Factors related to chronic pain in institutionalized elderly

Fatores relacionados à dor crônica em idosos institucionalizados

Marina Bonafé[1], Matheus Santos Gomes Jorge[1], Marilene Rodrigues Portella[1], Marlene Doring[1], Silvana Alba Scortegagna[1], Lia Mara Wibelinger[1]

DOI 10.5935/2595-0118.20200183

ABSTRACT

BACKGROUND AND OBJECTIVES: Chronic pain is one of the main problems arising from the aging process. It may be related to multiple physical and even psychosocial causes, influencing quality of life and well-being of the elderly, especially those living in long-term care facilities. The objective of this study was to evaluate the prevalence of chronic pain and related factors in institutionalized elderly.

METHODS: Cross-sectional population-based study, carried out with 125 elderly individuals living in long-term care facilities. Data collection was carried out through an interview with a structured questionnaire, investigating, in addition to the presence of chronic pain, sociodemographic aspects, health conditions, subjective self-rated health, cognitive status, basic activities of daily life, risk of sarcopenia and presence of depressive symptoms.

RESULTS: The sample consisted of 125 elderly people with 78.20±9.10 years old, of whom 64% were women. The prevalence of chronic pain in the population was 44%, and the factors related to it were the presence of rheumatic disease (p=0.000), low back pain (p=0.003), the use of polypharmacy (p=0.018) and being dependent when performing basic activities of daily living (p=0.029).

CONCLUSION: The factors related to chronic pain in institutionalized elderly people were rheumatic disease, low back pain, polypharmacy and dependence to perform basic activities of daily living.

Keywords: Aged, Chronic pain, Health of the elderly, Health profile, Homes for the aged.

RESUMO

JUSTIFICATIVA E OBJETIVOS: A dor crônica é um dos principais problemas devidos ao envelhecimento. Está relacionada a múltiplas causas físicas e psicossociais, influenciando a qualidade de vida dos idosos, especialmente aqueles que vivem em instituições de longa permanência. O objetivo deste estudo foi avaliar a prevalência de dor crônica e fatores relacionados em idosos institucionalizados.

MÉTODOS: Estudo transversal de base populacional, realizado com 125 idosos residentes em instituições de longa permanência. A coleta de dados foi realizada por meio de entrevista com questionário estruturado para coletar informações sobre dor crônica, aspectos sociodemográficos, condições de saúde, autoavaliação subjetiva de saúde, estado cognitivo, atividades básicas de vida diária, risco de sarcopenia e presença de sintomas depressivos.

RESULTADOS: Foram incluídos 125 idosos com média de idade de 78,20±9,10 anos, sendo 64% mulheres. A prevalência de dor crônica foi de 44%, sendo que os fatores a ela relacionados foram a presença de doença reumática (p=0,000), de lombalgia (p=0,003), de polifarmácia (p=0,018) e ser dependente para realizar as atividades básicas de vida diária (p=0,029).

CONCLUSÃO: Os fatores relacionados à dor crônica nos idosos institucionalizados foram a doença reumática, lombalgia, polifarmácia e dependência para realizar as atividades básicas de vida diária.

Descritores: Dor crônica, Idoso, Instituição de longa permanência para idosos, Perfil de saúde, Saúde do idoso.

INTRODUCTION

Increasing longevity is an achievement, however, human aging can bring limiting complications, like chronic pain (CP), which can last for months or years and is generally related to chronic-degenerative disease[1]. Institutionalizing can be considered as an aggravating factor for the perception of pain in the elderly, negatively influencing their well-being, besides generating social and physical limitations[2]. Literature notes that the prevalence of CP in elderly living in the community reaches almost 30%, especially in inactive women[3]. In those living in long term care institutions (LTCI), this number can reach almost 60%, affecting mainly the inferior limbs and lumbar spine[4]. When not controlled, CP can cause negative impacts over an individual's health, such as stiffness, immobility, psychosomatic and sleep alterations, loss of autonomy, functionality and independence, as well as difficulties or impossibility to perform activities of daily living (ADL)[5,6]. Regardless of the environment in which

Marina Bonafé – http://orcid.org/0000-0001-8034-2323;
Matheus Santos Gomes Jorge – http://orcid.org/0000-0002-4989-0572;
Marilene Rodrigues Portella – http://orcid.org/0000-0002-8455-7126;
Marlene Doring – http://orcid.org/0000-0001-8551-8551.
Silvana Alba Scortegagna – http://orcid.org/0000-0002-5100-6459;
Lia Mara Wibelinger – https://orcid.org/0000-0002-7345-3946.

1. Universidade de Passo Fundo, Faculdade de Educação Física e Fisioterapia, Passo Fundo, RS, Brasil.

Submitted on February 25, 2020.
Accepted for publication on July 22, 2020.
Conflict of interests: none – Sponsoring sources: *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* (CAPES).

Correspondence to:
BR 285, Bairro São José
99052-900 Passo Fundo, RS, Brasil.
E-mail: matheusjorge@upf.br

the elderly individual is located, CP is an existing condition, but it still requires further studies, especially in the context of LTCI, where, indirectly, individuals reside isolated from society. The objective of this study was to evaluate the prevalence of CP and related factors in institutionalized elderly.

METHODS

Cross sectional, population based, analytical study that is part of a project called *"Padrões de envelhecimento e longevidade: aspectos biológicos, educacionais e psicossociais de idosos institucionalizados"* (PROCAD - Patterns of aging and longevity: biological, educational and psychosocial aspects of institutionalized elderly people) developed by the Human Aging Post-graduate Program of the *Universidade de Passo Fundo*[7,8]. The study was conducted in the towns of Passo Fundo/RS, Bento Gonçalves and Carazinho. This study followed the recommendations of the STROBE protocol, translated and validated for Portuguese language, Brazilian version[9].

For the sample calculation the "$n=Z^2.p.(1-p)/e^2$" formula was used, in which ''n" corresponds to the desired sample size, ''Z" corresponds to the acceptable mean value deviation in order to reach the desired level of confidence, ''p" corresponds to the expected proportion having adopted the value of 58.1%, taking into account the results of the study[4], and ''e" corresponds to the admitted margin of error. Thus, the sample size required to meet the objective of this study would be approximately 374 individuals.

The inclusion criteria were individuals of both sexes, aged 60 or over and living in LTCI on a full-time basis. The exclusion criteria were individuals with cognitive decline, oncologic diseases, acute neurodegenerative diseases, unable to verbalize and/or communicate with the research team, restricted to bed or wheelchair, or who were hospitalized on the day of the interview.

All individuals signed the Free and Informed Consent Term (FICT) after previous explanation and clarification of doubt.

The period for data collection was between December 2016 and July 2018. The data collection procedure and the elaboration of the data collection tool from this study were described previously[7,8]. Sociodemographic and health data was included in a questionnaire prepared by the authors, in which age, gender, color, schooling, marital status, visitation of family members and/or friends, and presence of health conditions were registered.

The study's dependent variable, CP, was evaluated by the question: "in the last 6 months, have you had any complaints about CP"? The individuals should have answered "yes" or "no".

Cognitive state was evaluated through the Mental State Mini-Exam, which is able to evaluate temporal and spatial orientation, attention, calculus resolution, memorization and remembering words, form of language and visual-constructive practice[10,11].

The final scores are adjusted by education level, in which scores less than 13 are designated for illiterates, 18 points for 1 to 8 years of study and 26 points for 9 or more years of study indicate cognitive decline[11]. Individuals that didn't reach the minimum score for their education level were excluded from the study.

Frailty was assessed through the Frailty Phenotype[12], which involves five criteria: non-intentional loss of weight in the last 12 months, fatigue, manual gripping strength, gait speed and level of physical activity. The first two are expressed through the individual self-report. The manual gripping strength was measured by manual dynamometry using the Kratos® dynamometer, whose specificities and procedures have already been described[13]. The gait speed was measured by the 4 meters gait speed test[14]. The level of physical activity was not evaluated because the elderly lived in a LTCI, and the appropriate International Physical Activity Questionnaire (IPAQ) for their assessment involves criteria that is not applicable in this population. In the end, the elderly that scored in one or two criteria were considered pre-frails and the ones that scored in three or four criteria were considered frail[12].

The risk of sarcopenia was assessed by the SARC-F questionnaire, which involves criteria related to strength, walking, getting up from a chair, going up stairs and occurrence of falls. There is a risk of sarcopenia in individuals who achieve a score of four or more points[15,16].

Self-assessment of health was obtained through the question "how do you assess your health at the present time"? Positive health self-perception was classified into very good and good, and negative health self-perception into regular, bad and very bad.

The Katz Index was applied to classify the level of functional dependence or independence related to six daily life activities of the elderly[17]. Its score ranges from zero to six, in which zero represents independence for all six functions and six represents dependence in all six functions.

The Geriatric Depression Scale (GDS) is an indicator used clinically to detect suggestive signs of depression in the elderly and its level of severity. It comprises 15 questions in Portuguese with negative/affirmative answers. The final score varies from zero to 15 points, and the biggest score, or equal to 6 points, suggests the presence of depressive symptoms[18,19].

This study was approved by the Human Research Ethics Committee of the *Universidade de Passo Fundo* under opinion number 2.097.278, and is in accordance with the Resolution 466/2012 guidelines of the National Health Council, which states the regulatory norms and ethical aspects of research involving human beings, as well as the Declaration of Helsinki.

Statistical analysis

The data was coded and stored in a statistical software data base. For the sample characterization, the descriptive statistic was performed. The Chi-square test verified the relation between the qualitative variables, using Pearson's relation. The adopted level of significance was 5%.

RESULTS

The study population consisted of 479 elderly individuals. Based on inclusion and exclusion criteria, 125 elderly were included, with ages ranging from 60 to 100 years and mean age of 78.20±9.10 years old. 346 were excluded because they presented cognitive decline and 4 because they were hospitalized on the day of data collection.

Table 1. Factors related to chronic pain in institutionalized elderly.

Variables	Chronic pain		p-value
	Yes (%)	No (%)	
Age (years)			0.614
60-79	41.7	58.3	
80 or more	46.2	53.8	
Sex			0.293
Male	37.8	62.2	
Female	47.5	52.5	
Skin color			0.232
White	46.0	57.0	
Other	27.3	72.7	
Marital status			0.844
Partner	41.7	58.3	
No partner	44.6	55.4	
Education level			0.235
Illiterate	66.7	33.3	
1 to 8 years of study	42.3	57.7	
9 or more years of study	37.5	62.5	
Receives visits from relatives			0.436
Yes	42.3	57.7	
No	54.5	45.5	
Falls in the last year			0.135
Yes	53.2	46.8	
No	39.1	60.9	
Low back pain			0.003*
Yes	55.6	44.4	
No	28.0	72.0	
Use of polypharmacy			0.018*
Yes	50.5	49.5	
No	24.0	76.0	
Rheumatic pain			0.000*
Yes	76.0	24.0	
No	36.0	64.0	
Frailty			0.121
Pre-frail	37.5	62.5	
Frail	56.5	43.5	
Risk of sarcopenia			0.055
Yes	56.3	43.8	
No	38.2	61.8	
Activities of daily life			0.029*
Independent	30.2	69.8	
Dependent	50.6	49.4	
Health self-assessment			0.096
Negative (very bad/bad/ regular)	53.1	46.9	
Positive (very good/good)	37.8	62.2	
Depressive symptoms			0.465
Yes	48.1	51.9	
No	41.4	58.6	

*p<0.05.

The majority of the sample was composed of women, over 80 years old, white, without partner, with one to eight years of study and that received visits from relatives. The main health problems reported were the use of polypharmacy and back pain, respectively. Most of them had pre-frailty and were dependent when performing ADL, had no risk of sarcopenia, presented a positive health self-assessment and had no depressive symptoms. The prevalence of CP was 44% in the studied sample. Table 1 shows the relationship between CP and the independent variables.

The factors related to CP in institutionalized elderly were the presence of back pain, use of polypharmacy, presence of rheumatic disease and functional dependence to perform ADL.

DISCUSSION

An expressive prevalence of elderly individuals with CP was found, which is in accordance with other studies[2,7,8,20]. This research was based in a study that showed bigger prevalence of CP in institutionalized elderly individuals in relation to their peers in the community[21]. In general, CP that affects the elderly has an osteomyoarticular origin[22], resulting in disability and undermining the health of this population[23].

A Brazilian study that investigated the prevalence of CP and associated factors in 124 institutionalized elderly people identified that 60% had this problem, and those with 80 years old or more had 70% more chances of having CP[4]. These information contrast with the present study, since a lesser prevalence of CP was found and, as factors related to it, the presence of osteomyoarticular conditions like low back pain and rheumatic disease, the use of polypharmacy and functional dependence for ADL. Although the size of the sample that the authors[4] used was similar, the differences found may be related to the fact that the present study's sample was composed of elderly with no cognitive decline, in an attempt to prevent possible biases.

Although the area where the elderly were affected by CP was not investigated, it was found that back pain and rheumatic disease were factors related to the dependent variable, as these are conditions that feature the occurrence of pain[24,25]. Data from this study corroborates the international literature, which identified that most of chronic pain affecting the elderly is of osteomyoarticular origin[22].

According to the literature, the highest prevalence of CP in the elderly occurs in the lumbar region[26], which can be explained by the fact that low back pain may be related to musculoskeletal changes, resulting from rheumatic or orthopedic diseases or, even so, the aging process[27], which corroborates this study's results highlighting the association between CP and the presence of low back pain.

Rheumatic disease was also related to CP in the studied sample, which is in line with the study that investigated the health condition of 1.271 elderly and verified the same association[28]. It is believed that this is due to aging because the chances of developing some disease of a chronic-degenerative nature increase, as in rheumatic diseases[29].

Polypharmacy, defined using five or more drugs, in a previous study presented a relation with advanced age and the presence of

multiple chronic diseases in the elderly[30]. Another study identified that polypharmacy and excessive polypharmacy are aggravating factors for the health of institutionalized elderly individuals, being pain one of the related factors[31]. Such findings are in accordance with the present study.

Dependence for performing ADL was highly prevalent in the studied sample and was assessed as related to CP. This contrasts with a study that investigated the functional profile of elderly residents in LTCI and did not find any association between the variables[32]. On the other hand, the relation between CP and the dependence for ADL presented in this study is based on the fact that when an individual feels pain, there's a tendency towards immobility, lessening the level of activity and consequently becoming dependent.

The fact that CP was self-reported was one of the possible study's limitations and could have interfered in the data verifying its real prevalence. Nevertheless, the objective of choosing to include only elderly individuals with no cognitive decline was to mitigate the possible biases and confusion by the participants in regard to understanding what is CP and if they truly felt it.

Besides, the large number of elderly people excluded from the study should also be noted, since they would not have been able to report what they really felt regarding pain conditions. This opens a suggestion for further researches focused on the prevalence and management of CP in elderly individuals with cognitive decline.

CONCLUSION

The institutionalized elderly presented expressive prevalence of CP related to rheumatic disease and low back pain, use of polypharmacy and functional dependence in performing ADL.

REFERENCES

1. Santos FC, Moraes NS, Pastore A, Cendoroglo MS. Dor crônica em idosos longevos: prevalência, características, mensurações e correlação com nível sérico de vitamina D. Rev Dor. 2015;16(3):171-5.
2. Barbosa MH, Silva LC, Andrade ÉV, Luiz RB, Bolina AF, Mattia AL, et al. Avaliação da dor crônica em idosos institucionalizados. Rev Min Enferm. 2012;16(1):63-8.
3. dos Santos FA, de Souza JB, Antes DL, d'Orsi E. Prevalência de dor crônica e sua associação com a situação sociodemográfica e atividade física no lazer em idosos de Florianópolis, Santa Catarina: estudo de base populacional. Rev Bras Epidemiol. 2015;18(1):234-47.
4. Barbosa MH, Bolina AF, Tavares JL, Cordeiro AL, Luiz RB, de Oliveira KF. Sociodemographic and health factors associated with chronic pain in institutionalized elderly. Rev Lat Am Enfermagem. 2014;22(6):1009-16.
5. Pereira LV, de Vasconcelos PP, Souza LA, Pereira Gde de A, Nakatani AY, Bachion MM. Prevalence and intensity of chronic pain and self-perceived health among elderly people: a population-based study. Rev Lat Am Enfermagem. 2014;22(4):662-9.
6. Thé KB, Gazoni FM, Cherpak GL, Lorenzet IC, Santos LA, Nardes EM, et al. Pain assessment in elderly with dementia: Brazilian validation of the PACSLAC scale. Einstein. 2016;14(2):152-7.
7. Ribeiro DS, Garbin K, Jorge MS, Doring M, Portella MR, Wibelinger LM. Prevalência de dor crônica e análise da força de preensão manual em idosos institucionalizados. BrJP. 2019;2(3):242-6.
8. Zanin C, Candido JB, Jorge MS, Wibelinger LM, Doring M, Portella MR. Sarcopenia e dor crônica em idosas institucionalizadas. BrJP. 2018;1(4):288-92.
9. Malta M, Cardoso LO, Bastos FI, Magnanini MMF, Silva CMFP. STROBE initiative: guidelines on reporting observational studies. Rev Saúde Pública 2010;44(3):559-65.
10. Folstein MF, Folstein SE, McHugh PR. "Mini-mental state". A practical method for grading the cognitive state of patients for the clinician. J Psychiatr Res. 1975;12(3):189-98.
11. Bertolucci PH, Brucki SM, Campacci SR, Juliano Y. O Mini-Exame do Estado Mental em uma população geral: impacto da escolaridade. Arq Neuropsiquiatr. 1994;52(1):1-7.
12. Fried LP, Tangen CM, Walston J, Newman AB, Hirsch C, Gottdiener J, et al. Frailty in older adults: evidence for a phenotype. J Gerontol Med Sci. 2001;56(3):M146-56.
13. Jorge MSG, Ribeiro DS, Garbin K, Moreira I, Rodigheri PV, Lima WG, et al. Values of handgrip strength in a population of different age groups. Lect Educ Física y Deport. 2019;23(249):56-69.
14. Francio F, Jorge MSG, Pavan BS, Wibelinger LM, Doring M, Portella MR. Frailty syndrome in institutionalized elderly. Rev Interdisc Est Saúde. 2020;9(19):49-58.
15. Woo J, Leung J, Morley JE. Validating the SARC-F: a suitable community screening tool for sarcopenia? J Am Med Dir Assoc. 2014;15(9):630-4.
16. Malmstrom TK, Miller DK, Simonsick EM, Ferrucci L, Morley JE. SARC-F: a symptom score to predict persons with sarcopenia at risk for poor functional outcomes. J Cachexia Sarcopenia Muscle. 2016;7(1):28-36.
17. Katz S, Stroud MW. Functional assessment in geriatrics. a review of progress and directions. J Am Geriatr Soc. 1989 Mar;37(3):267-72.
18. Yesavage JA, Brink TL, Rose TL, Lum O, Huang V, Adey M, et al. Development and validation of a geriatric depression screening scale: a preliminary report. J Psychiatr Res. 1983;17(1):37-49.
19. Almeida OP, Almeida SA. Confiabilidade da versão brasileira da Escala de Depressão em Geriatria (GDS) versão reduzida. Arq Neuropsiquiatr. 1999;57(2B):421-6.
20. Güths JFS, Jacob MHVM, Santos AMPV, Arossi GA, Béria JU. Perfil sociodemográfico, aspectos familiares, percepção de saúde, capacidade funcional e depressão em idosos institucionalizados no Litoral Norte do Rio Grande do Sul, Brasil. Rev Bras Geriatr Gerontol. 2017;20(2):175-85.
21. Xu Y, Jiang N, Wang Y, Zhang Q, Chen L, Ma S. Pain perception of older adults in nursing home and home care settings: evidence from China. BMC Geriatr. 2018;18(1):152.
22. Ghisleni AP, Nascimento GC, Mello RGB, Müller VM. Dor crônica, equilíbrio e quedas de idosos em Instituições de Longa Permanência. Rev HUPE. 2016;15(4):320–7.
23. Kayser B, Miotto C, Molin VD, Kummer J, Klein SR, Wibelinger LM. Influence of chronic pain on functional capacity of the elderly. Rev Dor. 2014;15(1):48–50.
24. Zanin C, Myra RS, Cândido JC, Kohlrausch J, Jorge MSG, Wibelinger LM, Daroit L. Pain and quality of life in individuals with rheumatic diseases bone-joint. Rev Inspirar. 2018;16(2):10–14.
25. Jorge MS, Zanin C, Knob B, Wibelinger LM. Physiotherapeutic intervention on chronic lumbar pain impact in the elderly. Rev Dor. 2015;16(4):302-5.
26. Nobre TTX, Costa RTS, Xavier FRM, Neto VL de S, Mendonça AEO de, Silva JFC da. Caracterização da dor em idosos de um grupo de convivência. Rev Eletr Acervo Saúde. 2018;10(3):1669-75.
27. Nasrala Neto E, Bittencourt WS, Nasrala MLS, Oliveira ALL, Souza ACG, Nascimento JF. Correlations between low back pain and functional capacity among the elderly. Rev Bras Geriatr Gerontol. 2016;19(6):987-94.
28. Dellaroza MS, Pimenta CA, Duarte YA, Lebrão ML. Chronic pain among elderly residents in São Paulo, Brazil: prevalence, characteristics, and association with functional capacity and mobility (SABE Study). Cad Saude Publica. 2013;29(2):325-34.
29. Olivência SA, Barbosa LGM, Cunha MR, Silva LJ. Pharmacological treatment of chronic non-malignant pain among elderly persons: an integrative review. Rev Bras Geriatr Gerontol. 2018;21(3):372-81.
30. Oliveira PC, Silveira MR, Ceccato MGB, Reis AMM, Pinto IVL, Reis EA. Prevalência e fatores associados à polifarmácia em idosos atendidos na atenção primária à saúde em Belo Horizonte, MG. Cien Saude Colet. 2019;1(1):1-1.
31. Onder G, Liperoti R, Fialova D, Topinkova E, Tosato M, Danese P, et al. Polypharmacy in nursing home in Europe: results from the SHELTER study. J Gerontol A Biol Sci Med Sci. 2012;67(6):698-704.
32. Pagotto V, Silva VAP, Pereira LV, Santos DPMA. Comparação da funcionalidade de idosos residentes em duas modalidades institucionais. Rev Eletr Enferm. 2016;18(1):1-10.