

Factors associated with quality of life of older adults with chronic pain

Fatores associados à qualidade de vida de pessoas idosas com dor crônica

Factores asociados a la calidad de vida de ancianos con dolor crónico

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How to cite this article:

Paz MG, Souza LAF, Tatagiba BSF, Serra JR, Moura LA, Barbosa, MA, et al. Factors associated with Quality of Life of older adults with chronic pain. Rev Bras Enferm. 2021;74(Suppl 2):e20200554. doi: <http://dx.doi.org/10.1590/0034-7167-2020-0554>

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EDITOR IN CHIEF: Antonio José de Almeida Filho

ASSOCIATE EDITOR: Álvaro Sousa

Submission: 06-28-2020

Approval: 10-20-2020

ABSTRACT

Objective: To analyze the factors associated with quality of life of the older adults with chronic pain. **Method:** Cross-sectional study conducted with 239 older adults in outpatient care in the state of Goiás, Brazil. The World Health Organization Quality of Life–Old (WHOQOL-OLD) instrument contains six domains and was applied to assess quality of life. Simple and multiple linear regressions were used in the statistical analysis. **Results:** The factors associated with *Sensory Abilities* were age ($\beta = -0.52$), time spent together ($\beta = -14.35; -17.86; -15.57$), and pain intensity ($\beta = -1.70$). *Autonomy* was associated with depression ($\beta = -5.99$) and chest pain ($\beta = -6.17$). *Social participation* related to schooling ($\beta = -0.64$), diabetes mellitus ($\beta = -8.15$), depression ($\beta = -14.53$), pain intensity ($\beta = -1.43$), and lower limb pain ($\beta = -5.94$). *Past, present and future activities* related to depression ($\beta = -6.94$). *Death and dying* related to hypertension ($\beta = -8.40$), while *Intimacy* to depression ($\beta = -5.99$) and headache/face pain ($\beta = -3.19$). **Conclusion:** The time experiencing chronic pain and the location of this experience, as well as depression, diabetes and systemic arterial hypertension were factors that had greater influence on the older adult's Quality of Life domains.

Descriptors: Chronic Pain; Quality of Life; Aged; Health Services for the Aged; Geriatric Nursing.

RESUMO

Objetivo: Analisar os fatores associados à qualidade de vida (QV) em idosos com dor crônica. **Método:** Estudo transversal realizado com 239 idosos em atendimento ambulatorial no estado de Goiás, Brasil. O World Health Organization Quality of Life – Old (WHOQOL-OLD) contém seis domínios e foi aplicado para avaliar a qualidade de vida. Foram utilizadas regressão linear simples e múltipla na análise estatística. **Resultados:** Os fatores associados ao domínio Funcionamento dos sentidos foram idade ($\beta = -0,52$), tempo de convívio ($\beta = -14,35; -17,86; -15,57$) e intensidade da dor ($\beta = -1,70$). Ao domínio Autonomia associaram-se a depressão ($\beta = -5,99$) e a dor no tórax ($\beta = -6,17$). A Participação social relacionou-se à escolaridade ($\beta = -0,64$), diabetes mellitus ($\beta = -8,15$), depressão ($\beta = -14,53$), intensidade da dor ($\beta = -1,43$) e à dor em MMII ($\beta = -5,94$). Às Atividades passadas, presentes e futuras associou-se a depressão ($\beta = -6,94$). O domínio Morte e morrer foi associado à hipertensão ($\beta = -8,40$), enquanto o domínio Intimidade foi relacionado à depressão ($\beta = -5,99$) e dor na cabeça/face ($\beta = -3,19$). **Conclusão:** O tempo de convívio com a dor crônica e a localização dessa experiência, assim como a depressão, diabetes e HAS foram fatores que influenciaram com maior magnitude os domínios de QV dos idosos.

Descritores: Dor Crônica; Qualidade de Vida; Idoso; Saúde do Idoso; Enfermagem Geriátrica.

RESUMEN

Objetivo: Analizar los factores asociados a la calidad de vida (CV) de ancianos con dolor crónico. **Método:** Estudio transversal en el cual participaron 239 ancianos en atención ambulatoria en el estado de Goiás, Brasil. Para evaluar la calidad de vida, se aplicó el *World Health Organization Quality of Life – Old* (WHOQOL-OLD), que presenta seis dominios. Para el análisis estadístico, se utilizó la regresión lineal simple y múltiple. **Resultados:** Los factores asociados con el dominio Funcionamiento sensorial fueron la edad ($\beta = -0,52$), el tiempo de convivencia ($\beta = -14,35; -17,86; -15,57$) y la intensidad del dolor ($\beta = -1,70$). El dominio Autonomía se asoció con la depresión ($\beta = -5,99$) y el dolor torácico ($\beta = -6,17$). La Participación social se relacionó con el nivel de estudios ($\beta = -0,64$), diabetes mellitus ($\beta = -8,15$), depresión ($\beta = -14,53$), intensidad del dolor ($\beta = -1,43$) y dolor en miembros inferiores ($\beta = -5,94$). Las actividades pasadas, presentes y futuras se vincularon con la depresión ($\beta = -6,94$). El dominio Muerte y morir se asoció con la hipertensión ($\beta = -8,40$), mientras que el dominio Intimidad se relacionó con la depresión ($\beta = -5,99$) y el dolor de cabeza/en la cara ($\beta = -3,19$). **Conclusión:** El tiempo de convivencia con el dolor crónico y el local de esa experiencia, así como la depresión, diabetes y HAS, fueron los factores que más influyeron en los dominios de CV de los ancianos.

Descriptorios: Dolor Crónico; Calidad de Vida; Anciano; Salud del Anciano; Enfermería Geriátrica.

INTRODUCTION

Aging is often accompanied by chronic pain⁽¹⁻²⁾, imposing a significant social and economic burden⁽³⁾ due to increased treatment costs⁽⁴⁾ and losses in quality of life (QOL)⁽⁵⁾, which leads to higher morbidity and mortality levels.

In the context of chronic pain, QOL is often impaired in the physical, psychological⁽⁶⁻⁷⁾, mental, emotional, social, vitality and pain domains,⁽⁷⁾ indicating an almost two-fold increase in the likelihood of poor QOL in older adults with chronic pain when compared with older adults without it⁽⁸⁾. It directly affects older adult's health with the imposition of suffering that is often unnecessary.

Some general factors associated with QOL of older adults with chronic pain have been evidenced, such as pain intensity⁽⁹⁾, depression⁽¹⁰⁾, age⁽⁸⁾, disability, and time experiencing pain⁽¹¹⁾. Nevertheless, there are still few investigations focusing on factors that can influence the older adult's perception of QOL, in view of the domains that compose this construct. The results can contribute to guide future research, with designs sufficiently robust to elaborate high-level scientific evidence that make it possible to confirm the cause-effect relation, leading to a stronger possibility of building a bad QOL predictive model for older adults with chronic pain. Knowing the factors associated with the domains also increases diagnosis, planning and evaluation accuracy of the assistance strategies used to guarantee this population a good QOL.

OBJETIVE

To analyze the factors associated with quality of life of older adults with chronic pain.

METHODS

Ethical aspects

The project was approved by the Research Ethics Committee of the Universidade Federal de Goiás, respecting the principles of CNS Resolution 466/12.

Design, location and study period

This is a cross-sectional, analytical study, designed according to the recommendations of the *Strengthening the reporting of observational studies in epidemiology* (Strobe) Statement⁽¹²⁾, based on an outline of a larger project entitled "Cross-cultural adaptation, psychometric properties of the Brazilian version of the *Chronic pain coping inventory* and evaluation of factors related to chronic pain time in an adult outpatient population." It was developed between the months of November 2016 and December 2017, in waiting rooms of neurology, orthopedics, physiatry and rheumatology outpatient clinics of a federal teaching hospital, in a metropolis in the Central-West region of Brazil.

Sample and inclusion and exclusion criteria

A subsample of older adults from the larger project was used (n = 239). Sampling calculation was performed to detect associations between dependent and independent variables. The means

of outcomes (QOL domain scores) were compared between the independent variables, considering a 95% confidence level, 80% statistical power and a 5% mean difference for any independent variables investigated in the study in all QOL domains using the World Health Organization Quality of Life - Old (WHOQOL-OLD) instrument, with a 20% refusal rate added to the minimum sample, which totaled a necessary sample of 218 participants⁽¹³⁻¹⁴⁾. Sampling was carried out by convenience: patients were approached sequentially after arriving at the clinic and were invited to participate in the study. Older men and women, able to answer research questions and with self-reported chronic pain, were included. Older adults who did not speak, who needed help to provide information or who reached a score ≤ 13 in the Mini Mental State Examination (MMSE)⁽¹⁵⁾ were excluded. The established cutoff point considered that cognitive impairment, combined with lack of schooling, could bias the measures proposed in the study. For individuals with low and medium schooling (one to eight years of study) the cutoff was 18, and for those with schooling $>$ eight years of study, it was 26⁽¹⁶⁾.

Study protocol

The research used the following instruments: sociodemographic characterization questionnaire, MMSE, Brief Pain Inventory (BPI), and WHOQOL-OLD.

Study variables were: *outcome* – QOL domains (Sensory abilities; Autonomy; Past, present and future activities; Social participation; Death and dying, and Intimacy); *exposure* – gender; age; marital status; years of schooling; income; self-reported comorbidities with confirmed medical diagnosis; time spent together; chronic pain intensity and location. Chronic pain was considered pain existing for six months or more⁽¹⁷⁾.

To measure pain intensity, the average of the older adult's responses was used in four items: BPI 3, BPI 4, BPI 5 and BPI 6, using a numerical scale from 0 to 10, with 0 = no pain and 10 = worst possible pain. This instrument also assesses the interference of pain in daily life using a scale from 0 to 10 (in which 0 means "without interference" and 10 "total interference") which has two sub-dimensions (affective and activity). The instrument also includes a body diagram for pain locations, an open question about the treatment for pain and the relief provided by the treatment⁽¹⁸⁾. In this study, the instrument was used only to measure pain intensity, which was represented by a numerical scale in the categories mild (1-4), moderate (5-6), strong (7-9), and worst possible pain (10).

WHOQOL-OLD module is specific for measuring the older adult's QOL, valid for the Brazilian population⁽¹⁹⁾. It has six distinct domains (Sensory abilities; Autonomy; Past, present and future activities; Social participation; Death and dying, and Intimacy), with 24 items. Responses are Likert-type, ranging from 1 to 5, where 1 is assigned to words like *never, very bad or very dissatisfied*, and 5 is given to the words *extremely, very satisfied and very good*. The score per domain can vary from 0 to 100 points, and it is calculated based on the WHO syntax⁽¹⁹⁻²⁰⁾. Higher scores indicate better QOL⁽²⁰⁾.

The data were obtained through individual face-to-face interviews, conducted by properly trained observers. The individuals were approached after registering at the outpatient reception desk; those who met the inclusion criteria were invited to participate in the research and then, in an appropriate place, received

guidance on the objectives of the investigation. After agreeing, they signed the Informed Consent Term in two copies and then the data collection instruments were applied.

Data analysis

Data record was made by double data entry into Microsoft Excel® spreadsheets. In order to check for inconsistencies, databases were overlaid using Microsoft Excel 2016 software. Non-recoverable data were recorded in the database as *missing*. Data analysis was performed using Stata software version 15.0. Initially, Kolmogorov-Smirnov test with Lilliefors correction was performed to verify normality, and variables with $p\text{-value} > 0.05$ were considered to have a normal distribution⁽²¹⁾. Then, a descriptive analysis of the sociodemographic variables related to morbidity and pain was performed, expressed in absolute (n) and relative (%), median, interquartile range (IQR), and minimum and maximum values⁽²²⁾. WHOQOL-OLD domains were weighted based on their respective syntax and expressed as mean and standard deviation (SD) values.

Bivariate and multiple analyzes were used to ascertain the factors associated with QOL domains. In the bivariate analysis, simple linear regression was performed to verify the association between independent variables and domains (dependent variables). Then, variables with $p\text{-value} \leq 0.20$ in the bivariate analysis were included in the multiple linear regression model for confounding variables adjustment⁽²³⁾. Variables entry method was employed in a single step. The magnitude of the associations was presented in an unadjusted regression coefficient (β) with the respective 95% CI. The models were evaluated and validated according to the following assumptions of linear regression: (i) multicollinearity by the variance inflation factor (VIF) - the absence of multicollinearity was defined as mean FIV < 5.0 ⁽²⁴⁾; normality of residues by K-S test, adopting test p values > 0.05 ⁽²¹⁾; (iii) homoscedasticity, assessed by Breusch-Pagan/Cook-Weisberg test - the homoscedasticity of the models was confirmed when p value > 0.05 ⁽²⁵⁾, and (iv) linearity analyzed by graphical visualization⁽²⁶⁾.

In all analyzes, p values < 0.05 were considered statistically significant.

RESULTS

Sociodemographic, economic, comorbidity and chronic pain characteristics are described in Table 1. There was a prevalence of women (70.3%) and 60-69 years age group (66.5%).

In WHOQOL-OLD, *Autonomy* ($M = 61.8$) and *Social Participation* ($M = 63.5$) domains achieved the lowest mean score. QOL average total score was 66.5 (Table 2).

Table 3 shows the results of the multiple regression analysis of the factors associated with each QOL domain, that is, those that reached $p < 0.20$ in the bivariate analysis. It is observed that, among the two domains with lower mean scores in QOL, the *Autonomy* domain was influenced by depression and chest pain, explaining 16.4% of QOL of this sample; the *Social Participation* domain was negatively influenced by diabetes mellitus, depression, greater pain intensity and headache/face pain, explaining 22.4% of QOL. Other factors negatively associated with the *Sensory abilities* domain included the time experiencing pain and pain intensity. Systemic arterial hypertension also negatively influenced the *Death and dying* domain; and depression and headache/face pain affected the *Intimacy* domain.

Table 1 - Distribution of older adults with chronic pain (N = 239) according to sociodemographic, economic, comorbidity and chronic pain characteristics, Goiânia, Brazil 2016-2017

Variable	n (%)	Median (IQR) Min-Max
Age (years)		67 (62-72): 60-87
Age group (years)		
60-69	159 (66.5)	
70-79	72 (30.1)	
≥ 80	8 (3.5)	
Gender		
Male	71 (29.7)	
Female	168 (70.3)	
Marital status		
With spouse	117 (49.0)	
No spouse	122 (51.0)	
Years of schooling (n = 237)		5 (2-9): 0-16
< 8	172 (72.5)	
≥ 8	65 (27.5)	
Income (R\$)		1760.0 (932.0-2.342.0): 50.0-7.040.0
Self-reported comorbidities*		
Osteoarticular diseases	202 (84.5)	
Systemic arterial hypertension	137 (57.3)	
Diabetes mellitus	50 (20.9)	
Depression	40 (16.7)	
Fibromyalgia	28 (11.7)	
Cancer	11 (4.6)	
Time experiencing pain (years)		
6 months-1 year	15 (6.3)	
1 (-5; 2.45)	68 (28.5)	
5 (-10; 2.45)	42 (17.6)	
> 10 years	114 (47.6)	
Pain intensity (numeric)		Média (DP). Min-Max 5.4: (2.2).0-10.0
Pain intensity according to categories		
Mild (1-4)	38 (15.9)	
Moderated (5-6)	126 (52.7)	
Strong (7-9)	25 (10.5)	
Worst possible pain (10)	50 (20.9)	
Pain location*		
Lower limbs	195 (81.6)	
Low back	137 (57.3)	
Shoulders/upper limbs	126 (52.7)	
Sacrum/coccyx/anus/pelvis	83 (34.7)	
Neck/cervical	70 (29.3)	
Chest	60 (25.1)	
Joints	35 (14.6)	
Head/face	28 (11.7)	
Abdominal	28 (11.7)	
Whole body	10 (4.2)	

Note: (IQR): interquartile range; (Min-Max): Minimum-Maximum; * Multiple choice

Table 2 - Descriptive measures of WHOQOL-OLD domains, Goiânia, Brazil 2016-2017

WHOQOL-OLD domains	Mean (SD)
Sensory abilities	66.6 (23.3)
Autonomy	61.8 (17.8)
Past, present and future activities	65.8 (17)
Social Participation	63.5 (18.4)
Death and dying	69.1 (25.8)
Intimacy	71.9 (17.5)
Total QL	66.5 (12)

Note: SD: Standard deviation; WHOQOL-OLD: World Health Organization Quality of Life - OLD; QOL: Quality of Life.

Table 3 - Multiple regression by domain of the potential factors associated with the perception of QOL of older adults people with chronic pain, Goiânia, Brazil 2016-2017

Domains and variables	β (95%CI)	p value
Sensory abilities		
Age (years)	-0.52 (- 1.01;0.03)	0.039
Time experiencing pain		
6 months-1 year*		
1-5 years	- 14.53 (- 25.41;- 3.64)	0.009
5-10 years	- 17.86 (- 29.64;- 6.08)	0.003
> 10 years	- 15.47 (- 25.74;- 5.20)	0.003
Pain intensity	- 1.70 (- 2.99;- 0.41)	0.010
Autonomy†		
Depression	- 5.99 (- 12.07;- 0.08)	0.047
Chest pain	- 6.17 (- 11.69;- 0.66)	0.029
Past, present and future activities‡		
Depression	- 6.94 (- 12.75;- 1.13)	0.019
Social participation§		
Schooling	- 0.64 (- 1.19;0.09)	0.023
Diabetes mellitus	- 8.15 (- 13.56;- 2.74)	0.003
Depression	- 11.53 (- 17.56;- 5.49)	< 0.001
Pain intensity	- 1.43 (- 2.49;- 0.38)	0.008
Lower limb pain	- 5.94 (- 11.71;- 0.16)	0.044
Death and dying		
Systemic arterial hypertension	- 8.40 (- 14.54;- 2.26)	0.008
Intimacy¶		
Depression	- 5.99 (- 11.88;- 0.10)	0.047
Headache/face pain	- 3.19 (- 15.98;- 0.96)	0.027

Note: * Reference category; β : Regression coefficient; 95% CI: 95% Confidence Interval; LL: Lower limbs.

* Multiple linear regression model adjusted for age, gender, schooling, time experiencing pain, depression, other diseases, pain intensity, abdominal pain and genital pain. Parameters: F (p-value): 3.83 (< 0.001); R²: 0.133; FIV: 1.93. K-S test for normality of residues: p = 0.132; Breusch-Pagan/Cook-Weisberg test: p = 0.311

† Multiple regression model adjusted for age, gender, schooling, marital status, time experiencing pain, religion, hypertension, diabetes mellitus, pain intensity, depression, headache/face pain, neck/cervical pain, chest pain, abdominal pain, low back pain and whole body pain. Parameters: F (p-value): 2.25 (< 0.003); R²: 0.164; FIV: 2.02. K-S test for normality of residues: p = 0.174; Breusch-Pagan/Cook-Weisberg test: p = 0.381

‡ Multiple regression model adjusted for age, gender, schooling, income, diabetes mellitus, fibromyalgia, depression, other diseases and joint pain. Parameters: F (p-value): 2.57 (< 0.008); R²: 0.092; FIV: 1.08. K-S test for normality of residues: p = 0.189; Breusch-Pagan/Cook-Weisberg test: p = 0.512

§ Multiple regression model adjusted for age, gender, schooling, marital status, time experiencing pain, diabetes mellitus, fibromyalgia, depression, other diseases, pain intensity, headache/face pain, neck/cervical pain, lower limb pain and whole body pain. Parameters: F (p-value): 4.01 (< 0.001); R²: 0.224; FIV: 1.72. K-S test for normality of residues: p = 0.132; Breusch-Pagan/Cook-Weisberg test: p = 0.381

|| Multiple regression model adjusted for age, gender, time experiencing pain, hypertension, depression, headache/face pain, neck/cervical pain and upper limb pain. Parameters: F (p-value): 2.33 (< 0.012); R²: 0.093; FIV: 1.93. K-S test for normality of residues: p = 0.200; Breusch-Pagan/Cook-Weisberg test: p = 0.351

¶ Multiple regression model adjusted for age, gender, religion, hypertension, fibromyalgia, depression, other diseases, headache/face pain, chest pain, low back pain and whole body pain. Parameters: F (p-value): 2.66 (< 0.002); R²: 0.133; FIV: 1.61. K-S test for normality of residues: p = 0.102; Breusch-Pagan/Cook-Weisberg test: p = 0.181

DISCUSSION

The results show that the *Autonomy* and *Social Participation* domains have the lowest average scores when compared with the others, which indicates a greater negative influence on the QOL of older adults with chronic pain, corroborating the findings of other studies⁽²⁷⁻²⁸⁾. Additionally, these were the most explicative domains related to QOL in this sample.

In the multiple analysis, factors negatively associated with the QOL *Autonomy* domain included depression, greater pain intensity and chest pain. In the *Social participation* domain, there was a negative association with schooling, diabetes mellitus, depression, pain intensity and lower limb pain. In this sense, it is

worth mentioning that, among the older adults, an association of depression with autonomy was evidenced⁽²⁹⁾. Another study⁽³⁰⁾ showed that there is a loss of autonomy among older adults with chronic pain, which leads the authors to argue that depression in older adults suffering from chronic pain should be diagnosed and treated as soon as possible to avoid further losses in QOL. The biggest concern is that these morbidities (depression and chronic pain) have been experienced concurrently by the participants in this study. It is known that the genesis of chronic pain and depression is related to common mechanisms, such as the activation of specific centers in the central nervous system⁽³¹⁾. In this context, older adults with chronic pain may be more likely to develop depression and vice versa. Losses in autonomy lead to dysfunctional interpersonal relationships, withdrawal from recreation and leisure activities, absence of health care in general and social isolation^(10,19,32), which can negatively influence these people's QOL.

Additionally, chest pain influences the low scores found in the *Autonomy* domain. No research was found investigating pain location as a factor associated with the *Autonomy* domain in older adults with chronic pain, which limited comparison of findings. However, it is worth remembering that 84.1% of the participants in this study reported moderate intensity pain/worst possible pain, clinically significant and reason for important losses in people's lives, showing a relevant association with poor QOL^(9,33). It is important to consider that individuals who suffer from chronic pain tends to isolate themselves and avoid participating in daily and community activities⁽³⁴⁾.

Chest pain can be associated with cardiovascular diseases, such as coronary syndromes⁽³⁵⁻³⁶⁾. Sometimes, the stigma that accompanies localized pain may cause the older adult to withdraw from their activities for fear of greater damage to their health. Losses in autonomy can also be associated with cardiovascular changes that generate disability⁽³⁵⁾ and can impair decision making, freedom and the activities they would like to do throughout their lives, directly impacting QOL.

Depression was negatively associated with the *Social participation* domain, as well as schooling, diabetes mellitus, pain intensity and lower limb pain. Ferretti et al.⁽²⁷⁾ showed a difference in the mean score of the *Social participation* domain (3.73 ± 0.59) between older adults with and without chronic pain (3.96 ± 0.56)⁽²⁷⁾. A study review identified depression as a factor of decreased social participation among older adults⁽³⁷⁾, social withdrawal and abandonment of community activities⁽¹⁰⁾. In this regard, cultural aspects, available resources, habits and beliefs⁽³⁷⁾ are evaluated, which can also explain a negative association with morbidities as diabetes mellitus and arterial hypertension, since erroneous habits and beliefs increase the probability of occurrence and the adequate treatment of these comorbidities. Recent research conducted with community older adults with diabetes mellitus and with and without chronic pain showed that those who suffered from chronic pain had a lower mean score (59.84 ± 19.01) in the *Social participation* domain when compared with those without it (61, 83 ± 20.95)⁽²⁸⁾.

Pain intensity was also a factor associated with this domain. In this sense, it is worth remembering that diabetes is related to neuropathies, especially the sensory-motor ones, physical

complications and high-intensity pain that generate disability⁽³⁵⁾. Lower limb pain prevailed among the community older adult with chronic pain⁽¹⁾, indicating a possible relation with disability^(2,38), which affects functional, social, physical and psychological activities⁽³⁸⁾. Chronic pain reduces mobility, directly or indirectly, imposes limitations on mobility and on performing basic and instrumental activities of daily living, affecting social participation^(1-2,34). One agrees with the authors' statements about high-intensity pain contributing to isolation, worsening professional and leisure activities, and changing family life^(9,27,34).

No studies were found with samples of older adults with chronic pain that investigated an association between schooling and the *Social participation* domain. However, research that assessed QOL of people in general showed a divergent result⁽³⁹⁻⁴⁰⁾, that is, a higher schooling level seemed to increase the chance of a better QOL. In this sense, the authors understand that new research should be carried out to confirm the findings of this study or to refute them.

An interesting finding was the negative association between the *Sensory abilities* domain and time experiencing pain (over one year), and a greater intensity of this pain suggests the need to systematically assess long-lived patients with chronic pain, as their QOL, and perhaps their cognitive capacity, can be impaired, since chronic pain, regardless of its location and etiology, can cause brain abnormalities and contribute to the reduction of gray matter volume⁽⁴¹⁾, exacerbating cognitive losses and pain. A study conducted in the older adult with chronic back pain showed a negative correlation ($r = -0.326$; $p = 0.026$) between time experiencing pain (over three months) and QOL⁽¹¹⁾.

Moreover, aging brings with it losses in vision, hearing, taste⁽⁴²⁻⁴⁴⁾ and other sensory abilities. Previous research⁽⁴⁵⁾ showed that the mean score of the *Sensory abilities* domain was lower (40.0) than in this study and, in this sense, it is believed that the divergence may be related to the average pain intensity that, in our study, was lower.

In the *Intimacy* domain, which addresses the older adult's intimate and personal relationship⁽¹⁹⁾, depression and headache were the negatively associated factors. Older adults with depression have a tendency towards isolation, which damages personal bonds⁽⁴⁶⁾. No studies investigating factors associated with this domain in older adults with chronic pain were found. However, the study that compared the scores attributed by the older adult in the *Intimacy* domain showed that the average score among those with depression was lower (11.0 ± 1.9) than among the older adult without depression (14.4 ± 1.7)⁽⁴⁷⁾, indicating an influence on quality of life.

Headache/facial pain has a high prevalence in older adults and affects about 65.0% of this population⁽⁴⁸⁾, besides being one of the factors responsible for the years of disability experienced⁽³⁵⁾. Investigations in the area of headache and craniofacial pain point to isolation as a psychosocial consequence, possibly justified by low self-esteem, irritability, physical discomfort, hostility and feeling of helplessness, aspects associated with environmental stimuli that previously did not generate pain and which then start to be referred to as a cause of pain (lighting and noise, for example)^(35,48).

In the *Past, present and future activities* domain, a negative association with depression was found. Fleck⁽¹⁹⁾ shows that in

this domain issues related to personal satisfaction, recognition and achievements are addressed, moving in the direction of the statements by Silvertsen et al⁽¹⁰⁾. That is, older adults, in general, have different aspirations throughout their lives, like to be recognized for their achievements, and are proud of them. When in a depressed state, they lose expectations, become frustrated, isolate themselves and maintain a negative view, becoming melancholy and sad, which directly interferes with quality of life.

Finally, systemic arterial hypertension was negatively associated with the *Death and dying* domain. No similar studies were found comparing these data. However, it is known that hypertension generates functional and structural changes in target organs, and that it prevails in the older adult population, compromising QOL and reducing this population's life expectancy⁽⁴⁹⁾. Systemic arterial hypertension generates losses in the aging process, which possibly justifies the scores attributed in the *Death and dying* domain. Borges et al.⁽⁵⁰⁾ showed a low mean score (12.4) in this domain when investigating a sample of older adults with hypertension.

Study limitations

A limitation for this study is related to the moment when older adults were approached for data collection, since they could be anxious about waiting for medical appointments. Another limitation may be linked to the fact that the sample was obtained for convenience. In addition, participants with severe disabilities that prevented them from attending the services in which the study was conducted may have been excluded. However, the findings were obtained using a sample calculated in a probabilistic way. These are innovative results, with the potential to contribute to the care of the older adult with chronic pain.

Contributions to the area of Nursing

This research examines, per domain, the factors associated with the QOL of older adults with chronic pain, aiming to contribute to the diagnosis, planning and implementation of nursing care strategies that collaborate to enabling this population's QOL. Knowing the factors that influence this construct can help develop a proposal for a predictive QOL model, directing the nurses' action to prevent harm and unnecessary suffering.

CONCLUSIONS

The findings of this study show that the characteristics of chronic pain, especially the time experiencing pain and the location of this experience, as well as depression and diabetes, are the factors that influence the *Sensory abilities, Autonomy, Social participation, Intimacy* and *Past, present and future activities* domains. This result shows the importance of the proper management of comorbidities, which are often underdiagnosed and undertreated in the older adult and/or mistakenly understood as typical of senility, such as chronic pain.

In addition, systemic arterial hypertension also strongly influences the domain *Death and dying*, indicating the importance of prevention and continuous and supervised treatment of this comorbidity in the older adult with chronic pain.

The factors investigated in each domain were not able to fully explain the quality of life of older adults with chronic pain. However, it was possible to identify that the *Autonomy and Social*

participation domain, which explain the construct the most, are strongly influenced by factors such as depression, pain location and diabetes.

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