

Chronic pain in elderly caregivers at different levels of frailty

Dor crônica de idosos cuidadores em diferentes níveis de fragilidade

Dolor crónico de cuidadores mayores de la tercera edad en diferentes niveles de fragilidad



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ABSTRACT

Objective: To determine whether there are differences in the intensity of chronic pain of elderly caregivers who are frail, pre-frail and non-frail.

Methods: Quantitative, descriptive and cross-sectional study. The subjects were 187 elderly caregivers evaluated with a Multidimensional Pain Assessment Scale and the Fried Frailty Phenotype Assessment Components. Descriptive and comparative analyzes, Pearson's chi-square test and Kruskal-Wallis test were used.

Results: 24.1% of the caregivers were frail, 55.1% pre-frail and 20.9% non-frail. The only socio-demographic variable that differed between the three groups was age ($p=0.03$). Mean pain intensity values were as follows: frail elderly (6.98), pre-frail (6.38) and non-frail (5.85). However, these differences were not significant ($p=0.150$).

Conclusions: The present study did not find a significant difference in the intensity of chronic pain in elderly. Nevertheless, it is essential that health professionals and health care public policies give special attention to older caregivers.

Keywords: Caregivers. Frail elderly. Chronic pain.

RESUMO

Objetivo: Verificar se existe diferença na intensidade da dor crônica de idosos cuidadores frágeis, pré-frágeis e não frágeis.

Métodos: Estudo quantitativo, descritivo, transversal. Foram avaliados 187 idosos, utilizando-se a Escala Multidimensional de Avaliação da Dor e o fenótipo dos cinco componentes da fragilidade. Realizaram-se análises descritivas e comparativas, *Teste de QuiQuadrado de Pearson* e *Teste de Kruskal-Wallis*.

Resultados: 24,1% dos cuidadores eram frágeis, 55,1%, pré-frágeis e 20,9%, não-frágeis. A única variável sociodemográfica diferente entre os três grupos foi a idade ($p=0,03$). A intensidade média da dor de idosos frágeis foi 6,98, de pré-frágeis, 6,38 e de não frágeis, 5,85. Porém, essas diferenças não foram significativas ($p=0,150$).

Conclusões: Não foi possível verificar diferença significativa na intensidade da dor crônica de idosos cuidadores, no entanto, é primordial que haja uma maior atenção dos profissionais de saúde e políticas públicas de atenção à saúde voltadas ao idoso cuidador.

Palavras-chave: Cuidadores. Idoso fragilizado. Dor crônica.

RESUMEN

Objetivo: Determinar si existen diferencias en la intensidad del dolor crónico de los cuidadores de edad avanzada que son frágiles, prefrágiles y no frágiles.

Métodos: Estudio cuantitativo, descriptivo y transversal. Se evaluaron 187 cuidadores de ancianos utilizando Escala Multidimensional de Evaluación del Dolor y el fenotipo de los cinco componentes de la fragilidad. Los análisis descriptivos y comparativos, se utilizaron, prueba de chi-cuadrado de Pearson y la prueba de Kruskal-Wallis.

Resultados: El 24,1% de los cuidadores era frágil, el 55,1% de prefrágil y el 20,9% no frágil. La única variable sociodemográfica que fue diferente entre los tres grupos fueron la edad ($p=0,03$). La intensidad media del dolor de los ancianos frágiles era 6,98, el prefrágil 6,38, y no frágil 5,85. Sin embargo, estas diferencias no fueron significativas ($p=0,150$).

Conclusiones: No fue posible encontrar una diferencia significativa en la intensidad del dolor crónico en ancianos. Sin embargo, es esencial que los profesionales de la salud y las políticas públicas dirigidos a cuidadores ancianos.

Palabras clave: Cuidadores. Anciano frágil. Dolor crónico.

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■ INTRODUCTION

As a result of demographic transition, there is a greater probability that elderly are cared for by other elderly individuals⁽¹⁻²⁾. Aging can be followed by disability and dependence upon on others, justifying the need for a caregiver⁽²⁻³⁾. A caregiver is responsible for a sick or dependent individual, facilitating activities of daily living such as bathing, dressing, eating and taking medications, in addition to providing physical and psychological support⁽³⁾.

Some studies identified family members as the main caregivers of elderly, particularly women (daughters or wives)⁽¹⁻³⁾. One study with 1,139 elderly in three Brazilian cities reported that 29.7% of the respondents were caregivers, usually women aged 65-74 years, with low income and increased prevalence of insomnia compared to older people who are not caregivers⁽¹⁾.

A population-based study conducted in the city of Campinas (SP) with 689 elderly aged above 65 years found that 176 (25%) of the respondents reportedly were caring for or have cared for another elderly individual in the past five years. The study showed that 70.69% were women, with a mean age of 71.8 years; 79.31% cared for their spouses; 47.65% reported average social support, 48.85% were pre-frail and 20.11% had depression symptoms⁽²⁾.

According to these studies, taking care of others may lead to overload and stress, particularly in older caregivers⁽³⁻⁴⁾, as well as contribute to the onset of the frailty syndrome.

Frailty is a state of physiological vulnerability associated to aging that results from difficulty in maintaining homeostasis and body's inability to respond to stressful events⁽⁵⁾. The criteria used to identify the syndrome are unintentional weight loss greater than 4 kg in the past year, self-reported exhaustion, low handgrip strength, slow walking speed and low physical activity. The presence of three or five phenotype components indicate frailty and one or two components indicate pre-frailty⁽⁵⁾.

Besides being more likely to face adverse outcomes, elderly classified as pre-frail are at higher risk of becoming frail. Therefore, early interventions are needed to reduce frailty progression, as it is estimated that 10 to 25% of community-living elderly above 60 years of age are frail, and that 46% of the individuals older than 85 years can be classified as frail⁽⁶⁾.

In addition to the frailty syndrome, pain is one of the main factors affecting quality of life and routine activities of older individuals⁽⁷⁾. Chronic pain in elderly is a public health issue, as it involves high demand for health services, requiring accurate assessment of health status and diagnosis by health professionals⁽⁸⁾, particularly when pain is reported by elderly caregivers.

Aging can lead to chronic pathologies, presence of pain and frailty components⁽⁹⁾. The two variables can be related and the presence of one may result in the onset of the other⁽⁷⁾. Although cognitive impairment, depression and loss of muscle mass are very common in fragile elderly, pain is the main health complaint reported by this group⁽⁹⁾. Thus, investigating the variables chronic pain and frailty, assessing their impacts and promoting effective treatment of the patients is necessary, especially because the difficult access to healthcare services that characterizes the health system in the country has a negative impact on the effective control of these variables⁽⁹⁾.

Production of knowledge about this topic may contribute to more comprehensive care by nursing and multidisciplinary health teams, targeted to the needs of the elderly population, in order to minimize the negative impacts of chronic pain and frailty components on the routine activities of older individuals.

In view of the increasing number of elderly individuals who care for other elderly and who may be frail or pre-frail, and because elderly with chronic pain can be classified as having frailty syndrome, the following question is posed: are there any differences in the intensity of chronic pain in elderly caregivers with different frailty phenotypes? Therefore, the present study aimed to determine whether there are any differences in the intensity of chronic pain in elderly caregivers who are frail, pre-frail and non-frail.

■ METHOD

Quantitative, descriptive and cross-sectional study conducted in 14 Family Health Units (USFs) of São Carlos, São Paulo. The participants were elderly individuals aged 60 years or above who cared for another elderly person at home. The inclusion criteria were be the primary caregiver of an elderly person living in the same house, experience chronic pain and be able to understand the questions of the interview. Exclusion occurred when the elderly were unable to be reached at home after three attempts, in case of death, change of address, refusal to participate and when the two elderly individuals were equally independent or dependent for basic activities of daily living (BADL) and instrumental activities of daily living (IADL), following previous assessment with validated instruments.

The elderly individual defined as caregiver was the one who showed greater percentage of independence in the assessments of BADL and IADL compared to the other elderly person who lived in the same house. For this purpose, the BADL were assessed using Katz index⁽¹⁰⁾ and the IADL

with Lawton scale⁽¹¹⁾. In this study chronic pain was defined as continuous or recurrent pain lasting 6 months or more.

The Family health units (USFs) contributed to identify potential participants by providing lists with 594 addresses of older people who lived with one or more elderly. All households were visited, and after use of inclusion and exclusion criteria and some refusals, the final sample of the study was composed of 187 elderly caregivers who reported chronic pain. Data was collected in the participants' homes by members of the Research Group "Saúde e Envelhecimento" (Health and Aging) of Universidade Federal de São Carlos (UFSCar).

The participants were asked to complete a form for sociodemographic characterization and care, which included questions regarding gender, marital status, age, work status (whether or not the participant worked outside the home), educational level and income of the caregiver, the care recipient, whether the regular income was sufficient to perform caregiving tasks, number of daily hours devoted to care and attendance to caregiver training courses.

Frailty was assessed according to the phenotype proposed by Fried et al. (2001)⁽⁵⁾, composed of five components: 1) unintentional weight loss assessed by the question "In the last twelve months do you think you have lost weight without any diet?". Affirmative answers reporting weight loss greater than 4.5kg or 5% of the body weight met the component; 2) Fatigue, assessed by the two following questions of the *Center for Epidemiological Studies - Depression (CES-D)*⁽¹²⁾: "How often in the last week you felt everything required a lot of effort?" and "How often in the last week you felt you could not perform your regular tasks?" Responses "always" or "most often" to any of these questions indicated that the subject met the component. 3) low handgrip strength verified by the mean of three consecutive grip tests on the dominant hand, in kg, using Jamar hydraulic dynamometer palmar, SH5001 model manufactured by SAEHAN®, Lafayette, Illinois, USA. Elderly in the lowest quintile of maximum strength on the dominant hand adjusted for sex and BMI met the component weakness; 4) Slow walking speed indicated by the mean of three consecutive measurements of the time spent by the elderly to walk 4.6 m on a flat surface. In order to calculate acceleration and deceleration of the walk, two meters were added to the initial position and two meters were added to the final position, totaling 8.6 meters of walking. Elderly with the lowest quintile of walking speed adjusted by sex and mean height met the component; and 5) Low level of physical activity indicated by an affirmative response to the following question: Do you think you make less physical activity than twelve months ago? Meeting three or more of

the five phenotype components characterized the elderly as frail; the elderly who met one or two components were characterized as pre-frail, and if no component was met, the elderly was characterized as non-frail.

The Multidimensional Pain Assessment Scale (EMADOR) was used for pain measurement, as follows: the participant indicates the intensity of his/her pain in the last week using a 0-10 scale where 0 indicates "no pain" and 10 "maximum pain". The participant was also supposed to choose among ten descriptors those that best characterized their pain (depressing, persistent, disastrous, harmful, painful, unbearable, terrifying, cruel and uncomfortable). The instrument also includes a body diagram where participants visually display the sites of pain⁽¹³⁾.

The present study was authorized by the Municipal Health Department of São Carlos (Statement no. 68, of September 20, 2013) and approved by the Human Research Ethics Committee of Universidade Federal de São Carlos (UFSCar) (Statement no. 517.182, of January 29, 2014). All participants were asked about their willingness to participate in the study, informed on the purpose of the study and guaranteed confidentiality. Then, they signed the Free Informed Consent Form (TCLE).

The data obtained was entered into the database of the Statistical Package for Social Sciences (SPSS) for Windows for the following purposes: descriptive analyzes for characterization of sociodemographic profile, frailty and pain intensity of participants; Pearson's chi-square test and Kruskal-Wallis test for comparison of characteristics of the groups of elderly with different levels of frailty (non-frail, pre-frail and frail) and *Kruskal-Wallis* test for comparing pain intensity of elderly with different levels of frailty (non-frail, pre-frail, frail).

■ RESULT

Of the 187 elderly caregivers interviewed, most were women (80.7%, n=151), married (88.8%, n=166) and did not work outside the home (81.8%, n=153). The mean age of the participants was 68.95 years of age 4.13 years of schooling and monthly income of R\$756.53.

Based on the five indicators used to assess frailty⁽⁶⁾, it has been possible to identify the frail, pre-frail and non-frail groups, namely: 45 elderly caregivers (24.1%) met 3 to 5 criteria and were classified as frail; 103 (55.1%) met 1 or 2 criteria and were classified as pre-frail and 39 elderly (20.9%) did not meet any of the criteria and were classified as non-frail. The frail group was the oldest (70.98 years); and the non-frail group was the youngest (66.23 years). The analyzes showed statistically significant differences between the groups only for variable age (Table 1).

Table 1 – Distribution of elderly caregivers and comparison according to level of frailty and the variables gender, marital status, work, age, schooling, income and comparative analysis between the groups. São Carlos, 2014

Group Variables	Frail		Pre-frail		Non-frail		Total		Comparative analysis		
	n	%	n	%	n	%	n	%	χ^2	GI	p*
Gender									0.099*	2	0.952 ns
Female	36	80.0	84	18.4	31	79.5	151	80.7			
Male	9	20.0	19	81.6	8	20.5	36	19.3			
Total	45	100	103	100	39	100	187	100			
Marital status									6.237*	6	0.397 ns
Living with a partner	39	86.7	91	88.3	36	92.3	166	88.8			
Single	1	2.2	7	6.8	1	2.6	9	4.8			
Separated	1	2.2	3	2.9	1	2.6	5	2.7			
Widowed	4	8.9	2	1.9	1	2,6	7	3,7			
Total	45	100	103	100	39	100	187	100			
Works outside the home									1.090*	2	0.580 ns
Yes	8	17.8	21	20.4	5	12.8	34	18.2			
No	37	82.2	82	79.6	34	87.2	153	81.8			
Total	45	100	103	100	39	100	187	100			
Age (years)									7.007*	2	0.030
Mean	70.98		69.09		66.23		68.95				
Median	70.00		68.00		65.00		67.00				
Standard deviation	8.52		6.88		4.60		7.07				
Minimum	60		60		60		60				
Maximum	91		95		78		95				
Interquartile ranges											
Q1	63.50		64.00		63.00		63.00				
Q2	70.00		68.00		65.00		67.00				
Q3	77.50		74.00		69.00		73.00				
Schooling (years)									4.835*	2	0.089 ns
Mean	3.06		4.40		4.69		4.13				
Median	3.00		4.00		4.00		4.00				
Standard deviation	2.71		3.80		3.90		3.62				
Minimum	0		0		0		0				
Maximum	16		17		15		17				
Interquartile ranges											
Q1	1.50		2.00		2.00		2.00				
Q2	3.00		4.00		4.00		4.00				
Q3	4.00		5.00		4.00		4.00				
Caregiver's income (R\$)									1.888*	2	0.389 ns
Mean	380.62		788.71		761.64		756.53				
Median	724.00		724.00		724.00		724.00				
Standard deviation	517.79		868.06		1118.75		856.73				
Minimum	0.00		0.00		0.00		0.00				
Maximum	2100.00		6500.00		4500.00		6500.00				
Interquartile ranges											
Q1	150.00		240.00		0.00		0.00				
Q2	724.00		724.00		724.00		724.00				
Q3	805.00		724.00		724.00		740.50				

Source: Research data, 2014.
*Chi-square and Kruskal-Wallis tests

Table 2 – Distribution of elderly caregivers according to perceived pain and frailty level. São Carlos, 2014

Perceived pain intensity	Groups							
	Frail		Pre-frail		Non-frail		Total	
	n	n	n	%	n	%	n	%
None (0)	1	1	2	1.9	2	5.1	5	9.2
Mild (1 to 3)	3	3	6	5.9	6	15.4	15	27.9
Moderate (4 to 6)	14	14	47	45.7	12	30.8	73	107.6
Intense (7 to 9)	18	18	37	35.9	17	43.5	72	119.4
Unbearable (10)	9	9	11	10.7	2	5.1	22	35.8

Source: Research data, 2014.

*Pearson's chi-square test: $\chi^2=113.722$; $gl=4$; $p=0.000$.**Table 3** – Descriptive analysis of pain intensity of the Frail, Pre-frail and Non-frail groups

Groups	Descriptive Analysis of Pain				
	Mean	Median	SD	Minimum	Maximum
Frail	6.98	8.00	2.491	0	10
Pre-frail	6.38	6.00	2.223	0	10
Non-frail	5.85	6.00	2.796	0	10

Source: Research data, 2014.

*Kruskal-Wallis test: $\chi^2=3.792$; $gl=2$; $p=0.150$.

Regarding the care provided, most elderly caregivers cared for their spouses (85.0%, $n=159$) and reported that their income was not sufficient to provide the care (58.3%, $n=109$). The average daily time spent on care activities was 6.19 hours. Since most caregivers reported not having participated in any caregiving training courses, the care delivered was not specialized (96.3%, $n=180$).

Regarding chronic pain characteristics, 39.1% of the participants classified pain as moderate and 38.6% as intense. The main descriptors used by caregivers to represent pain were persistent (73.8%), painful (87.2%) and uncomfortable (92.5%). The body parts most affected by pain were lower back ($n=110$, 58.8%), lower limbs (LL) ($n=110$, 58.8%) and back ($n=49$, 26.2%).

Distribution and comparative analyzes of percentages of elderly caregivers regarding perceived pain intensity and frailty level are shown in Table 2 and indicate a higher percentage of elderly with moderate and intense pain ($\chi^2=113.722$; $gl=4$; $p=0.000$).

There were no significant differences in the mean pain intensity in the frail and pre-frail groups compared to the non-frail group. Comparative analyzes using Kruskal-Wallis test did not detect significant differences between the groups ($\chi^2=3.792$; $gl=2$; $p=0.150$) (Table 3).

DISCUSSION

Based on the statements of 187 elderly caregivers, a profile of this population was drawn. In short, they are mostly women, spouses, not working outside the home and with low socioeconomic and educational levels. Similar characteristics were found in studies on elderly caregivers^(1,3,14). These data emphasize the “feminization” of old age and the role of women as primary caregivers in our culture. One study with elderly caregivers with dementia found that 80.9% of these caregivers were women, mostly wives and daughters⁽¹⁵⁾. According to these studies, taking care of elderly family members is one of the roles assigned to women in the household^(3,4,14). The analyzes carried out in the present study reported statistically significant differences between the groups for variable age, corroborating the findings of other national and international studies⁽¹⁶⁻¹⁷⁾.

The present study showed that most elderly who cared for their spouses found their income insufficient to perform caregiving tasks. This may imply that low income makes caregiving more difficult^(1,16).

Associated to aging, frailty, defined as vulnerability and low ability to cope with stressful factors, may worsen the health conditions of elderly caregivers, leading to

higher hospitalization rates and generating greater dependence⁽¹⁴⁾. In the present study, half of the 3,478 elderly were classified as pre-frail and the other half as non-frail and frail corroborating data from recent national studies⁽¹⁴⁻¹⁶⁾.

It can be concluded that caregiving tasks are complex and hence in order to be able to take care for family members, caregivers need to be healthy. However, when required, frail and vulnerable elderly are performing caregiving tasks. Therefore, health professionals such as nurses, gerontologists, among others, should promote a broad assessment of the health status of elderly caregivers in order to plan and execute interventions aimed to prevent and reduce their daily disabilities and promote self-care.

In addition to the frailty syndrome, pain may have a negative impact on the quality of life of elderly individuals⁽⁷⁾. There are scarce Brazilian studies on chronic pain in community living elderly^(7,18), but it can be inferred that the aging process associated to frailty and pain may result in greater vulnerability of the individual.

The data on pain perceived by the caregivers reported in this study demonstrate that pain was mostly classified as moderate (39.1%) or intense (38.6%). A longitudinal study including data obtained from the SABE project (Health, Well-being and Aging) aimed to identify the living conditions and health status of elderly who reside in seven cities in Latin America and the Caribbean obtained similar results⁽¹⁸⁾. Of the 377 elderly with chronic pain, 45.8% of them reported experiencing moderate pains and 27.55% had intense pains⁽¹⁸⁾.

Accurate comparison with other data was difficult because few studies used EMADOR descriptors. In this study, 73.8% of the elderly caregivers classified chronic pain as persistent (73.8%), painful (87.2%) and uncomfortable (92.5%). Similar data were found in a recent study with 45 elderly living in long-stay institutions⁽⁷⁾. These classified their pain as intense (30.43%), and the descriptor most often mentioned by the participants was "painful"⁽⁷⁾.

The body parts most affected by pain, according to the caregivers were the back and the lower limbs. The cephalic, pelvic and genital regions were the least mentioned. Similar data were obtained in another study with 1,271 elderly who lived in cities of São Paulo. Of these, 25.4% reported pain in the lower back and 21.9% in the lower limbs⁽¹⁸⁾.

The presence of disabling pain associated to biological vulnerabilities of the aging process may contribute to the onset of the frailty syndrome. Some studies associate pain with reduced mobility, fatigue and decreased nutritional intake, which are frailty-defining criteria established by Fried et al.⁽⁵⁾ and Morley et al.⁽¹⁹⁾. Although comparative analyzes did not reveal significant differences between the groups,

it is logically assumed that the elderly in the frail group perceive higher mean pain intensity. The group of non-frail elderly showed the lowest mean pain intensity values followed by pre-frail elderly. These data were expected since frail elderly may experience more intense pain.

Primary care providers may help these elderly caregivers through proactive proposals such as comprehensive intervention strategies that involve family members, health professionals and caregivers⁽²⁰⁾. These strategies should result in improved quality of life, mental and physical health, with focus on the prevention of frailty, control of chronic pain and decrease in the burden to which elderly caregivers are exposed.

■ CONCLUSION

According to the results obtained, elderly caregivers in different frailty levels perceived moderate and intense chronic pain, and there no significant difference between the frail and pre-frail groups in mean pain intensity compared to the non-frail group. Chronic pain was usually perceived in the lower limbs and lower back of the respondents and should be recognized as a health issue particularly for the elderly population that performs caregiving tasks.

It should be stressed that caregiving tasks may be stressful and result in the vulnerability of caregivers, especially when these are elderly individuals with chronic pain and classified as frail or pre-frail.

The findings of the present study draw attention to the key role played by the healthcare network on the improvement of the quality of life of elderly caregivers classified as pre-frail. A well-functioning multidisciplinary health team that proposes coping strategies for elderly caregivers aimed to prevent frailty is extremely important.

There are few studies on pain and frailty among elderly caregivers. Thus, the present study aimed to clarify the possible health issues faced by this population. Implementation of strategies.

Longitudinal prospective studies on chronic pain and frailty in elderly are recommended to complement this cross-sectional study.

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