

## Original Article

## Impact of pain on the quality of life of patients with chronic pain

*Impacto da dor na qualidade de vida do paciente com dor crônica*

Jaqueline dos Santos Kanematsu<sup>1</sup>, Beatriz Atanazio<sup>1</sup>, Beatriz Ferreira Cunha<sup>1</sup>,  
Letícia Puerro Caetano<sup>1</sup>, Diane Militão Yamamoto Arada<sup>2</sup>

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**RESUMO:** *Introdução:* A dor crônica é uma experiência sensitiva e emocional desagradável, que persiste ou se repete por mais de 3 meses. Por ser uma condição multidimensional, que afeta aspectos biopsicossociais, impacta na qualidade de vida dos indivíduos que convivem com ela, assim o objetivo do estudo foi avaliar este impacto em pacientes de unidades básicas de saúde no noroeste paulista. *Metodologia:* foi realizado um inquérito investigativo, em que os 379 voluntários, maiores de 18 anos, de ambos os sexos, com dor crônica, que responderam sobre a relação da qualidade de vida e dor crônica. *Resultados:* dos participantes 82 eram homens (22%) e 297 mulheres (78%), sendo a maioria maiores de 50 anos (58%), casados (54%), com escolaridade do ensino fundamental (48%) e ensino médio (41%). Constatou-se correlação positiva entre prejuízos na qualidade de vida e baixa escolaridade, sexo feminino e estado civil casados. *Conclusões:* A prevalência de dor crônica na população geral é maior em mulheres do que em homens, casados, maiores de 50 anos, com baixa escolaridade em consonância com a literatura. Estes resultados são importantes para o planejamento de políticas públicas e a capacitação dos profissionais, de modo a realizarmos uma abordagem multidimensional no acolhimento do paciente com dor.

**ABSTRACT:** *Introduction:* Chronic pain is an unpleasant sensory and emotional experience that persists or recurs for longer than 3 months. Because it is a multidimensional condition that involves biopsychosocial aspects, it has an impact on the quality of life of individuals living with it. Thus, the objective of this study was to evaluate this impact in patients from basic health units in the Northwestern region of the state of São Paulo. *Methodology:* an investigative study was conducted with 379 volunteers with chronic pain, over 18 years old, of both genders, who responded about the relationship between quality of life and chronic pain. *Results:* among the participants, 82 were men (22%) and 297 were women (78%); most of them were over 50 years old (58%), married (54%), with elementary (48%) and secondary education (41%). A positive correlation was found between impairments in quality of life and low level of education, being female and being married. *Conclusions:* The prevalence of chronic pain in the general population is higher in women than in men. It is also more prevalent in people that are married, over 50 years of age and with a low level of education, which is in line with the literature. These results are important for planning public policies, training professionals, and providing a multidimensional approach in the care of patients with pain.

**Palavras-chave:** Dor crônica; Impacto; Qualidade de vida.

**Keywords:** Chronic pain; Impact; Quality of life.

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1. Medical Student at Centro Universitário Salesiano Auxilium, Campus Araçatuba-SP. ORCID: Kanematsu JS - <https://orcid.org/0000-0003-0454-7196>; Atanazio B - <https://orcid.org/0000-0001-8026-1128>; Cunha BF - <https://orcid.org/0000-0001-8501-840X>; Caetano LP - <https://orcid.org/0000-0003-3558-3464>. E-mail: [jaque\\_kanematsu@hotmail.com](mailto:jaque_kanematsu@hotmail.com), [beatrizatanazio12@gmail.com](mailto:beatrizatanazio12@gmail.com), [biafecunha@gmail.com](mailto:biafecunha@gmail.com), [puerroleiticia@gmail.com](mailto:puerroleiticia@gmail.com).

2. Supervisor. Professor in the medical course of the Centro Universitário Salesiano Auxilium, Campus Araçatuba-SP. <https://orcid.org/0000-0003-0141-0151>. E-mail: [dianemilitao@unisalesiano.com.br](mailto:dianemilitao@unisalesiano.com.br)

**Corresponding author:** Diane Militão Yamamoto Arada. Rua Florianópolis, 286 - Vila Aeronáutica. Araçatuba, SP. CEP: 16.056-750.

## INTRODUCTION

Chronic pain is a topic of great relevance, as estimates indicate a global prevalence ranging from 10.1% to 55.5%. In Brazil, epidemiological studies on chronic pain are scarce, making it difficult to evaluate its real impact and relevance<sup>1</sup>. It is estimated that the global prevalence of chronic pain is 25% and that 10% of the population is diagnosed with chronic pain each year<sup>2</sup>. In Brazil, chronic pain is present in 39% to 76% of the population<sup>2,3</sup>.

According to the International Association for the Study of Pain<sup>4</sup> (IASP), pain is “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage”, and chronic pain is pain that “persists or recurs for longer than three months”

This multidimensional nature of pain relates to the concept of Total Pain, which encompasses physical, psychological/emotional (depression, mood swings, apathy), social (impaired social relationships, isolation and demotivation) and spiritual (changes in the individuals’ relationship with their beliefs, principles and values, doubts regarding faith and the meaning of life, feelings of helplessness and hopelessness) components of pain<sup>6</sup>.

The World Health Organization (WHO), through the World Health Organization Quality of Life Group (WHOQOL), defines that there is a “multi-dimensional nature of quality of life, which includes physical, psychological, social, and spiritual dimensions. [...] It includes both positive and negative facets and it is subjective. It can be defined [...] as individuals’ perception of their position in life, in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns”<sup>7</sup>.

Therefore, it can be observed that chronic pain has a great impact on the quality of life of the individual and of everyone around them. It affects individuals’ functional and productive capacity by reducing their ability to perform daily activities such as studying and doing household chores, which can lead to higher levels of dependency. It is also associated with comorbidities such as sleep disorders, anxiety and depression (emotional, psychological and social impact), and mood and appetite changes<sup>8</sup>.

The behavior of the person that deals with chronic pain depends on socio-economic and psychological factors. Patients with chronic pain have higher rates of healthcare utilization, both in primary and in emergency care, leading to health system overload. In addition, chronic pain is associated with increased use of pain relief medication (either because patients are receiving care from general practitioners or because they are self-medicating)<sup>9</sup>.

Knowing the profile of the population living with chronic pain and the impact of chronic pain on quality of life is important for planning public health policies, reallocating

financial and technological resources, and providing better professional training, adequate management, and health promotion on the subject, as it is a highly prevalent and complex condition, with many physical, social, emotional, psychological, and financial effects, which must be addressed in a multidimensional way. Thus, the objective of this study was to analyze how chronic pain affects quality of life, providing data and conclusions that can be used to improve the care provided to those patients and increase their well-being.

## METHOD

This is an investigative and field-based study, with an analytical and quantitative approach and a cross-sectional design. The sample studied is composed of individuals assisted by a Basic Health Unit (BHU) located in the city of Araçatuba, in the Northwest region of the state of São Paulo. The choice of BHU was based on the presence of a broad and multifaceted population, resembling the municipal socio-demographic profile, aiming to minimize any tendencies related to research in a specific group. The participants were over 18 years old, of both genders and had complaints of chronic pain. Participants were actively recruited by the researchers at the BHU. The objective and methodology of the research were explained, and confidentiality was ensured to participants. After addressing any questions, the researchers provided an informed consent term (TCLE), which was accepted by almost all participants who were willing to participate in the research.

The sample size (n) was calculated based on the population covered by the BHU studied (35,000 people), through the Clinical Practice website (<http://praticaclinica.com.br/anexos/ccolaborativa-calculo-amostal/ccolaborativa-calculo-amostal.php>), considering a sampling error of 5% and a confidence level of 95%. After the calculation, it was determined that a sample of 380 participants should be evaluated.

Data collection was preceded by the invitation of 392 people, of which 6 did not accept the TCLE, 1 was a minor, 1 had acute pain and 5 had not had pain for the defined period. Thus, the final sample was composed of 379 people.

The project was presented to the Health Department of Araçatuba, which provided formal agreement through the signature of a declaration of acceptance. Then, for data collection, the project and the TCLEs were sent to the Ethics and Research Committee of the *Centro Universitário Salesiano Auxilium*. Data was collected from January 4th to 25th, 2021, after the approval of the Ethics and Research Committee (CEP) under CAAE number 40285020.0.0000.5379.

The research instrument used was the structured interview recommended by the WHO, the WHOQOL-bref, which values the individual perception of quality of life.<sup>10</sup>

The interview is composed of 26 questions, encompassing 4 domains (physical, psychological, social relationships and environment). The questionnaire was applied by the researchers in person, using the Google Forms on tablets or cell phones and following all the Covid-19 safety protocols.

In addition to the information on quality of life obtained through the WHOQOL-bref structured interview, personal information such as name, gender, date of birth, age, marital status, address, education, and information directly related to pain, such as diagnosis, time of diagnosis and frequency and intensity of pain were also collected. However, any data that could identify the patient (such as name, address, and others) were excluded from the analyses.

The data obtained were analyzed using Excel spreadsheets and the BioEstat 5.3 program. The chi-squared test was used for analysis and the significance level was set at 5%.

## RESULTS

A total of 379 people participated in the survey, of which 82 were men (22%) and 297 were women (78%). Most of the population surveyed was over 50 years old (58%), married (54%) and had elementary (48%) and secondary education (41%), as described in Table 1.

**Table 1.** Socio-demographic characteristics of participants with chronic pain. Araçatuba, SP, 2021 (N=379)

Variable	N	%
<b>Gender</b>		
Female	297	78
Male	82	22
Total	379	100
<b>Age</b>		
Up to 30 years old	41	11
30 to 50 years old	119	31
More than 50 years old	219	58
<b>Marital status</b>		
Married	203	54
Divorced	48	13
Single	81	21
Other	47	12
<b>Education</b>		
Elementary Education	181	48
Secondary Education	155	41
Higher Education	42	11
Graduate Education	1	0.26

Table 2 show the characteristics of chronic pain in the population studied, indicating the frequency, intensity and time living with pain.

**Table 2.** Characteristics of chronic pain. Araçatuba, SP, 2021 (N=379)

Variable	Frequency	%
<b>Pain Frequency</b>		
Never	0	0
Sometimes	32	8
Often	89	23
Very Often	63	17
Always	195	52
<b>Time living with pain</b>		
Up to 1 year	48	13
1 to 5 years	172	45
6 to 10 years	77	21
10 to 20 years	55	14
More than 20 years	27	7
<b>Pain Intensity</b>		
Low	9	2
Moderate	84	22
Severe	286	76

Table 3 shows the variables of the studied population and their association with moderate and severe pain intensity.

**Table 3.** Relationship between pain intensity and variables related to quality of life. Araçatuba, SP, 2021 (N=379)

Variable	Pain Intensity	
Gender	Moderate	Severe
Female	60	231
Male	24	55
<b>Marital Status</b>		
Single	17	60
Married	49	151
Divorced	12	34
Other	6	41
<b>Education</b>		
Elementary Education	29	148
Secondary Education	36	115
Higher Education	18	23
<b>Quality of life</b>		
Poor	16	92
Moderate	3	73
Good	84	286
<b>Ability to concentrate</b>		
Poor	12	107
Moderate	31	83
Good	34	81
<b>Mobility</b>		
Poor	14	79
Neither poor nor good	14	77
Good	43	94

*continue*

**Table 3.** Relationship between pain intensity and variables related to quality of life. Araçatuba, SP, 2021 (N=379) *continuation*

Variable	Pain Intensity	
<b>Sleep</b>		
Dissatisfied	29	133
Neither satisfied nor dissatisfied	21	68
Satisfied	20	57
<b>Daily activities</b>		
Dissatisfied	12	85
Neither satisfied nor dissatisfied	30	122
Satisfied	31	58
<b>Work Capacity</b>		
Dissatisfied	9	81
Neither satisfied nor dissatisfied	26	128
Satisfied	34	62
<b>Sexual Activity</b>		
Dissatisfied	8	31
Neither satisfied nor dissatisfied	35	150
Satisfied	29	77
<b>Negative Feelings</b>		
Sometimes	37	86
Often	13	73
Very often	10	50

Based on the data obtained from the 379 interviewees and the relationship between the intensity of chronic pain and gender, it was possible to observe that, among the female participants, 20% had moderate chronic pain and 78% had severe chronic pain. Among the male participants, 29% had moderate and 67% had severe chronic pain. The analysis showed a  $p$ -value = 0.0663, indicating that gender is not associated with the intensity of chronic pain, despite the higher prevalence of chronic pain in women (78%).

The comparison between the variables marital status and intensity of chronic pain showed that, among those with moderate chronic pain, 20% were single, 58% were married, 14% were divorced, and 7% were in the category "other". As for individuals with severe chronic pain, 21% were single, 53% were married, 12% were divorced and 14% were in the category "other". A  $p$ -value = 0.3435 was obtained, meaning that marital status is not associated with the intensity of chronic pain, despite the higher prevalence of chronic pain in married people (54%).

The association between the intensity of chronic pain and the level of education (elementary education, secondary education, higher education) showed that, among the participants who had moderate chronic pain, 35% had elementary education, 43% had secondary education and 21% had higher education. As for those who had severe chronic pain, 52% answered that they had elementary education, 40% had secondary education and 8% had

higher education. The results revealed a  $p$ -value = 0.0006, that is, the intensity of pain is associated with the level of education of individuals.

As for intensity of chronic pain and quality of life, it was found that 19% of participants with moderate chronic pain rated their quality of life as poor; 32% as average; and 43% as good. Among participants with severe chronic pain, 34% rated their quality of life as poor; 36% as average; and 26% as good. A  $p$ -value=0.0026 was obtained, demonstrating that quality of life is associated with the intensity of pain of individuals.

Comparing the variables intensity of chronic pain and ability to concentrate, it was found that, among those who reported moderate chronic pain, 14% had poor concentration, 37% had moderate concentration and 39% had a good ability to concentrate. Among participants with severe chronic pain, 38% had poor concentration, 29% had moderate concentration and 28% had a good ability to concentrate. The data had a  $p$ -value = 0.0005, demonstrating an association between intensity of chronic pain and ability to concentrate.

The association between mobility and intensity of chronic pain showed that, among those who had moderate pain, 17% reported poor mobility, 17% said it was neither poor nor good, and 51% reported it was good. As for those with severe pain, 28% had poor mobility, 27% reported it was neither good nor bad, and 33% said it was good. In the present study, a  $p$ -value = 0.0026 was obtained, meaning that mobility is associated with the intensity of chronic pain of individuals.

Regarding intensity of chronic pain and satisfaction with sleep, among those who had moderate chronic pain, 35% reported being dissatisfied with their sleep quality, 25% were neither satisfied nor dissatisfied and 24% were satisfied. As for those with severe chronic pain, 47% responded that they were dissatisfied with their sleep quality, 24% were neither satisfied nor dissatisfied and 20% were satisfied. The data had  $p$ -value = 0.3018, meaning that satisfaction with sleep is not associated with the intensity of chronic pain of individuals.

Comparing data on intensity of chronic pain and ability to perform daily living activities, it was found that, among individuals who reported moderate chronic pain, 14% reported being dissatisfied with their ability to perform daily living activities, 36% were neither satisfied nor dissatisfied, 37% were satisfied. As for the interviewees with severe chronic pain, 30% reported being dissatisfied with their ability to perform daily activities, 43% were neither satisfied nor dissatisfied and 20% were satisfied. Data analysis evidenced an association between intensity of chronic pain and ability to perform daily living activities, with a  $p$ -value = 0.0007.

As for the relationship between intensity of chronic pain and work capacity, among those with moderate chronic pain, 11% were dissatisfied with their work capacity,



31% were neither satisfied nor dissatisfied and 40% were satisfied. Among those who had severe chronic pain, 28% were dissatisfied with their work capacity, 45% were neither satisfied nor dissatisfied and 22% were satisfied. The data had a  $p$ -value  $<0.0001$ , showing that work capacity is associated with intensity of chronic pain.

In the comparison between the intensity of chronic pain and satisfaction with their sex life, it was found that, among individuals with moderate chronic pain, 10% reported being satisfied with their sex life, 42% were neither satisfied nor dissatisfied and 35% were dissatisfied. As for individuals with severe chronic pain, 11% reported being satisfied with their sex life, 52% were neither satisfied nor dissatisfied and 27% were dissatisfied. A  $p$ -value = 0.2395 was obtained, that is, it was found that satisfaction with sex life is not associated with intensity of chronic pain.

Regarding the intensity of chronic pain and the frequency of negative feelings, among the participants who had moderate pain, 44% responded that they had negative feelings sometimes, 15% had them often and 12% had them very often. As for the participants with severe pain, 30% answered that they had negative feelings sometimes, 26% had them often and 17% had them very often. A  $p$  = 0.0187 was obtained, that is, it was found that intensity of chronic pain is associated with frequency of negative feelings.

## DISCUSSION

Even though there was no association between intensity of chronic pain and gender, chronic pain is more prevalent in women. A study by Sá et al.<sup>11</sup> showed a higher prevalence of chronic pain in women than in men. In an analysis of the impact of chronic pain in the community, Smith et al.<sup>12</sup>, found that, among 4,611 individuals, women were more affected. Souza et al.<sup>3</sup> described that, among their interviewees, women were the most affected and, when characterizing pain, they reported greater losses and disabilities when compared to men, including greater impact on daily activities, self-care activities, work, sex life and sleep quality. In a clinical study, Rodrigues et al.<sup>13</sup> showed that 61.36% of those affected by pain were women and 38.64% were men. Agostinho et al.<sup>14</sup> found that shoulder pain affected 73.98% of women and 26.02% of men. Castro et al.<sup>15</sup>, analyzed outpatient care for chronic pain and found that 83% of patients with the condition were women.

The data indicated a higher prevalence of chronic pain in people over 50 years of age. According to Olivência et al.<sup>16</sup>, longer life expectancy is associated with a higher prevalence of chronic-degenerative diseases, and, consequently, of pain and functional limitation. Pain is a common complaint among older adults, and it can affect several aspects of the individual's life. Carvalho<sup>2</sup>, found that approximately 48% of individuals with chronic pain are older than 65 years. On the other hand, Souza et al.<sup>3</sup>

discovered that the mean age of onset of chronic pain was 41 years.

Although the present study did not find an association between intensity of chronic pain and marital status, there was a higher prevalence of chronic pain among married individuals. The available literature shows that single people have 60% more migraines than divorced or widowed people, according to a cross-sectional study by Queiroz et al.<sup>17</sup>. In another cross-sectional study, Sá et al.<sup>11</sup> reported that widowed and divorced individuals had a higher risk of developing chronic pain compared to single individuals. Santos et al.<sup>18</sup> found a greater prevalence of chronic pain among individuals who were married or lived with a partner (58.9%). Carvalho<sup>2</sup> found that 47% of individuals with chronic pain were married.

The intensity of chronic pain was associated with quality of life. Cunha and Mayrink<sup>19</sup> observed a decrease in quality of life when associated with pain, in addition to a reduction in the autonomy of older adults due to limitations for the performance of daily activities within their social, economic and cultural context. Izzo et al.<sup>6</sup> concluded that chronic pain affects quality of life, with a negative impact on individuals' social, psychological, spiritual, physical and emotional dimensions. Chronic pain can also lead to comorbidities such as sleep disorders, anxiety and depression (emotional, psychological and social impact), according to Fonseca et al.<sup>8</sup>.

Studies addressing the association between mobility and chronic pain are scarce.

The analysis of intensity of chronic pain and satisfaction with sleep revealed no association between the variables, even though 52% of the participants were very dissatisfied or dissatisfied with their sleep. In a study by Marty et al.<sup>20</sup>, approximately 50% of patients who had chronic low back pain had sleep disorders, with a direct association between these variables. Maia<sup>21</sup> analyzed 10 articles in a systematic review with the objective of assessing quality of sleep and found significant alterations for all the types of chronic pain analyzed. Leme<sup>22</sup> studied 251 patients with chronic pain aged between 17 and 83 years and found that the prevalence of poor sleep quality was 74.5%. Moro et al.<sup>23</sup> evaluated 24 patients with fibromyalgia and found that half of the patients had a sleep efficiency of less than 85%. Patients with fibromyalgia had a decrease in sleep quality and efficiency, influenced by sleep latency, sleep duration, presence of pain and nocturnal awakening.

As observed in the present study, individuals with chronic pain may experience difficulties in the performance of daily activities. According to Moura et al.<sup>24</sup>, 15% of the adult population experiences difficulties in daily activities due musculoskeletal disorders, one of the main risk factor for pain chronicity, with negative effects on quality of life. A study by Mota et al.<sup>25</sup> identified that the prevalence of musculoskeletal pain was 67.5% and, among people

with musculoskeletal pain, 87.6% had some difficulty performing activities of daily living and 66.1% had a lot of difficulty. According to Fonseca et al.<sup>8</sup>, chronic pain has an impact on functional and productive capacity, demonstrated by the decrease in the ability to perform daily activities such as studying, doing household chores and others.

Chronic pain can be triggered by work activities, impairing work capacity. The data of this study allowed the conclusion that work capacity is associated with the intensity of chronic pain. A study by Garcia et al.<sup>26</sup> showed that 26% of participants with chronic pain had a paid job and 74% were inactive. Among the active workers, 47.3% answered that pain intensity increased during their work activities, 47.3% reported that they sometimes missed work due to pain and 31.5% did not agree nor disagree when asked whether their pain was a reason for retirement. In the group of inactive patients, 80% reported that work activities increased pain, about 34.5% reported that, when they were active, they used to miss work due to pain, and 31% agreed that their pain was a reason to retire.

Regarding sexual activity, it was found that satisfaction with sex life is not associated with the intensity of pain of individuals. A study by Cherpak<sup>27</sup> evaluated the medical approach to sexuality in older adults with chronic pain and found that most physicians did not notice a clear association with any type of specific chronic pain; also, most research participants did not perceive any relationship between sexual problems and a specific type of chronic pain, which is in line with what was observed in the present study. However, Santos et al.<sup>28</sup> results showed that 28% of older women reported that chronic pain interferes with sexual activity, and this percentage was considered significant for the study. Likewise, a study by Melo et al.<sup>29</sup> associated quality of life and sexuality in women with fibromyalgia and showed that, after the onset of the chronic disease, sexuality was affected by symptoms of pain, fatigue and inability to move, resulting in tension regarding physical pain and sex. Gonçalves<sup>30</sup> reported that 73% of respondents had difficulties with sexual activity related to chronic pain, as sex life is affected in the areas of arousal, positions, fear of exacerbating pain, lowered confidence and frequency. Bahouq et al.<sup>31</sup> found that 81% of respondents had difficulties in sexual activities.

It was demonstrated that the intensity of pain is associated with the frequency of negative feelings, which is similar to other studies in the literature. Pinheiro et al.<sup>32</sup> evaluated the prevalence of depression and anxiety symptoms in 125 patients with chronic pain and found a high prevalence of severe pain (64% of the sample) associated with depression and anxiety symptoms. In a study by Santos et al.<sup>33</sup>, depressive disorders were present in 36.6% of the older adults with chronic pain evaluated and were associated with a reduction in quality of life. Romão<sup>34</sup> addressed the impact of anxiety and depression on the quality of life of women with chronic pelvic pain and

found that the prevalence of anxiety among these women was 73%, while the prevalence of depression was 40%. Graminha et al.<sup>35</sup> observed that pain and the negative impact of fibromyalgia on quality of life increase the likelihood of depressive symptoms among women with this condition. Correia and Linhares<sup>36</sup> investigated the association between migraines and stress in women and concluded that the participants were more vulnerable and were considered a risk group for emotional imbalance due to the presence of migraine disability and stress, which can increase negative symptoms, especially psychological symptoms associated with poor quality of life. According to Mota et al.<sup>25</sup>, along with pain, feelings of fear and distress compromise the functionality and mobility of the body, developing and maintaining disability.

## CONCLUSION

It is concluded that the prevalence of chronic pain in the general population is higher in women than in men, although the intensity of chronic pain is not associated with gender. It is also more prevalent in married people, although the intensity of chronic pain is not associated with marital status. Regarding the level of education and age of onset, it has been demonstrated that people with lower levels of education and older ages have a higher prevalence and intensity of pain, in spite of the divergences in the literature. There was an association between ability to concentrate and pain intensity. Despite the positive association between mobility and pain intensity, no studies comparing these variables were found. Differently from the existing literature, the data obtained indicate that satisfaction with sleep and with sexual activity are not associated with the intensity of pain of individuals. The presence of chronic pain, especially if it is moderate or severe, significantly affects the performance of daily activities. The variables work capacity and negative feelings were associated with pain intensity, affecting quality of life. It was found that the perception of quality of life is reduced according to the intensity of pain.

Although chronic pain is a common condition, there are few studies that address its impact on quality of life. This study concluded that chronic pain has a great impact on quality of life, even though there are divergences in the literature regarding some of the variables analyzed. Thus, further studies will be needed to assess the relationship between pain and quality of life, aiming to improve and optimize pain treatment and quality of life.

This study has some limitations, including those inherent to the collection instrument used. As it was a structured interview, the information obtained was restricted to the data contained in the instrument. However, these results are important for planning public policies, training professionals, and providing a multidimensional approach in the care of patients with pain.

**Participation of the authors:** *Jaqueline dos Santos Kanematsu*: Conception and design of the study, data collection, writing of the text and approval of the final version to be published. *Beatriz Atanazio*: Conception and design of the study, data collection, writing of the text and approval of the final version to be published. *Beatriz Ferreira Cunha*: Conception and design of the study, data collection, writing of the text and approval of the final version to be published. *Letícia Puerro Caetano*: Conception and design of the study, data collection, writing of the text and approval of the final version to be published. *Diane Militão Yamamoto Arada*: Orientation, conception and design of the study, writing of the text and approval of the final version to be published.

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