

Factors correlated with the frailty of elderly in outpatient care: difference between age groups^a

Fatores correlacionados à fragilidade de idosos em atenção ambulatorial: diferença entre grupos etários Factores correlacionados con la fragilidad de los ancianos en la atención ambulatoria: diferencia entre grupos de edad

Gustavo Carrijo Barbosa¹ ⁽²⁾ Ana Júlia de Souza Caparrol¹ ⁽²⁾ Beatriz Rodrigues de Souza Melo¹ ⁽²⁾ Thais Juliana Medeiros¹ ⁽²⁾ Ana Carolina Ottaviani¹ ⁽²⁾

Aline Cristina Martins Gratão² (D

Universidade Federal de São Carlos,
 Programa de Pós-Graduação em Enfermagem.
 São Carlos, SP, Brasil.

Universidade Federal de São Carlos,
 Departamento de Gerontologia. São Carlos,
 SP, Brasil.

Corresponding author Beatriz Rodrigues de Souza Melo. Email: nursebia@hotmail.com

Submitted on 11/03/2021. Accepted on 03/15/2022.

DOI:https://doi.org/10.1590/2177-9465-EAN-2021-0408en

ABSTRACT

Objective: to correlate socio-demographic and health variables of elderly people of different age groups with frailty. *Method:* this is a quantitative, cross-sectional study conducted with 50 elderly individuals seen at a Gerontology Outpatient Clinic in the interior of São Paulo. Socio-demographic and health data were collected, including: frailty, cognitive performance, dependence on Basic and Instrumental Activities of Daily Living, and depressive symptoms. For data analysis, the Spearman correlation test was used. *Results:* there was a predominance of women, with a mean age of 79.4 (±9.4) years and low education. A total of 58.3% of the elderly aged between 60 and 79 years and 84.6% of those above 80 years were considered frail. In the first group, there was a correlation between frailty and a higher number of medications, worse cognitive performance, and dependence on Basic and Instrumental Activities of Daily Living. In the oldest old, frailty correlated with a greater number of morbidities, worse cognitive performance, and dependence on Basic and Instrumental Activities of Daily Living. In the oldest old, frailty correlated with a greater number of morbidities, worse cognitive performance, and dependence on Basic and Instrumental Activities of Daily Living. *Conclusion and implications for practice:* the correlations found allow the establishment of measures to improve the planning of actions aimed at outpatient care, enabling the organization of prevention and intervention priorities.

Keywords: Outpatient Clinics; Ambulatory Care; Elderly; Frail Elderly; Health of the Elderly.

RESUMO

Objetivo: correlacionar variáveis sociodemográficas e de saúde de idosos de diferentes grupos etários com a fragilidade. *Método:* estudo quantitativo, transversal, realizado com 50 idosos atendidos em um Ambulatório de Gerontologia no interior de São Paulo. Foram coletados dados sociodemográficos e de saúde, sendo: fragilidade; desempenho cognitivo; dependência em Atividades Básicas e Instrumentais de Vida Diária e sintomas depressivos. Para a análise dos dados, foi utilizado o teste de correlação de Spearman. *Resultados:* houve o predomínio de mulheres, com média de 79,4 (±9,4) anos de idade e baixa escolaridade. Foram considerados frágeis 58,3% dos idosos entre 60 e 79 anos e 84,6% daqueles acima de 80 anos. No primeiro grupo, houve correlação entre a fragilidade e o maior número de medicamentos, pior desempenho cognitivo, dependência em Atividades Básicas e Instrumentais de Vida Diária. Nos mais longevos, a fragilidade correlacionou-se ao maior número de morbidades, pior desempenho cognitivo e dependência em Atividades Básicas e Instrumentais de Vida Diária. Nos mais longevos, a fragilidade correlacionou-se ao maior número de morbidades, pior desempenho cognitivo e dependência em Atividades Básicas e Instrumentais de Vida Diária. *Conclusão e implicações para a prática:* as correlações encontradas permitem o estabelecimento de medidas para aperfeiçoar o planejamento de ações voltadas à assistência ambulatorial, possibilitando organizar prioridades de prevenção e intervenção.

Palavras-chave: Ambulatório Hospitalar; Assistência Ambulatorial; Idoso; Idoso Fragilizado; Saúde do Idoso.

RESUMEN

Objetivo: correlacionar variables sociodemográficas y de salud de ancianos de diferentes grupos de edad con fragilidad. *Método:* estudio cuantitativo, transversal, realizado con 50 ancianos atendidos en un Ambulatorio de Gerontología del interior de São Paulo. Se recogieron datos sociodemográficos y de salud, así: fragilidad; rendimiento cognitivo; dependencia de las Actividades Básicas e Instrumentales de la Vida Diaria y síntomas depresivos. Para el análisis de los datos se utilizó la prueba de correlación de Spearman. *Resultados:* hubo predominio del sexo femenino, con media de 79,4 (±9,4) años de edad y baja escolaridad. El 58,3% de los ancianos entre 60 y 79 años y el 84,6% de los mayores de 80 años fueron considerados frágiles. En el primer grupo, hubo correlación entre la fragilidad y el mayor número de medicamentos, peor desempeño cognitivo, dependencia de las Actividades Básicas e Instrumentales de la Vida Diaria. En los mayores, la fragilidad se correlacionó con mayor número de morbilidades, peor desempeño cognitivo y dependencia de las Actividades Básicas e Instrumentales de la Vida Diaria. En los mayores, la fragilidad se correlacionó con mayor número de morbilidades, peor desempeño cognitivo y dependencia de las Actividades Básicas e Instrumentales de la Vida Diaria. En los mayores, la fragilidad se correlacionó con mayor número de morbilidades, peor desempeño cognitivo y dependencia de las Actividades Básicas e Instrumentales de la Vida Diaria. *Conclusión e implicaciones para la práctica:* las correlaciones encontradas permiten establecer medidas para mejorar la planificación de acciones dirigidas a la atención ambulatoria, posibilitando la organización de prioridades de prevención e intervención.

Palabras clave: Hospital Ambulatorio; Asistencia para pacientes ambulatorios; Anciano; ancianos frágiles; Salud del Anciano.

INTRODUCTION

In the latest United Nations (UN) report on world population prospects, people over the age of 65 accounted for 9% of the world population in 2019, and it is expected to reach 16% by the year 2050. Latin America is among the regions where this portion of the population is expected to double between this period. The report also estimates that the number of people over eighty will triple, from 143 million in 2019 to 426 million in 2050.¹

When considering the current scenario in Brazil, in which the growth of the elderly population is evident concomitantly with the high rate of chronic diseases, responsible for 75% of health expenses and 72% of the causes of death in the population over sixty years of age, in addition to the decline in physical and cognitive abilities, which favors the increase in the number of hospitalizations, the great challenge established for health systems is the comprehensive care of the elderly user, who presents unique physio-pathological characteristics, multidimensional and complex.^{2,3}

Even elderly people, who have autonomy and independence, can present compromised functional capacity and experience important declines from different events, such as falls, decompensation of chronic diseases, infections, among others. ⁴Thus, the need arises to plan and organize demands assigned to the health system, such as the different profiles presented by the elderly. In this sense, the Ministry of Health proposes the stratification of functionality in the elderly population in three categories: independent and autonomous elderly people to perform the Activities of Daily Living (ADL); elderly people in need of adaptation or supervision to perform the ADL and dependent elderly people to perform the ADL.⁴ This classification is fundamental for specific objectives to be planned, obtaining an adequate management of care.

The term frailty is used to represent the degree of vulnerability of the elderly to adverse outcomes, however, it presents several definitions, according to the dimension used as reference, which makes it difficult to standardize and operationalize in clinical practice and in comparisons between different studies.^{4,5} Moraes et al.⁵ considered as frailty the reduction of homeostatic reserve or the individual's ability to adapt to bio-psychosocial stressors and the consequent increase of vulnerability to functional decline. According to the clinical-functional strata, the profile of the elderly considered at risk of frailty or frail, who present, respectively, moderate and high risk for clinical-functional vulnerability, can be classified as those elderly who are partially or totally dependent for performing ADLs, with functional decline for the more advanced ones associated with leisure, work or social interaction. This elderly may present conditions that are predictors of adverse outcomes, such as mild cognitive impairment, presence of sarcopenia markers or multimorbidity.5

Identifying socio-demographic and health conditions of the elderly correlated to functional decline, as in cases of frailty, contributes to reflections on public policies and interventions that can promote health to this population, allowing them to live as independently as possible.⁶ Therefore, health professionals responsible for the care of the elderly, by early identification of such conditions, have the possibility to promote interventions that probably would not be considered before.⁷

From this perspective, Gerontology Outpatient Care can serve as an effective health strategy in the current scenario of rapid population aging and other components that result in the transition of health status. For this, the Outpatient Care model must be articulated to the Attention Network and contain the design of the care line thought in the strategy of an integral flow of health actions, having efficient intra and inter-sectorial models in the welcoming of the elderly person, with the care focused, in a multidimensional way, to this population.^{8,9}

Although the Ministry of Health proposes guidelines for the outpatient modality8, in practice, there are difficulties in applying and understanding them, besides the fact that few national studies address the profile and health conditions of the elderly linked to outpatient care, which makes it difficult to propose interventions. In this sense, tracing the profile of the elderly population assisted in a hospital gerontology outpatient clinic is of fundamental importance so that measures can be established, improving the monitoring and planning of actions aimed at this context. Thus, this study aims to characterize the socio-demographic and health profile of the elderly, assisted in a hospital Gerontology Outpatient Clinic in the interior of the State of São Paulo and correlate these factors with the frailty profile of the elderly in different age groups.

METHOD

Study design

This is a quantitative, cross-sectional study.

Population

The study was developed with a convenience sample composed of elderly patients followed, between February and July 2020, in a hospital Gerontology Outpatient Clinic in the countryside of the State of São Paulo, taking into account the reception and availability of these patients in the established time interval.

Location

The research was developed in the outpatient clinic itself, which provides weekly care to the entire elderly population residing in the region. The profile of the elderly, who require specialized outpatient services, may present a high degree of complexity and multiple health needs, with access to more technology-dense procedures.⁴ The specialized team is composed of Nursing, Physiotherapy, and Gerontology professionals. The population served by the service is received via reference and counterreference by the municipality's Health Care Network through a computerized system.

Selection criteria

Participants aged sixty years or older, of both genders, who demonstrated interest in participating in the study, agreeing to the Free and Informed Consent Term (FICT) or, if necessary, to the FICT of the legal guardian, were included. Those who could not answer the questionnaires completely and who did not have a family member or caregiver to help them answer were excluded.

Data collection

Data collection was made possible through the participant's consent at the time of admission of the patient to the outpatient clinic, and consisted of the individual application of an evaluation protocol by a physiotherapist and a Nursing professional previously trained and specialized in Gerontology. The application lasted approximately 60 minutes and the protocol was composed of the following items:

- Socio-demographic and health characterization questionnaire prepared by the researchers containing information about gender (female and male), age (in years), marital status (married, single, widowed or separated), education (in years), morbidities (number of self-reported diseases), and medications (number of medications consumed daily);
- Frailty assessment performed through the Clinical and Functional Vulnerability Index-20 (CFVI-20) developed and validated in Brazil.^{5,10} The instrument shows high reliability and sensitivity and consists of twenty questions that analyze age, self-perception of health, functional disability, cognition, mood, mobility, communication and comorbidities. The maximum value obtained in the questionnaire is 40 points, considering as robust the elderly with a result of up to six points; at risk of frailty those who reached between seven and 14 points and frail those whose result was 15 points or more;
- Evaluation of cognitive performance performed using the 10-Point Cognitive Screener (10-CS), an instrument developed in the Brazilian context¹¹ that determines cognitive impairment through six questions that assess orientation, verbal fluency, and word recall. The test score ranges from zero to ten points, and the cognition of those who scored between eight and ten points is considered normal, with mild cognitive impairment when the result was between six and seven points, and severe cognitive impairment in those who scored a score less than or equal to five;
- Assessment of the degree of dependence in ADLs for Basic Activities of Daily Living (BADL), the Katz Scale¹² was used, being an instrument that addresses questions related to self-care. Adapted for use in Brazil,¹³ is classified as "independent" for the patient who scored between five and six points; "partially dependent" for those between three and four points; and "highly dependent" for those between zero and two points. For Instrumental Activities of Daily Living (IADL), the Lawton and Brody scale was used,¹⁴ adapted

for use in Brazil,¹⁵ with a score that varies between seven and 21 points, considering dependent the individual whose score was up to seven points, partially dependent, between eight and 20 points, and independent the one with a score of 21 points;

 Evaluation of depressive symptoms - the Geriatric Depression Scale (GDS) validated in Brazil was used.¹⁶ The test consists of fifteen questions in which individuals, whose score was up to five points, were considered to have no depressive symptoms; between six and ten points, the presence of mild depressive symptoms was considered, and in those who scored between 11 and 15 points, the presence of severe depressive symptoms was considered.

Data analysis and processing

The data was implemented in a database in Excel and then imported into the Statistical Package for the Social Science, version 21.0. For the analysis, subgroups were created according to age: first group - between 60 and 79 years old; second group - 80 years old or older. The descriptive analysis was done according to the absolute and relative frequencies of the data, their mean, and standard deviation. In addition, the Shapiro-Wilk test was used to verify the normality of the data, and the Spearman correlation calculation was used to verify the correlation between the continuous variables in the sample as a whole and in each of the groups individually. The magnitude of the correlations was classified as weak (< 0.3); moderate (0.3 to 0.59); strong (0.6 to 0.9), and perfect (1.0).¹⁷ The significance level considered was 5% (p \leq 0.05).

Ethical aspects

The study is in accordance with Resolutions No. 466/12 and No. 510/2016 of the National Health Council, which incorporate references such as autonomy, non-maleficence, beneficence, justice, equity, among others, and aims to ensure rights and duties concerning research participants. The study was approved by the Human Research Ethics Committee of the Federal University of São Carlos (Opinion no. 3.825.117 and CAAE: 24244519.3.0000.5504 from February 6, 2020). All participants agreed to participate in the study by signing the FICT or, when necessary, the FICT of the legal guardian.

RESULTS

Of the 54 elderly people who were assisted by the service during the collection period, four were excluded for not being able to completely answer the evaluation protocol and for not having a family member or caregiver to help, totaling 50 elderly people evaluated. Table 1 shows the socio-demographic characteristics of the sample.

Table 2 presents the health characteristics of the elderly followed up at the Gerontology hospital outpatient clinic. When observing the stratification by age group, the group of elderly

Frailty of elderly people in outpatient care

Barbosa GC, Caparrol AJS, Melo BRS, Medeiros TJ, Ottaviani AC, Gratão ACM

Variable	Total (N=50) Mean(SD) / N (%)	60-79 years (n=24) Mean (SD) / N (%)	≥80 years (n=26) Mean (SD) / N (%)	
Sex				
Male	15 (30%)	6 (25%)	9 (34.6%)	
Female	35 (70%)	18 (75%)	17 (65.3%)	
Marital status				
Single	2 (4%)	2 (8.3%)	0 (0%)	
Married	19 (38%)	9 (37.5%)	10 (38.4%)	
Widow/er	26 (52%)	10 (41.6%)	16 (61.5%)	
Separated	3 (6%)	3 (12.5%)	0 (0%)	
Education	3.4 (±3.3)	4.1 (±4.2)	2.8 (±2.6)	
Illiterate	17 (34%)	8 (33.3%)	9 (34.6%)	
1 to 4 years of education	24 (48%)	10 (41.6%)	14 (53.8%)	
5 or more years of education	9 (18%)	6 (25%)	3 (11.5%)	

 Table 1. Socio-demographic distribution of the elderly followed at the Gerontology Outpatient Clinic, São Carlos (SP), Brazil, 2020.

SD= Standard deviation. Source: Prepared by the authors.

able 2. Health characteristics of the elderly followed at the Gerontology Outpatient Clinic, São Carlos (SP), Brazil, 2020.

Health characteristics	Total (N=50) Mean (SD) / N 60-79 years (n=24) Mean (%) (SD) / N (%)		≥80 years (n=26) Mean (SD) / N (%)	
Number of morbidities	3.8 (±2.1)	3.9 (±2.7)	3.6 (±1.5)	
Up to 2 morbidities	9 (18%)	5 (20.8%)	4 (15.3%)	
From 3 to 4 morbidities	27 (54%)	27 (54%) 12 (50%)		
5 or more morbidities	14 (28%)	8%) 7 (29.1%) 7		
Number of medications	6.1 (±4.4)	5.5 (±3.6)	6.7 (±5.0)	
Up to 2 medications	12 (24%)	6 (25%)	6 (23%)	
3 to 4 medications	9 (18%)	4 (16.6%)	5 (19.2%)	
5 or more medications	29 (58%)	14 (58.3%)	15 (57.6%)	
Clinical-Functional Vulnerability Index	20.6 (±8.8)	18.4 (±9.5)	22.6 (±7.7)	
The robust elderly	5 (10%)	5 (20.8%)	0 (0%)	
At risk of frailty	9 (18%)	5 (20.8%)	4 (15.3%)	
Frail	36 (72%)	14 (58.3%)	22 (84.6%)	
10-Point Cognitive Screener	3.9 (±2.9)	4.8 (±3.2)	3.1 (±2.4)	
Normal cognitive function	10 (20%)	7 (29.1%)	3 (11.5%)	
Mild cognitive impairment	6 (12%)	6 (25%)	0 (0%)	
Severe cognitive impairment	34 (68%)	11 (45.8%)	23 (88.4%)	
Katz Scale	2.8 (±2.5)	3.4 (±2.4)	2.3 (±2.5)	
Independent	16 (32%)	9 (37.5%)	7 (26.9%)	
Partially dependent	10 (20%)	7 (29.1%)	3 (11.5%)	
Dependent	24 (48%)	8 (33.3%)	16 (61.5%)	

SD= Standard deviation. Source: Prepared by the authors.

Health characteristics	Total (N=50) Mean (SD) / N (%)	60-79 years (n=24) Mean (SD) / N (%)	≥80 years (n=26) Mean (SD) / N (%)	
Lawton and Brody Scale	10.4 (±6.4)	12.0 (±7.2)	9.1 (±5.2)	
Independent	7 (14%)	6 (25%)	1 (3.8%)	
Partially dependent	19 (38%)	6 (25%)	13 (50%)	
Dependent	24 (48%)	12 (50%)	12 (46.1%)	
Geriatric Depression Scale	4.0 (±2.8)	4.2 (±2.9)	3.9 (±2.9)	
Absence of depressive symptoms	34 (68%)	17 (70.8%)	17 (65.3%)	
Mild depressive symptoms	15 (30%)	6 (25%)	9 (34.6%)	
Severe depressive symptoms	1 (2%)	1 (4.1%)		
1 7 1		· · · /		

Table 2. Continued...

SD= Standard deviation. Source: Prepared by the authors.

people over 80 years old showed higher percentages of frailty (84.6%), severe cognitive impairment (88.4%), dependence for BADL (61.5%) and presence of mild depressive symptoms (34.6%) when compared to their peers. In contrast, the elderly aged between 60 and 79 years showed higher percentages for the presence of up to two comorbidities (20.8%), consumption of up to two medications (25%), robustness (20.8%), normal cognitive function (29.1%), independence in BADL (37.5%) and IADL (25%) and absence of depressive symptoms (70.8%).

Table 3 presents the correlation analysis between frailty and socio-demographic and clinical variables. For the group of elderly aged between 60 and 79 years, there was a moderate positive correlation between frailty and the number of medications (p=0.004; r=0.561) and, negatively, with the degree of dependence for BADL (p=0.035; r=-0.433), for the IADL (p=0.003; r=-0.578) and cognitive performance (p=0.002; r=0.601), i.e., participants with higher levels of frailty had higher medication consumption, dependence to perform the IADL and lower cognitive performance. In the group of elderly aged 80 years or older, a positive correlation of moderate magnitude was found between frailty and the number of morbidities (p=0.004; r=0.539) and, negatively, with cognitive performance (p=0.040; r=-0.406), dependence for the BADL (p=0.001; r=0.625) and for the IADL (p=0.008; r=0.509), findings similar to the first group, except for the higher number of morbidities observed in more frail elderly.

Next, Figures 1 and 2 show, in linear form, the significant correlations found between frailty and the other variables in the groups of elderly aged between 60 and 79 years and 80 years or more, respectively.

DISCUSSION

The results point to the predominance of women, widows, with a mean age of 79.4 years, low education and polypharmacy. Most of the elderly were assessed as frail, with severe cognitive impairment and a certain degree of dependence for ADLs, and in the group of elderly above 80 years of age, higher percentages were observed for these variables when compared to their peers. Moreover, in the group between 60 and 79 years old, it was possible to identify a correlation between frailty and a higher number of medications, worse cognitive performance, and dependence on BADL and IADL. In the oldest old, frailty correlated with a greater number of morbidities, worse cognitive performance, and dependence in BADL and IADL.

In general, studies of elderly people in outpatient care have indicated mean ages between 70 and 80 years.¹⁸⁻²¹ The literature shows a relationship between advancing age and the presence of frailty due to greater functional overload and difficulties in maintaining homeostasis.²² Low education is considered a barrier to greater access to health services and influences the adoption of healthy behaviors, the management of acute and chronic stress situations, as well as cognitive and psychological dispositions, social roles, and productive activities.23 As the physiological aging process advances, there is a tendency for the individual's cognitive capacity to decline, which can be driven by genetic, cultural, and economic factors, as well as by his or her living habits, education, and the presence of diseases.²² Elderly people with cognitive impairment are considered to be at risk for developing the frailty condition, therefore, health professionals must intervene, planning facilitating ways that mitigate this deficit, in a way that involves the family and caregivers of the elderly, taking into account the daily life of each individual.19,22

The frailty assessment by the CFVI-20 characterized 58.3% of the elderly aged between 60 and 79 years as frail, and 84.6% of those aged 80 years or more. The surveys carried out with elderly in outpatient care observed lower prevalence of this condition among patients, being between 40.1% in Paraná,²² 23% in Pará,¹⁹ 31% in Rio Grande do Sul,¹⁸ 47,5% in Minas Gerais²⁴ and 35% in Canadá.²¹ Overall, the differences in prevalence values of frailty can be attributed to socioeconomic and cultural characteristics of each sample, however, the multiplicity of frailty screening

Table 3. Correlation analysis between frailty and socio-demographic and health characteristics of elderly people followed-up at the Gerontology Outpatient Clinic, São Carlos (SP), Brazil, 2020.

_			Fra	ilty			
Variables	Total	Total (N=50)		60-79 years (n= 24)		≥80 years (n= 26)	
	r	p-value	r	p-value	r	p-value	
Age	0.380	0.006*	0.367	0.078	0.289	0.152	
Education	-0.192	0.181	-0.360	0.084	-0.127	0.535	
Number of morbidities	0.433	0.002*	0.338	0.106	0.539	0.004*	
Number of medications	0.514	<0.001*	0.561	0.004*	0.364	0.068	
Cognitive performance	-0.540	<0.001*	-0.601	0.002*	-0.406	0.040*	
Dependence in BADL	-0.481	<0.001*	-0.433	0.035*	-0.625	0.001*	
Dependence in IADL	-0.460	0.001*	-0.578	0.003*	-0.509	0.008*	
Depressive symptoms	0.125	0.389	0.245	0.249	-0.250	0.902	

r=Correlation coefficient. *Significant correlation between frailty and variable ($p \le 0.05$). BADL: Basic Activities of Daily Living; IADL: Instrumental Activities of Daily Living. Source: Elaborated by the authors.



Figure 1. Linear correlations between frailty (CFVI-20) and the number of medications, cognitive performance (10-Point Cognitive Screening), dependence in BADL (Katz) and IADL (Lawton & Brody) of the elderly aged between 60 and 79 years, São Carlos (SP), Brazil, 2020. Source: Elaborated by the authors.



Figure 2. Linear correlations between frailty (CFVI-20) and the number of morbidities, cognitive performance (10-Point Cognitive Screening), dependence in BADL (Katz) and IADL (Lawton & Brody) of the elderly above 80 years old, São Carlos (SP), Brazil, 2020. Source: Elaborated by the authors.

instruments and their varied parameters may compromise the comparison of prevalence and other results.^{22,25} It is expected to find a higher prevalence of frailty in settings such as hospital specialty outpatient clinics, to the detriment of homes, since the search, with greater frequency, for these services with even the implementation of protocols that encourage this search is greater in the group of frail patients, since this condition results in greater vulnerability to changes in health status, requiring specialized attention.²²

In this study, a correlation was identified between greater frailty of the elderly and advanced age, higher number of morbidities and medications, worse cognitive performance and dependence on ADLs. It was found that there was a direct correlation between the number of morbidities and medication use in the groups 60 to 79 years and 80 years or older; respectively, and the older the age, the higher the number of self-reported medications and/or comorbidities. Although the occurrence of comorbidities does not mean the presence of frailty, with advancing age, this factor may indicate greater chances for the installation of this syndrome, however, the severity of the diseases and the treatment directed to them may be more associated to the frailty condition than only to its quantity.¹⁹ Elderly people living in developing countries, as is the case in Brazil, present a greater number of chronic diseases as they age and, as a consequence, their presence can accelerate the onset of frailty.²²

Furthermore, the analysis showed an inverse correlation between frailty and cognitive performance in the elderly of both groups. The literature corroborates the prevalence of frail and pre-frail elderly among those with cognitive impairment, with a considerably higher portion of frail elderly compared to those without this condition.^{24,26} When following a cohort of elderly in outpatient care for twelve months, one study observed a transition to frailty in 33.3% of the elderly who presented with cognitive impairment.²⁴ Since it is a dynamic process, the transition from frailty, in the sense of worsening among the elderly with cognitive impairment, is greater when compared to those without this condition.²⁷ There is evidence that there is a biological association between the frailty condition and cognitive impairment, as both conditions share the same pathophysiological mechanisms of inflammatory activation and neuroendocrine deregulation, which often causes the two to coexist.28

Another variable that proved to be inversely correlated to frailty in both groups was the degree of dependence for the BADL and IADL. Although a higher prevalence of frailty was observed in more dependent elderly to perform the ADLs, it is essential that all elderly are assessed for their state of frailty, including those more active in their routine, so that the aspects correlated to frailty are identified early, enabling its management in an appropriate and effective way, since independence is indispensable for the well-being of every individual, in the broadest sense, including the domains happiness, satisfaction and self-efficacy.^{29,30} For the aging process to be successful, the elderly must have autonomy and independence in ADL, leading their own lives and determining how, when and where they would like to perform their leisure, social and work activities with autonomy.^{2,29}

These findings raise reflections about possible strategies for the remission of these aspects, such as investing in strategies to promote the health of the elderly, prevent chronic diseases and early diagnosis, and encourage the practice of physical activities and collaboration of family members and caregivers in order to promote the autonomy and independence of the elderly. When thinking about the health of this population, professionals must focus on the interaction of the elderly functionality with their environment, i.e., trying to keep them independent for as long as possible. Thus, the literature reflects on the positive, multidimensional, and integrated evolution that currently constitutes the aging process.^{2,30}

CONCLUSION AND IMPLICATIONS FOR PRACTICE

The results observed a predominantly frail elderly population with severe cognitive changes, polypharmacy, and a certain degree of dependence for ADLs. Frailty was correlated to worse cognitive performance and dependence in BADL and IADL in both groups. For the elderly aged 60 to 79 years, frailty correlated with a higher number of medications consumed, while for those above 80 years, the correlation was with a higher number of morbidities.

Regarding the limits of the study, since this is an elderly population in outpatient care and with high rates of cognitive impairment, memory bias must be taken into account. In addition, the various measures for the screening of frailty imply barriers to the comparison of results. On the other hand, although the sample size and its convenient character do not have the capacity to generalize the findings, the analysis identified important correlations between frailty and different variables, even after stratification by age group.

As implications for practice, establishing these types of measures can improve the monitoring and planning of actions aimed at outpatient care, enabling the organization of health intervention priorities and strategies for the control of conditions that are associated with frailty, subsidizing the development of preventive practices. It is essential that the healthcare team involves family members and caregivers in assisting the frail elder, providing support, independence, and greater autonomy. Moreover, for future studies, it is important that the evaluation of frailty be performed longitudinally and independently of the conditions that lead the elderly to seek health care, since the state of frailty is a multidimensional condition and its early identification may be a facilitator for the management of this phenomenon.

ACKNOWLEDGEMENTS

I would like to thank the entire staff of the University Hospital of the Federal University of São Carlos, especially Dr. Vivian Ramos Melhado and Dr. Arlety Morais Carvalho Casale, for their support during the research.

FINANCIAL SUPPORT

This study was financially supported by the Coordination for the Improvement of Higher Education Personnel - Brazil (CAPES; master's scholarship) - Funding code 001, Process number: 88887.483415/2020, master's scholarship awarded to Gustavo Carrijo Barbosa.

AUTHOR'S CONTRIBUTIONS

Study design. Gustavo Carrijo Barbosa. Aline Cristina Martins Gratão.

Data collection or production. Gustavo Carrijo Barbosa. Beatriz Rodrigues de Souza Melo. Aline Cristina Martins Gratão.

Data analysis. Gustavo Carrijo Barbosa. Beatriz Rodrigues de Souza Melo. Aline Cristina Martins Gratão.

Interpretation of results. Gustavo Carrijo Barbosa. Ana Júlia de Souza Caparrol. Beatriz Rodrigues de Souza Melo. Thais Juliana Medeiros.

Writing and critical revision of the manuscript. Gustavo Carrijo Barbosa. Ana Júlia de Souza Caparrol. Beatriz Rodrigues de Souza Melo. Thais Juliana Medeiros. Ana Carolina Ottaviani. Aline Cristina Martins Gratão.

Approval of the final version of the article. Gustavo Carrijo Barbosa. Ana Júlia de Souza Caparrol. Beatriz Rodrigues de Souza Melo. Thais Juliana Medeiros. Ana Carolina Ottaviani. Aline Cristina Martins Gratão.

Responsibility for all aspects of the content and integrity of the published article. Gustavo Carrijo Barbosa. Ana Júlia de Souza Caparrol. Beatriz Rodrigues de Souza Melo. Thais Juliana Medeiros. Ana Carolina Ottaviani. Aline Cristina Martins Gratão.

SCIENTIFIC EDITOR

Ivone Evangelista Cabral 💿

ASSOCIATED EDITOR

Rafael Celestino da Silva 💿

REFERENCES

- United Nations, Department of Economic and Social Affairs, Population Division. World population prospects 2019: press release. New York: United Nations; 2019.
- Organização Mundial de Saúde. Relatório mundial de envelhecimento e saúde. Genebra: OMS; 2015.
- Bordin D, Cabral LPA, Fadel CB, Santos CB, Grden CRB. Fatores associados à internação hospitalar de idosos: estudo de base nacional. Rev Bras Geriatr Gerontol. 2018;21(4):439-46. http://dx.doi. org/10.1590/1981-22562018021.180059.

- 4. Ministério da Saúde (BR), Secretaria de Atenção à Saúde, Departamento de Ações Programáticas e Estratégicas. Orientações técnicas para a implementação de Linha de Cuidado para Atenção Integral à Saúde da Pessoa Idosa no Sistema Único de Saúde. Brasília: Ministério da Saúde, 2018.
- Moraes EN, Carmo JA, Moraes FL, Azevedo RS, Machado CJ, Montilla DER. Índice de Vulnerabilidade Clínico Funcional-20 (IVCF-20): reconhecimento rápido do idoso frágil. Rev Saude Publica. 2016;50:81. http://dx.doi.org/10.1590/s1518-8787.2016050006963. PMid:28099667.
- Matos FS, Jesus CS, Carneiro JAO, Coqueiro RS, Fernandes MH, Brito TA. Redução da capacidade funcional de idosos residentes em comunidade: estudo longitudinal. Cien Saude Colet. 2018;23(10):3393-401. http:// dx.doi.org/10.1590/1413-812320182310.23382016. PMid:30365858.
- Amancio TG, Oliveira MLC, Amancio VS. Fatores que interferem na condição de vulnerabilidade do idoso. Rev Bras Geriatr Gerontol. 2019;22(2):e180159. http://dx.doi.org/10.1590/1981-22562019022.180159.
- Portaria nº 276, de 30 de março de 2012 (BR). Institui o sistema de Registro das Ações Ambulatoriais de Saúde (RAAS). Diário Oficial da União, Brasília (DF), 2 abr 2012: 64.
- Veras R, Oliveira M. Linha de cuidado para o idoso: detalhando o modelo. Rev Bras Geriatr Gerontol. 2016;19(6):887-905. http://dx.doi. org/10.1590/1981-22562016019.160205.
- Moraes EN, Lanna FM, Santos RR, Bicalho MAC, Machado CJ, Romero DE. A new proposal for the clinical-functional categorization of the elderly: Visual Scale of Frailty (VS-Frailty). J Aging Res Clin Pract. 2016;5(1):24-30. http://dx.doi.org/10.14283/jarcp.2016.84.
- Apolinario D, Lichtenthaler DG, Magaldi RM, Soares AT, Busse AL, Amaral JR et al. Using temporal orientation, category fluency, and word recall for detecting cognitive impairment: the 10-point cognitive screener (10-CS). Int J Geriatr Psychiatry. 2016;31(1):4-12. http://dx.doi. org/10.1002/gps.4282. PMid:25779210.
- Katz S, Ford AB, Moskowitz RW, Jackson BA, Jaffe MW. Studies of illness in the aged: the index of ADL: a standardized measure of biological and psychosocial function. JAMA. 1963;185(12):914-9. http://dx.doi. org/10.1001/jama.1963.03060120024016. PMid:14044222.
- Lino VTS, Pereira SRM, Camacho LAB, Ribeiro Fo ST, Buksman S. Adaptação transcultural da Escala de Independência em Atividades da Vida Diária (Escala de Katz). Cad Saude Publica. 2008;24(1):103-12. http://dx.doi.org/10.1590/S0102-311X2008000100010.PMid:18209838.
- Lawton MP, Brody EM. Assessment of older people: self-maintaining and instrumental activities of daily living. Gerontologist. 1969;9(3):179-86. http://dx.doi.org/10.1093/geront/9.3_Part_1.179. PMid:5349366.
- Santos RL, Virtuoso Jr JS. Confiabilidade da versão brasileira da escala de atividades instrumentais da vida diária. Rev Bras Promoç Saúde. 2008;21(4):290-6. http://dx.doi.org/10.5020/18061230.2008.p290.
- Almeida OP, Almeida AS. Confiabilidade da versão brasileira da escala de depressão em geriatria (GDS) versão reduzida. Arq Neuropsiquiatr. 1999;57(2B):421-6. http://dx.doi.org/10.1590/S0004-282X1999000300013. PMid:10450349.
- 17. Levin J, Fox JA. Estatística para ciências humanas. 9ª ed. São Paulo: Pearson; 2004.

- Remor CB, Bós AJG, Werlang MC. Characteristics related to the frailty profile in the elderly. Sci Med [Internet]. 2011; [citado 2021 nov 3];21(3):107-12. Disponível em: https://revistaseletronicas.pucrs.br/ index.php/scientiamedica/article/view/8491
- Freitas CV, Sarges ESNF, Moreira KECS, Carneiro SR. Evaluation of frailty, functional capacity and quality of life of the elderly in geriatric outpatient clinic of a university hospital. Rev Bras Geriatr Gerontol. 2016;19(1):119-28.http://dx.doi.org/10.1590/1809-9823.2016.14244.
- Ramos RSPS, Marques APO, Ramos VP, Borba AKOT, Aguiar AMA, Leal MCC. Fatores associados ao diabetes em idosos assistidos em serviço ambulatorial especializado geronto-geriátrico. Rev Bras Geriatr Gerontol. 2017;20(3):363-73. http://dx.doi.org/10.1590/1981-22562017020.160145.
- Pritchard JM, Kennedy CC, Karampatos S, Ioannidis G, Misiaszek B, Marr S et al. Measuring frailty in clinical practice: a comparison of physical frailty assessment methods in a geriatric out-patient clinic. BMC Geriatr. 2017;17(1):264. http://dx.doi.org/10.1186/s12877-017-0623-0. PMid:29132301.
- 22. Grden CRB, Rodrigues CRB, Cabral LPA, Reche PM, Bordin D, Borges PKO. Prevalence and factors associated with the frailty in elderly patients attended to anoutpatient care specialty clinics. Rev Eletr Enferm. 2019;21:e52195. http://dx.doi.org/10.5216/ree.v21.52195.
- Alexandre TS, Corona LP, Nunes DP, Santos JL, Duarte YA, Lebrão ML. Similarities among factors associated with components of frailty in elderly: SABE Study. J Aging Health. 2014;26(3):441-57. http://dx.doi. org/10.1177/0898264313519818. PMid:24505067.
- Alencar MA, Oliveira AC, Figueiredo LC, Dias JMD, Dias RC. Prevalence and transition to frailty in older adults with cognitive impairment: a 1-year cohort study. Geriatr Gerontol Aging. 2018;12(2):89-95. http://dx.doi. org/10.5327/Z2447-211520181800037.
- Faller JW, Pereira DDN, de Souza S, Nampo FK, Orlandi FS, Matumoto S. Instruments for the detection of frailty syndrome in older adults: a systematic review. PLoS One. 2019;14(4):e0216166. http://dx.doi. org/10.1371/journal.pone.0216166. PMid:31034516.
- Aprahamian I, Suemoto CK, Aliberti MJR, Fortes Fo SQ, Melo JA, Lin SM et al. Frailty and cognitive status evaluation can better predict mortality in older adults? Arch Gerontol Geriatr. 2018;77:51-6. http:// dx.doi.org/10.1016/j.archger.2018.04.005. PMid:29669268.
- Alencar MA, Dias JMD, Figueiredo LC, Dias RC. Transitions in frailty status in community-dwelling older adults. Top Geriatr Rehabil. 2015;31(2):105-12. http://dx.doi.org/10.1097/TGR.00000000000055.
- Jacobs JM, Cohen A, Ein-Mor E, Maaravi Y, Stessman J. Frailty, cognitive impairment and mortality among the oldest old. J Nutr Health Aging. 2011;15(8):678-82. http://dx.doi.org/10.1007/s12603-011-0096-3. PMid:21968864.
- Maia LC, Colares TFB, Moraes EM, Costa SM, Caldeira AP. Idosos robustos na atenção primária: fatores associados ao envelhecimento bem-sucedido. Rev Saude Publica. 2020;54(35):1-11. http://dx.doi. org/10.11606/s1518-8787.2020054001735. PMid:32267369.
- Canêdo AC, Lopes CS, Lourenço RA. Prevalence of and factors associated with successful aging in Brazilian older adults: Frailty in Brazilian older people Study (FIBRA RJ). Geriatr Gerontol Int. 2018;18(8):1280-5. http://dx.doi.org/10.1111/ggi.13334. PMid:29717801.

^a Article extracted from the defended master's thesis, "Factors related to the clinical-functional vulnerability index of elderly people in ambulatory follow-up", authored by Gustavo Carrijo Barbosa, under the supervision of Aline Cristina Martins Gratão. Year 2021. Postgraduate Program in Gerontology, Federal University of São Carlos.