, as proposed by the objective of the study, only the 82 individuals considered dependent by the Lawton and Brody Index were used.

The majority of elderly people with IADL dependency were women aged between 60 to 74, and self-declared as brown or black. More than half of the elderly people interviewed had four years or less of schooling and lived with a partner in multigenerational households (Table 1). As for behavioral variables, most of the elderly were not smokers and reported not drinking alcohol. Half of the elderly practiced leisure activities, while the majority didn't practice physical activity and almost half of them were housebound, that is, they didn't leave the house alone (Table 2).

Table 1: Sociodemographic characterization of elderly people with dependence for instrumental activities of daily living evaluated by the Lawton and Brody Index.

Variables	n= 82 (%)
Gender	
Female	54 (65.9)
Male	28 (34.1)
Age	
60-74 years old	45 (54.9)
>75 years old	37 (45.1)
Color	
White (a)	22 (26.8)
Brown/Black	60 (73.2)
Schooling	
Up to 4 years	56 (68.3)
From 5 to 11 years old	15 (18.3)
Over 11 years old	11 (13.4)
Marital Status	
With partner	42 (51.2)
Without partner	40 (48.8)
Multigenerational household	



Yes	42 (51.2)
No	40 (48.8)

Source: author

Table 2: Behavioral characteristics of elderly people with dependence for instrumental activities of daily living evaluated by the Lawton and Brody Index.

Variables	n= 82 (%)
Tobacco use	
Yes	14 (17.1)
No	68 (82.9)
Alcohol use	
Yes	14 (17.1)
No	68 (82.9)
Practice leisure activities	
Yes	41 (50)
No	41 (50)
Practice physical activity	
Yes	15 (18.3)
No	67 (81.7)
Home restriction	
Yes	40 (48.8)
No	42 (51.2)

Home restriction: elderly unable to go out alone

Multigenerational household: people of different age groups living in the same home

Source: author

Regarding the characteristics of health conditions, most of the elderly had chronic diseases, a risk of falls, and reported

a regular/negative perception of quality of life. Just under half had polypharmacy and depressive symptoms (Table 3)

Table 3: Characterization of the health conditions of elderly people with dependence for instrumental activities of daily living evaluated by the Lawton and Brody Index.

Variables	n=82 (%)
Polypharmacy	
Yes	40 (48.8)
No	42 (51.2)
Multimorbidity	
Yes	62 (75.6)
No	20 (24.4)
Risk of falling (Tinetti Scale)	
Yes	60 (73.2)
No	22 (26.8)
Depressive symptoms (GDS-15)	
Yes	40 (48.8)
No	42 (51.2)

Quality of life, n=60 (SF-36)

Yes	9 (15)
No	51 (85)

Polypharmacy: use of five or more daily medications

Multimorbidity: presence of two or more chronic diseases

SF-36: Short-Form Health Survey

GDS-15: Geriatric Depression Scale-15

Source: author

Discussão

This study identified a prevalence of dependence on instrumental activities of daily living of 34% among the elderly in a Family Health Unit in Vitória – ES. This figure is similar to that found by Faríaz-Antúnez et al⁵ in the elderly population of Rio Grande do Sul and higher than the national average of 29.1% indicated by the data from the National Health Survey – NHS¹⁶. The regional variations found in other studies can be explained by the socioeconomic and sociodemographic conditions of each region, besides the different types of instruments and cut-off points used to evaluate IADL, which also influence the national average^{5,17,18}.

Regarding the population studied, there was a higher prevalence of dependence on IADL among women. The predominance of females can be explained by the phenomenon of the feminization of old age, which is evidence of a greater perspective of longevity for women and, because they live longer, they become more vulnerable to incapacitating health conditions, leading to the outcome studied^{5,18}. Another possible explanation is due to the fact that, historically, women have been more restricted to household activities, contributing to physical inactivity, while men are more encouraged to practice sports and strength exercises, contributing to a better functional capacity¹⁵.

Regarding the age of the population, this study opposes other findings in the literature^{7,17,19,20,21}. In general, with advancing chronological age, a greater

decline in functional conditions is expected, so the elderly have a higher prevalence of dependence on IADL^{7,19,20}. Araújo (2019)²¹ corroborates this theory, recording greater independence in elderly people aged between 60 and 70. Despite this, the authors Virtuoso et al⁷, Nunes et al⁹, and Brigola et al²² state that small levels of motor, sensory, and cognitive impairment have a significant impact on these functions due to their greater complexity, justifying the fact that younger elderly people are already dependent on IADL, as reported in this study, which found a higher prevalence in elderly people aged 60 to 74 years.

Schooling is a variable widely discussed in the literature, and several studies corroborate the findings of this study, which found that more than half of the elderly dependent on IADL had less than four years of schooling^{16,17,22}. Less than four years of schooling is related to lower social participation and life expectancy, besides contributing directly to cognitive development, which is necessary for complex functional activities. Another hypothesis for this finding is the creation of a communication barrier, such as not knowing how to use the telephone, making it difficult to engage in activities in the community or at home^{16,22}.

According to Nunes et al⁹, the higher prevalence of functional dependence in black/brown elderly people is also related to schooling, especially in countries like Brazil where, for historical reasons, the level of education and consequently living conditions, housing, work, and lifestyle are better for white people.

Good cognitive performance, which is necessary for the activities mentioned above, also influences autonomy in the elderly, enabling them, for example, to live alone safely. Although the difference is not significant, the majority of those interviewed had a partner and lived in a multigenerational household (51.2%). Results like these reinforce the theory that elderly people who live alone are more independent and have greater autonomy, probably because they maintain the physical and cognitive conditions necessary for the demands of living alone⁹.

As this is a cross-sectional study, reverse causality bias can be observed when analyzing these variables, especially multigenerational household. Elderly people who live with a family member may have higher functional dependence scores because they are deprived of performing some more complex activities, which does not characterize functional dependence but limited autonomy, or because they have reduced functional dependence and depend on greater care, they needed to live with the family^{7,17,19,20}.

In addition to sociodemographic characteristics, behavioral characteristics are essential variables for the comprehensive care of this population, since good lifestyle habits prevent serious health conditions that can be highly disabling²³. Of the set of behavioral characteristics studied, the absence of physical activity in 81.7% of the elderly with IADL dependency should be highlighted.

The practice of physical activity is a lifestyle habit that has been shown to prevent disability in the elderly; those who are not adept at it have higher levels of disability^{5,24}. Responsible for attenuating the physiological decline related to aging, physical exercise preserves cardiorespiratory, musculoskeletal and neuromuscular functions, preventing the onset of chronic diseases that reduce

functionality by impacting on aerobic endurance, self-esteem, agility and dynamic balance, essential functions for the independence of the elderly in IADL^{7,25}.

The loss of aerobic endurance limits the elderly from walking longer distances, impairing social activities and increasing the risk of disability, while the loss of muscle mass and mobility affect dynamic balance and agility and can lead to falls, with highly limiting consequences such as fractures, long hospitalizations and fear of leaving home²⁵. This information also justifies the high prevalence of home restriction in the sample studied. Because they have a decline in the functions mentioned above, most of which are accompanied by episodes of falling, these elderly people do not feel safe to leave the house on their own, becoming increasingly dependent²⁵.

Among health conditions, multimorbidity, characterized by the presence of more than two chronic diseases, leads to negative outcomes concerning IADL, such as increased frailty and the number of hospitalizations, making the elderly increasingly dependent²³. As a way of controlling chronic diseases, the individual starts to use many medications, characterizing polypharmacy, a situation that also influences the loss of functionality, given the side effects of medications, especially when associated with others without proper medical monitoring²⁶. Therefore, it is extremely important to maintain policies and strategies for health care and prevention to reduce chronic diseases and functional disability, such as encouraging physical activity²⁴.

Finally, regarding self-esteem, physical activity is a promoter of physical, psychological, and social well-being, as it encourages participation in social and cognitive activities, promotes active aging, and improves the perception of health, making it clear that there is a need to

develop strategies to encourage its practice^{24,25}.

The elderly involved in the research had a regular/negative quality of life, according to the authors Ferreira; Meireles; Ferreira et al⁶ and Pampolim et al¹⁰ several factors influence quality of life such as multimorbidity, gender, depressive symptoms, ethnicity, schooling, marital status, physical and leisure activities, smoking and alcohol habits and the ability to manage oneself^{10,26}.

Among these components, dependence on IADL contributes to compromised quality of life, causing social and economic impacts for the elderly^{10,26}. It is important to emphasize that biopsychosocial aspects are related to quality of life when these elderly people have a support network and close relationships, such as family and friends, and feel more valued, secure, and motivated to understand and live their lives positively⁶.

As it is a cross-sectional study, the research is subject to causality bias, as well as having a descriptive analysis of the data, and cannot define associations and comparisons between groups. Further prospective studies with inferential statistical analysis are suggested for better results.

Conclusão

The prevalence of dependence on IADL among the elderly studied was 34%, and the profile identified was mostly female, between 60 and 74 years old, brown/black, with up to four years of schooling, with partners, living in a multigenerational household, without restrictions on the home, who do not use cigarettes or alcohol, do not usually practice physical activities, who have multimorbidity, without polypharmacy, without depressive symptoms, with risk of falls and regular/negative perception of quality of life.

The importance of implementing policies and maintaining preventive strategies that aim to provide comprehensive health care and promote healthy aging is noteworthy. It is important to apply specific strategies to the variables that had the highest prevalence of dependence on IADL, acting in a preventive manner at the BHU, encouraging follow-up with the multidisciplinary team to control diseases, and setting up exercise and dance groups to promote the practice of physical and leisure activities. Lectures and information on “safe home” guidelines are necessary to reduce the risk of falls. Adherence to these proposals will result in greater socialization, independence and autonomy, with a direct impact on improving the quality of life and maintaining the functional capacity of the elderly.

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