
FRAILTY OF ELDERLY PATIENTS ADMITTED TO THE MEDICAL CLINIC OF AN EMERGENCY UNIT AT A GENERAL TERTIARY HOSPITAL¹

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ABSTRACT: This descriptive and cross-sectional study was aimed at classifying elderly patients admitted to the medical clinic of a tertiary hospital, according to socio-demographic variables, and identifying their frailty. Data collection was carried out in the period between October 2010 and March 2011, through a questionnaire with socio-demographic data and the Edmonton Frail Scale. Eighty-four elderly patients with an average age of 73.8 participated in the study; 60.7% were male, 44.0% married and 32.1% widowers/widows; 75.0% were retired; 54.8% possessed between one and four years of formal education. Regarding the identification of frailty, 42.9% presented severe, 33.3% mild and 19.0% moderate frailty. Among the elderly who presented severe frailty, 63.6% were women, 63.0% were over 80 years of age, 53.1% lived without a partner and 75.8% considered their health poor. It is believed that identifying the frailty of elderly patients helps healthcare professionals in planning and implementing care actions for the elderly.

DESCRIPTORS: Aging. Hospitalization. Frail elderly.

FRAGILIDADE DE IDOSOS INTERNADOS NA CLÍNICA MÉDICA DA UNIDADE DE EMERGÊNCIA DE UM HOSPITAL GERAL TERCIÁRIO

RESUMO: Este estudo objetivou caracterizar os idosos internados na clínica médica de um hospital terciário, segundo variáveis sociodemográficas, e identificar a fragilidade nos mesmos. Estudo descritivo e transversal. A coleta de dados foi realizada no período de outubro de 2010 a março de 2011, utilizando-se um instrumento contendo questionário sociodemográfico e a *Edmonton Frail Scale*. Participaram 84 idosos, média de idade 73,8 anos; 60,7% eram homens, 44,0%, casados e 32,1%, viúvos; 75,0%, aposentados; 54,8% estudaram entre um e quatro anos. Quanto à identificação da fragilidade, 42,9% apresentaram fragilidade severa, 33,3%, leve e 19,0%, moderada. Dentre os idosos que apresentaram fragilidade severa, houve predomínio de mulheres (63,6%), de idosos com 80 anos ou mais (63,0%), dos que viviam sem companheiro(a) (53,1%) e dos que descreveram sua saúde como ruim (75,8%). Acredita-se que identificar a fragilidade em idosos hospitalizados auxilia os profissionais da saúde no planejamento e na implementação da assistência ao idoso.

DESCRIPTORIOS: Envelhecimento. Hospitalização. Idoso fragilizado.

FRAGILIDAD EN EL ADULTO MAYOR INTERNADOS EN LA CLÍNICA MÉDICA DE LA UNIDAD DE EMERGENCIA DE UN HOSPITAL GENERAL TERCIARIO

RESUMEN: Este estudio objetivó caracterizar a adultos mayores en la clínica médica de un hospital terciario, según variables socio-demográficas e identificar la fragilidad de ellos. Estudio descriptivo y transversal. La colecta de datos fue realizada en el periodo de octubre 2010 a marzo 2011; se utilizó un instrumento conteniendo cuestionario socio-demográfico y *Edmonton Frail Scale*. Participaron 84 adultos mayores, con edad media de 73,8 años; 60,7% eran hombres, 44,0% casados y 32,1% viudos; 75,0% jubilados; 54,8% estudiaron entre 1 a 4 años. En relación a identificación de la fragilidad, 42,9% presentaron fragilidad severa habiendo predominio de mujeres (63,6%), de adultos mayores con 80 años a más (63,0%), de los que viven sin compañero(a) (53,1%) y de los que describieron su salud como mala (75,8%). Se cree que identificar la fragilidad en adultos mayores hospitalizados ayuda a profesionales de salud en el planeamiento e implementación de la asistencia a esos adultos mayores.

DESCRIPTORIOS: Envejecimiento. Hospitalización. Adulto mayor fragilizado.

INTRODUCTION

A significant portion of the elderly population has illnesses that make these people susceptible to a large number of adverse events. The elderly are classified in the geriatric literature as those who have a syndrome called frailty.¹ Early definitions of frailty equally related disability and frailty, describing this syndrome through the following terms: disability resulting from chronic diseases, multiple disorders, institutionalized people, advanced age and pre-death condition.²

Comorbidity is a risk factor for frailty, and disability is a consequence. Frailty is a clinical syndrome in which three or more of the following criteria are present: non-intentional weight loss, self-reported exhaustion, slowness, low physical activity level and weakness. Intermediate frailty condition is characterized by the presence of one or two of these factors.³

Frailty is a syndrome with multi-factorial aspects: biological, psychological, cognitive and social.⁴ Following this line of thought, this syndrome "could be identified early so that early interventions and actions could be performed".^{5:183}

Frailty increases with age and means a greater health risk to the elderly, including mortality, institutionalization, falls and hospitalization.³

Therefore, early detection of frailty in the elderly enables the development of prevention strategies and/or treatment, improving their prognosis. For this purpose, objective instruments/scales are needed that are easy and quick to use.

In Canada, researchers developed and evaluated the validity and reliability of Edmonton Frail Scale (EFS). This scale serves to evaluate the elderly's frailty and is composed of nine aspects (cognition, functional performance, mood, functional independence, use of medications, social support, nutrition, general health conditions and continence).⁶ In Brazil, the EFS was culturally adapted and validated (analysis of psychometric properties) and is considered reliable, easy to apply and feasible for use by a multi professional team.⁷

Considering this a current and relevant topic, this study was aimed at identifying the frailty of the hospitalized elderly, in order to support the development of strategies to assist healthcare services and professional teams, in particular nurses, in the planning and implementation of care to

the frail and hospitalized elderly. Based on this, we proposed the following objectives: classifying elderly patients admitted to the medical clinic of the emergency unit at a university hospital in Ribeirão Preto-SP, according to socio-demographic variables, and identifying their frailty.

METHOD

This is a descriptive and cross-sectional study. The study was undertaken in the medical clinic of the abovementioned hospital. This clinic is composed of a semi-intensive care unit (six beds); two isolation rooms (two beds) and six nursing wards (19 beds). It can be highlighted that this study was developed with the participation of the elderly who were admitted to the six nursing wards. Most hospitalized patients are elderly with chronic diseases, generally multiple and with different levels of functional dependence.

The population was constituted by the elderly (≥ 60 years old) admitted to the mentioned unit, in the period between October 2010 and March 2011 and who met the following inclusion criteria: age 60 years or older, male or female and have, at the time of data collection, conditions to understand and respond to the interview and/or the presence of a family member or caregiver who could assist with the answers.

The convenience sampling method was used to select the sample. Thus, it was composed of the elderly approached during hospitalization in the medical clinic, within the period referred above, who met the inclusion criteria and accepted to participate in the study. As a result, eighty-four elderly patients composed the sample. It is important to note that, during data collection, 175 elderly patients were hospitalized. Thirteen patients refused to participate, 24 did not meet the inclusion criteria (conditions to understand and participate in the interview and/or the presence of a family member or caregiver who could assist with the answers); eight were readmissions to hospital and 46 losses (deaths, admissions/releases at weekends and releases).

Data collection was performed in the period previously mentioned, through interviews conducted by the researcher, using an instrument composed of three parts: a) a questionnaire with data related to personal information (gender, date and place of birth, age, marital status, number of children and religion) and social profile (level of education, source of income, professional occupa-

tion, age of retirement and housing); b) medical diagnoses identified in the elderly's medical records and c) frailty identification through EFS, culturally adapted and validated.⁷ The EFS comprises nine aspects, which are represented by 11 items: cognition (clock drawing test - TDR - which consists of presenting the people being interviewed with the drawing of a clock and requesting them to imagine a clock, put the number in the correct positions and then include the pointers to indicate "eleven hours and ten minutes"), general health condition (hospitalization in the last year and self-rated health), functional independence (the need for help to perform daily activities), social support (help to fulfill the needs), use of medications (use of medications and forgetfulness), nutrition (weight loss), mood (perception of sadness/depression), continence (urinary control), functional performance (timed stand up and walk for balance and mobility).

The maximum score on this scale is 17, which represents the highest level of frailty. The scores to classify frailty are: 0-4 points represents no frailty; 5-6 apparently vulnerable, 7-8 mild frailty, 9-10 moderate frailty and 11 or over severe frailty.⁷

The interviews were conducted between Monday and Friday, from 2pm to 6pm. The researcher went to the Unit where the study was carried out, consulted the daily records of the Unit, which included the name, registration, gender and age of hospitalized patients, as well as the medical specialty, with the purpose of identifying the daily hospitalizations and selecting potential elderly people to participate in the study. After this consultation, the hospitalized elderly and/or their caregivers were approached, when the researcher identified herself, provided relevant clarifications about the study and presented and discussed the Informed Consent Form. After each participant had agreed to take part, the interviews took place in the nursing ward where the elderly was staying. The average duration of the interviews was 30 minutes.

For data processing, a spreadsheet was created in the program Microsoft Excel, containing a dictionary (codebook) and two spreadsheets, where the data were entered in the form of double entry to verify their internal consistency (double-entry validation). After the data had been entered and validated, they were exported to the software Statistical Package for the Social Sciences (SPSS), version 16.0, to determine absolute and relative frequencies of all variables, as well as central

trend and dispersion measures for the numerical variables. Therefore, the data will be presented descriptively and by means of contingency tables.

The project was submitted to the Research Ethics Committee of HCFMRP/USP, registration number 8056/2010 and approved in July 2010.

RESULTS

In relation to the socio-demographic characteristics, the distribution of the elderly according to age, gender, marital status and level of education is described in table 1 below.

Table 1 - Distribution of the elderly admitted to the medical clinic, according to age, gender, marital status and level of education. Ribeirão Preto-SP, 2011

Variable	n	%
Age		
60 - 69	34	40.5
70 - 79	23	27.4
80+	27	32.1
Gender		
Male	51	60.7
Female	33	39.3
Marital status		
Never got married or lived with a partner	8	9.5
Lives with husband/wife or partner	37	44.0
Separated or divorced	12	14.3
Widower/Widow	27	32.1
Level of education		
Illiterate	13	15.5
Can read or write	7	8.3
1 - 4 years	46	54.8
5 - 8 years	10	11.9
9 - 12 years	3	3.6
13 +	2	2.4
Did not know/ did not answer	3	3.6
Total	84	100

The ages ranged between 60 and 99, with an average of 73.8 and standard deviation 8.8. The largest group, with 34 (40.5%) was found in the age range from 60 to 69 years. Most participants, 51 (60.7%) were male, 37 (44.0%) lived with their husband/wife or partner and 27 (32.1%) were widowers/widows. In relation to the level of education, 46 (54.8%) had between one and four years

of formal education, followed by 20 (23.8%) who were illiterate or could read and write.

Concerning the source of income, most of the elderly, that is, 63 (75.0%) stated to receive retirement payments and 18 (21.4%) received pension. The monthly income of the elderly varied from R\$0 to R\$5,000.00 (median R\$540.00).

The medical diagnoses of the studied sample were obtained through consultation of medical records, which revealed between 1 and 7 diagnoses per individual, with an average of 3 and standard deviation of 1.3, being that 23 (27.4%) had two diagnoses, 22 (26.2%) four and 20 (23.8%) three.

The overall frequency of medical diagnoses for the elderly participating in this study corresponded to 252 (100%). The chapters of the International Classification of Diseases and Related Health Problems (ICD-10)⁸ with the largest number of diagnoses were: cardiovascular diseases with 84 diagnoses (33.3%) and respiratory diseases with 42 (16.7%).

In this study, as mentioned, in order to identify the frailty level of the sample, the EFS was used. It is important to highlight that, in relation to the cognitive performance with TDR, 76 (90.5%) failed with significant mistakes. In this case, the presence of a caregiver during the EFS was required.

The maximum score on this scale is 17, which represents the highest level of frailty. Table 2 shows the distribution of the elderly according to the EFS scores.

Table 2 - Distribution of elderly patients admitted to the medical clinic, according to EFS scores. Ribeirão Preto-SP, 2011

EFS Scores	n	%
6	4	4.8
7	11	13.1
8	17	20.2
9	9	10.7
10	7	8.3
11	11	13.1
12	9	10.7
13	5	6.0
14	7	8.3
15	3	3.6
16	1	1.2
Total	84	100.0

The EFS scores varied between six and 16 points, with an average of 10 and standard deviation of 2.6. It was noted that 17 (20.2%) of the elderly scored eight points, 11 (13.1%) scored 11 points and the other 11 (13.1%) scored 7 points.

Table 3 shows the distribution of the elderly according to the frailty scores.

Table 3 - Distribution of elderly patients admitted to the medical clinic, according to the frailty scores. Ribeirão Preto-SP, 2011

Scores to identify frailty	n	%
(0-4) – Did not present frailty	-	-
(5-6) – Apparently vulnerable	4	4.8
(7-8) – Mild frailty	28	33.3
(9-10) – Moderate frailty	16	19.0
(11 or more) – Severe frailty	36	42.9
Total	84	100.0

Of the 84 (100%) elderly patients, 36 (42.9%) presented severe, 28 (33.3%) mild and 16 (19.0%) moderate frailty scores, that is, 80 (95.2%) were shown to be frail.

The relationship between the frailty scores and the variables gender, age, marital status and self-rated health showed that, concerning severe frailty, there was a predominance of women (63.6%), those aged 80 or older (63.0%), single, divorced, separated or widows (53.1%) and those who described their health as poor (75.8%).

In relation to mild frailty, there was a predominance of men (37.3%), those aged between 70 and 79, those married or in a de facto relationship (43.2%) and those who described their health as excellent, very good or good (63.2%).

DISCUSSION

The average age of the elderly was 73.8 years and the standard deviation 8.8 years, with 40.5% of the elderly in the age group between 60 and 69 years. This average age was similar to those resulting from studies involving the elderly living in the community and which used the frailty phenotype for their identification,⁹⁻¹⁰ as well as in a study that used the EFS.⁷

The high average age may be related to the age structure of society, with the increasing number of elderly living close to 100 years, which contributes to the worsening of chronic

diseases and more frequent exacerbations, as well as hospitalizations. Although frailty is associated with age, not all elderly are frail,¹¹ and frailty is more related to the reduction in the ability to perform daily activities than chronological age.¹²

In this study, there was a predominance of men (60.7%). Concerning studies aimed at identifying the frailty of elderly in the community using the frailty phenotype^{3,9} or the EFS,⁶⁻⁷ there was a predominance of women.

In fact, there are more women in society and they have a longer life expectancy than men. The predominance of elderly females in the demographic composition of the country is due to factors like: greater survival among women, different exposures to occupational risks, higher rates of mortality from external causes among men, different lifestyle in relation to alcohol consumption and cigarettes, and increased demand for healthcare among them.¹³

Based on this, the predominance of men in this study may be explained by the fact that it involves the elderly admitted to hospital and, considering that men are less careful with their health, they are probably more prone to hospitalization.

As for marital status, 44.0% lived with their husband/wife or partner and 32.1% were widowers/widows, a fact that confirms the findings of another study.⁹ In Brazil, more than one quarter of men live with their wives, while two thirds of women are widows, single or separated.¹⁴ This inequality can be explained by two factors: greater life expectancy of women and the cultural trend of men's union with younger women.¹⁵

Of the elderly participants, 54.8% had between one and four years of formal education. The predominance of elderly people with low levels of education in the country is still high. Other studies^{7,16} showed that 54.8% and 49.0% of the elderly participants had up to four years of formal education, respectively. The low level of formal education predisposes the elderly to greater risks of having health problems and, consequently, to decreased functionality.¹⁷

Concerning the source of income, 75.0% received retirement payments, and their monthly income ranged from R\$0 to R\$5,000.00 (median R\$540.00). Currently, retirement and pension payments are viewed as the main sources of income

of the Brazilian elderly population. Elderly people with lower income generally have worse health conditions, worse physical functioning and less access to healthcare services.¹⁸

As regards the occurrence of diseases, the number of medical diagnoses ranged from 1 to 7 per elderly person, with an average of 3 and standard deviation of 1.3, being that 27.4% had two diagnoses, 26.2% four and 23.8% three. Thirty three per cent of medical diagnoses were related to cardiovascular diseases and 16.7% to respiratory diseases. In a study undertaken to develop and implement a frailty phenotype in relation to the elderly,³ it was noted that frailty was strongly associated with the number of chronic diseases, including cardiovascular, pulmonary and Diabetes *Mellitus*, that is, there was greater likelihood of elderly people being frail when they had two or more diseases.

The literature³ points out that there is evidence that common conditions related to the elderly, such as dependence to perform daily activities and the occurrence of comorbidities, may lead to frailty. Frailty, comorbidity and disability are, however, different medical conditions, although they can happen simultaneously.¹⁹

To identify frailty among the participants in this study, the EFS was used. After performing the TDR, 90.5% failed with significant mistakes; however, it is important to emphasize that, in order to execute the test, the elderly reported the following: impaired eye sight, lack of knowledge/skills, inability to move the dominant limb, trembling hands, illiteracy, confusion, among others. Therefore, it was possible to note the existence of factors that contributed to failing with significant mistakes, but this did not mean that the cognition of the elderly was compromised. In this regard, a study⁷ stated that the low performance in the clock test may be related to difficulties regardless of the cognitive deficit.

In this study, 95.2% of the hospitalized elderly were frail. However, studies involving the elderly living in the community, the frailty phenotype or the EFS having been used, it was possible to note lower frailty rates, 20%,⁹ 13.3%,²⁰ and 29.9%,⁷ respectively.

Given that frailty increases with age, determining greater risk of death, institutionalization, falls and hospitalization³ for the elderly and that, especially for the elderly, hospitalization is often followed by an irreversible decline in functional

conditions and by changes in the quality of life and lifestyle,²¹ it is believed that the high rate of frailty found in this research can be explained by hospitalization itself.

The relationship between frailty scores and the variables gender, age, marital status and self-rated health showed that, in relation to severe frailty, there was a predominance of women (63.6%), elderly people over 80 years of age (63.0%), those living without a partner (53.1%) and those who described their health as poor (75.8%). Other authors also showed that the frail elderly were women, older people, those with low level of formal education, lower income, high rates of chronic diseases and worse health conditions,³ widowers/widows, those with greater dependence to perform basic and instrumental daily activities and with worse self-rated health.²⁰

In a study involving hospitalized elderly in a town located in the state of Rio de Janeiro, with the purpose of describing the profile and identifying the dependence on nursing care, the authors mentioned that frailty is more usually seen in women than men.²² In fact, being a female can present an intrinsic risk to frailty, as women start losing lean mass and strength before men of the same age. Women can, also, be more vulnerable to frailty due to the effects of sarcopenia.²³

Sarcopenia causes reduction of mobility, which leads to high risk of falls. Also, due to the decrease in bone density, fractures occur. The decreased reserve capacity and instability, often seen in frail elderly people, cause them to be more vulnerable to diseases, hospitalization and greater chances of dying.²⁴

Elderly people tend to develop several chronic conditions, which interact with the changes related to aging and contribute to frailty,¹¹ since this syndrome is currently related to a critical decrease in functional reserves and homeostatic unbalance.

Therefore, frailty is an expression of risk aggregation caused by age or disease, associated with physiological changes. Although the initial stages of this process may be clinically silent, when reserve losses reach a threshold that leads to severe vulnerability, frailty can become detectable through markers: medical, functional, behavioral and biological. It can be also added that frailty is marked by large fluctuations in health status and high risk of acute complications that can affect

the elderly's recovery, negatively impacting the functionality of this person and increasing the cost of healthcare.¹⁹

CONCLUSION

Most of the elderly people showed severe frailty, which entails greater health risk, including hospitalization and mortality, among others, which can result in overload for the family and the healthcare system. The identification of frailty in relation to hospitalized elderly people, however, can assist healthcare professionals in the planning and implementation of care to the elderly, so as to eliminate or delay this process. The fact that these professionals consider frailty a condition caused by aging may, however, result in delayed decisions being taken concerning the implementation of appropriate interventions, which reduces the potential to revert their effects, including the reduction of a healthy life expectancy and absence of disabilities.

Thus, it is important that a multidisciplinary team carry out a periodic medical evaluation of the elderly for the early detection of frailty, which may reduce the rates of morbimortality, institutionalization and hospitalization of the elderly. In this sense, the use of simple application tools that enable risk identification and/or frailty becomes relevant, which can assist in the development of preventive practices and/or appropriate and individualized interventions, from an interdisciplinary perspective, that meet this specific need.

It is important to highlight the importance of including the family in the context of frailty, either by offering support to the frail elderly and/or to the healthcare team providing the assistance, or by receiving the necessary support to provide effective care without damaging their own health during the process. For this, there is a need to focus on finding and implementing care models that prioritize the prevention of frailty, aiming at a better quality of life for the frail elderly, as well as at the reduction of costs for healthcare services.

Given that the frail elderly need extensive health care and social support, they should be the subject of public health policies.

In this study, the EFS was applied to hospitalized elderly patients, acutely compromised, although that tool is more commonly used for healthy elderly people or with chronic diseases

and living in the community. Furthermore, the lack of studies approaching the identification of frailty in hospitalized elderly patients made any comparisons based on the existing literature difficult.

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