

Chronic musculoskeletal pain in Primary Health Care users in small municipalities

1

THEMATIC ARTICLE

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Abstract *The aim of this study was to verify the presence of chronic musculoskeletal pain and their associated factors, as well as aspects related to treatment in Primary Health Care users in six small cities in the state of Paraná. A cross-sectional, study was carried out with samples of 1,878 users of Primary Health Care in six municipalities with less than 20,000 inhabitants in the state of Paraná. Was identify users with chronic musculoskeletal pain. To analysis which were obtained using Poisson regression with robust variance. The prevalence of chronic pain was 55.8%, there was a higher prevalence among women, among the lower level of education, among those who had a negative self-perception of health and among users who reported the following diagnoses: hypertension, diabetes, hypercholesterolemia, rheumatic diseases, and depression and among the highest age groups. Among the subjects with chronic pain, most reported that it was of moderate or intense intensity (84.9%) and that the pain moderately or extremely affected the performance of daily activities (72.7%). The lumbar region was indicated as the most frequent (22.5%). Regarding treatment, the majority (57.1%) reported undergoing only pharmacological treatment and 15.8% carried out pharmacological treatment and non-pharmacological treatment.*

Key words Musculoskeletal pain, Chronic pain, Primary Health Care, Small cities

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Introduction

Pain has always been a factor in human life, and pain and its management are considered a crucial challenge for science and public health¹. The *International Association for the Study of Pain* (IASP) defines pain as “an unpleasant sensory and emotional experience associated with, or similar to that associated with, actual or potential tissue damage”².

In general, pain can be classified as acute or chronic according to the duration of symptoms³. Chronic pain is defined as pain that persists even after the normal healing period and usually lasts more than three to six months⁴. When this persistent or recurrent pain arises as part of a disease that directly affects the bone(s), joint(s), muscle(s) or related soft tissue(s), it is defined as chronic musculoskeletal pain⁵.

Chronic pain is a highly prevalent condition worldwide and usually causes suffering and a difficulty or even inability to perform daily activities, in addition to imposing a high cost on people and health systems⁶⁻⁸. According to the Brazilian Society for Pain Studies (SBED), approximately 37% of the Brazilian population reports having some type of chronic pain⁹. Data from the National Health Survey (PNS) indicate that the percentage of individuals with chronic musculoskeletal pain increased from 18.5% in 2013 to 21.6% in 2019^{10,11}.

Several studies have sought to determine the prevalence of chronic pain and its associated factors in Brazil¹²⁻¹⁴. Although chronic pain is a well-reported topic in the literature, studies in small municipalities are lacking. Small municipalities are defined as those with populations of up to 20,000 inhabitants and represent approximately 70% of the municipalities in Brazil⁹. Pinafo *et al.*¹⁵ report that small municipalities generally have some unique characteristics, such as little autonomy to manage municipal budgets; a low capacity for tax collection, which consequently leads to a low allocation of budgetary resources; and difficulty in retaining health professionals, especially physicians. Although creating a homogeneous category for small municipalities is impossible because of the specific characteristics that differ among them, it is plausible that these municipalities may share certain characteristics that may influence the application of health services and the way in which users with chronic pain are treated.

Only five studies on chronic pain in small municipalities were identified, and the prevalence of chronic pain reported in these studies

varied widely (between 10.7% and 56%)¹⁶⁻²⁰. These results can be attributed to the considerable heterogeneity in the definition of chronic pain adopted in the studies, methodological differences, and diversity of the studied populations; for example, some studies were conducted in specific groups, such as elderly individuals or adolescents.

Given this context, the prevalence of chronic pain in people residing in small municipalities may play an important role in action planning and the implementation of public policies aimed at addressing chronic pain. Therefore, since primary health care (PHC) is the preferred entry point for these users, the objective of this study was to determine the prevalence of chronic musculoskeletal pain, factors associated with chronic pain, and treatment options in PHC users from six small municipalities in the state of Paraná.

Methodology

This cross-sectional study is part of the project “Access to multi and interprofessional treatment and adherence to treatment in people with chronic noncommunicable diseases (CNCDS) in small municipalities in the state of Paraná”, which is coordinated by professors from the State University of Londrina (UEL), State University of the Midwest (UNICENTRO) and Federal University of Paraná (UFPR).

The project was divided into three stages. First, public data were collected to characterize the health professionals in the PHC teams of 312 municipalities in the state of Paraná that had fewer than 20,000 inhabitants in 2022. Second, 797 health professionals from 52 municipalities in five different health regions completed a questionnaire with items related to health work. Third, six municipalities were selected: Paula Freitas and Paulo Frontin (6th RS União da Vitória), Teixeira Soares and Rebouças (4th RS Irati), and Porecatu and Tamarana (17th RS Londrina). In each municipality, the two largest health units in the urban area that serve PHC were selected, except for Paulo Frontin, where there was only one health unit in the urban area. These municipalities were intentionally chosen because of the higher response rate in the second stage.

The inclusion criteria were as follows: aged 18 years or older, a PHC user awaiting care and a resident of one of the selected municipalities. The subjects were approached in a random manner by previously trained interviewers.

After the initial approach, individuals who agreed to participate in the study signed a free and informed consent form (FICT), and the interview began. This study was approved by the Research Ethics Committee (CEP) of the State University of Londrina (UEL) under protocol number 4,414,235 and certificate of ethical presentation (CAAE) number 39012820.8.0000.5231.

The ODK Collect© application was used for data collection. The questionnaire was uploaded to the application, and after the participants completed and returned the questionnaire, the data were transferred in Google Sheets format to Google Drive.

The questionnaire was divided into three sections: general characteristics, use of health services and general health. The general health section included questions assessing the presence of chronic musculoskeletal pain, in which the participants were asked about the presence of muscle pain for six months, according to the guidelines of the *International Association for the Study of Pain* (IASP) for scientific studies^{5,16,21,22}.

The dependent variable was obtained through the following question: "Have you felt any type of muscle pain for six months or more?". If the answer was no, the user did not answer the other questions related to the topic. If the answer was yes, the user also answered questions regarding the average intensity of perceived pain in the last six months (on a scale of 0-10, where zero represented no pain and 10 represented the worst pain ever felt) and the average interference of pain in daily activities (on a scale of 0-10, with zero represented no interference and 10 represented extreme interference), according to the Graduated Chronic Pain Scale questionnaire²³. For pain site(s), a body diagram was provided, on which the participants identified and indicated the parts of the body in which they felt pain and, subsequently, the location where the pain was most bothersome, according to the Brief Pain Inventory^{24,25}. In addition, the questionnaire included items about the specific treatments for pain received by the participant, divided into pharmacological and nonpharmacological (including physical therapy, auriculotherapy, acupuncture, swimming, hydrotherapy, stretching, Pilates, muscle strengthening/weight training, walking/aerobic exercise, pain group, and/or other treatment).

The following sociodemographic variables were used as independent variables: sex (male, female); age group (18-24 years old, 25-39 years old, 40-59 years old, ≥60 years old); self-report-

ed race/color (white/asian, black/brown/indigenous), level of education (incomplete elementary school, incomplete secondary education, complete secondary education, complete higher education), marital status (single, married/stable union, divorced/separated, widowed), and employment status (employed, unemployed, retired). The health variables were self-perceived health (positive self-perception, negative self-perception); self-reported diagnosis of hypertension (yes, no), diabetes mellitus (yes, no), hypercholesterolemia (yes, no), rheumatic disease (yes, no), neoplasia (yes, no), and depression (yes, no); body mass index (normal weight, low weight, overweight, obesity); and leisure time physical activity (yes, no).

Statistical analysis was performed using the *Statistical Package for Social Science* (SPSS), version IBM 20.0. For the descriptive analysis, the absolute and relative frequency distributions were used. For bivariate analysis, the chi-square test was used. Crude and adjusted prevalence ratios (PRs) were obtained using Poisson regression. The analyses were adjusted for sex, age group, education level, marital status and employment status. The significance level was $p < 0.05$.

Results

A total of 2305 users were approached; 427 individuals refused to participate, totaling 1,878 respondents (81.5% response rate).

Most of the participants were women (71.0%), white/asian (68.3%), over 40 years of age (59.8%), married or in a stable relationship (62.1%), and employed (57.5%). Almost half of the participants had not completed high school (47.7%), and 55.8% reported having chronic musculoskeletal pain ($n=1,048$) (Table 1).

According to the adjusted PR analysis, a greater prevalence of chronic musculoskeletal pain was reported in females than in males (PRadj=1.30; confidence interval [CI]=1.17-1.43) and among users aged 25-39 years (PRadj=1.25; CI=1.01-1.55), 40-59 years (PRadj=1.80; CI=1.46-2.21) and older than 60 years (PRadj=2.12; CI=1.69-2.66) than among users aged 18-24 years. The prevalence of chronic musculoskeletal pain was lower in users with complete higher education (PRadj=0.72; CI=0.61-0.84) than in users at other levels of education, including incomplete elementary school. No associations were detected among race/color, marital status and employment status (Table 2).

The associations of chronic musculoskeletal pain with health variables were assessed. A greater prevalence of chronic pain was identified among subjects with a negative self-perception of health (PRadj=1.51; CI=1.38-1.64) than among those with a positive self-perception of health and among subjects with a diagnosis of hypertension (PRadj=1.16; CI=1.06-1.26), diabetes mellitus (PRadj=1.19; CI=1.08-1.30), hypercholesterolemia (PRadj=1.10; CI=1.01-1.21), rheumatic diseases (PRadj=1.41; CI=1.31-1.53) or depression (PRadj=1.28; CI=1.18-1.39) than among those without these conditions. No associations between pain and a diagnosis of neoplasia, body mass index (BMI) or the practice of physical activity in free time (Table 3) were observed.

Among users with chronic musculoskeletal pain, 63.7% reported pain in two or more locations. The sites that were most often indicated as the most uncomfortable site were the lumbar spine (22.5%), legs (20.9%) and arms (13.5%). In terms of the mean pain intensity, 84.9% reported moderate or severe pain. Regarding interference with daily activities, 72.7% reported moderate or extreme interference while performing daily activities, with extreme interference (41.1%) being reported most often (Table 4).

Regarding treatment, the majority (57.1%) of participants with chronic pain reported receiving only pharmacological treatment, 2.3% reported receiving only nonpharmacological treatment, and 15.8% reported receiving both types of treatment (Table 5).

Discussion

The aim of the present study was to determine the prevalence of chronic musculoskeletal pain, its associated factors, and treatment options in PHC users from six small municipalities in the state of Paraná. The main findings of the study are as follows: 1) The prevalence of chronic musculoskeletal pain was 55.8%; 2) Among the demographic variables, the prevalence was greater in women than in men and with increasing age, and the prevalence was lower among participants with higher levels of education than among those with less education; 3) Among the health-related variables, the prevalence of chronic pain was greater among participants with a negative self-perception of their health than among those with a positive self-perception and among participants who reported hypertension, diabetes, hypercholesterolemia, rheumatic diseases or depression than among those without these conditions; 4) The lumbar spine was the most common site at which the greatest pain was reported; 5) Among participants who reported chronic musculoskeletal pain, the prevalence of moderate or severe pain (84.9%) and the prevalence of moderate or extreme interference of pain with daily activities (72.7%) were high; 6) The majority (57.1%) of participants reported receiving only pharmacological treatment.

The frequency of chronic musculoskeletal pain reported in the present study was similar to that reported by Rocha *et al.*¹⁷, who reported a 56% prevalence of chronic pain in Irani-SC, a municipality with slightly more than 10,000 inhabitants. According to a systematic review by

Table 1. Sample characterization. Users of primary health care in six small municipalities in the state of Paraná, Brazil (2022; n=1,878).

Sociodemographic variables	n (%)
Sex	
Male	544 (29.0)
Female	1,334 (71.0)
Age Group	
18-24 years	190 (10.1)
25-39 years	565 (30.1)
40-59 years	699 (37.2)
≥60 years	424 (22.6)
Self-reported race/skin color	
White and Asian	1,282 (68.3)
Black, mixed race and indigenous	596 (31.7)
Education	
Incomplete elementary	563 (30.0)
Incomplete high school	333 (17.7)
Completed high school	739 (39.4)
Completed higher education	243 (12.9)
Marital Status	
Single	408 (21.7)
Married/Stable union	1,167 (62.1)
Divorced/Separated	173 (9.2)
Widower	130 (6.9)
Employment Status	
Employed	1,079 (57.5)
Unemployed	442 (23.5)
Retired	357 (19.0)
Chronic musculoskeletal pain	
Yes	1,048 (55.8)
No	830 (44.2)

Source: Authors.

Table 2. Associations between sociodemographic variables and chronic musculoskeletal pain in users of primary health care services in six small municipalities in the state of Paraná, Brazil (2022; n=1,878).

Sociodemographic variables	n (%) [*]	P-value ^{**}	Chronic pain		P-value	Chronic pain		P-value
			Gross PR	(95%CI)		Adjusted PR	(95%CI)	
Sex								
Male	273 (50.2)		1			1		
Female	775 (58.1)	0.002	1.16 (1.05-1.27)		0.003	1.30 (1.17-1.43)		0.000
Age Group								
18-24 years	68 (35.8)		1			1		
25-39 years	244 (49.2)		1.21 (0.98-1.49)		0.083	1.25 (1.01-1.55)		0.043
40-59 years	440 (62.9)		1.76 (1.44-2.15)		0.000	1.80 (1.46-2.21)		0.000
≥60 years	296 (69.8)	0.000	1.95 (1.60-2.38)		0.000	2.12 (1.69-2.66)		0.000
Race/Color								
White and Asian	719 (56.1)		1			1		
Black, mixed race and indigenous	329 (55.2)	0.720	0.98 (0.90-1.07)		0.721	0.96 (0.88-1.05)		0.343
Education								
Incomplete elementary	381 (67.7)		1			1		
Incomplete high school	181 (54.4)		0.80 (0.72-0.90)		0.000	0.94 (0.84-1.05)		0.282
Completed high school	383 (51.8)		0.77 (0.70-0.84)		0.000	0.94 (0.85-1.04)		0.203
Completed higher education	103 (42.4)	0.000	0.63 (0.54-0.73)		0.000	0.72 (0.61-0.84)		0.000
Marital Status								
Single	194 (47.5)		1			1		
Married/Stable union	654 (56.0)		1.18 (1.05-1.32)		0.005	0.95 (0.84-1.07)		0.364
Divorced/Separated	110 (63.6)		1.34 (1.15-1.56)		0.000	0.99 (0.84-1.15)		0.849
Widower	90 (69.2)	0.000	1.16 (1.25-1.70)		0.000	0.94 (0.80-1.11)		0.446
Employment Status								
Employed	566 (52.5)		1			1		
Unemployed	243 (55.0)		1.05 (0.95-1.06)		0.368	0.94 (0.85-1.04)		0.234
Retired	239 (66.9)	0.000	1.28 (1.16-1.40)		0.000	0.93 (0.82-1.04)		0.202

Data are expressed as the absolute frequency and percentage (%). PR= prevalence ratio; 95%CI = 95% confidence interval.

*n (%) refers to the number and percentage of people who reported chronic musculoskeletal pain. **p-value refers to the difference in the proportion of subjects with chronic musculoskeletal pain for each sociodemographic variable according to the chi-square test.

Source: Authors.

Jackson *et al.*²⁶, which included 68 studies from 28 countries, the prevalence of chronic pain varies from 13% to 49% worldwide. A study conducted through household interviews with 5,037 individuals in São Paulo reported a 31% prevalence of chronic pain²⁷. Several factors can influence chronic musculoskeletal pain, including trauma, postural defects, frequent physical exertion and aging. However, the wide discrepancies in prevalence can be attributed to methodological variations, including differences in the classification of chronic pain, data collection methods and characteristics of the studied samples.

In this study, chronic musculoskeletal pain was more prevalent among females than among males, corroborating the findings of previous

studies²⁸⁻³¹. These previous studies argue that this female predominance may be due to hormonal variations and genetic and psychological factors that tend to increase the ability of women to discriminate pain and to decrease pain tolerance.

In addition, the present study revealed that the prevalence of chronic musculoskeletal pain increased with increasing age. This finding is expected and consistent with the literature^{17,19,29,32}. The increased report of pain may be due to the physiological changes that occur during the natural aging process, which increase the risk of diseases related to bone structure, joints and muscles, such as osteoarthritis, disc degeneration, osteoporosis and other chronic musculoskeletal diseases that contribute to pain³¹.

Table 3. Associations between health variables and chronic musculoskeletal pain among users of primary health care in six small municipalities in the state of Paraná, Brazil (2022; n=1.878).

Health variables	n (%) [*]	P-value ^{**}	Chronic pain	P-value	Chronic pain	P-value
			Gross PR (95%CI)		Adjusted PR (95%CI)	
Self-Perception of Health						
Positive	477 (43.4)		1		1	
Negative	571 (73.3)	0.000	1.69 (1.56-1.83)	0.000	1.51 (1.38-1.64)	0.000
CNCD						
Hypertension						
No	643 (49.8)		1		1	
Yes	405 (69.0)	0.000	1.39 (1.28-1.50)	0.000	1.16 (1.06-1.26)	0.001
Diabetes Mellitus						
No	187 (75.1)		1		1	
Yes	861 (52.9)	0.000	1.42 (1.31-1.55)	0.000	1.19 (1.08-1.30)	0.000
Hypercholesterolemia						
No	850 (53.2)		1		1	
Yes	198 (70.5)	0.000	1.32 (1.21-1.45)	0.000	1.10 (1.01-1.21)	0.036
Rheumatic Disease						
No	858 (51.7)		1		1	
Yes	190 (87.2)	0.000	1.69 (1.58-1.81)	0.000	1.41 (1.31-1.53)	0.000
Neoplasm						
No	1.005 (55.3)		1		1	
Yes	43 (71.7)	0.012	1.30 (1.10-1.53)	0.002	1.15 (0.97-1.36)	0.110
Depression						
No	832 (52.7)		1		1	
Yes	216 (72.2)	0.000	1.37 (1.26-1.49)	0.000	1.28 (1.18-1.39)	0.000
BMI	N1869					
Normal weight	345 (52.0)		1		1	
Low weight	12 (60.0)		1.16 (0.80-1.66)	0.440	1.24 (0.86-1.79)	0.246
Overweight	404 (55.8)		1.07 (0.97-1.18)	0.152	1.00 (0.91-1.11)	0.928
Obesity	283 (61.4)	0.019	1.18 (1.07-1.31)	0.001	1.09 (0.99-1.21)	0.079
Physical activity ^{***}						
Yes	786 (41.9)		1		1	
No	1.092 (58.1)	0.417	1.03 (0.95-1.12)	0.419	1.01 (0.93-1.09)	0.855

Data are expressed as the absolute frequency and percentage (%). PR= prevalence ratio; 95%CI = 95% confidence interval; BMI= body mass index (kg/m²). ^{*}n (%) refers to the number and percentage of people who reported chronic musculoskeletal pain. ^{**}p-value refers to the difference in the proportion of subjects with chronic musculoskeletal pain for each health variable according to the chi-square test. ^{***}Physical activity in free time.

Source: Authors.

With respect to education, there was a lower prevalence of chronic musculoskeletal pain among participants with higher education than among those with less education, confirming the findings of Malta *et al.*²⁸ and Santos *et al.*¹⁴, in which higher levels of education were less likely to be associated with chronic pain. This result may be explained, at least in part, by the fact that people with less education tend to occupy more positions in manual services, which can cause or increase pain^{17,28,31}. Another reason

may be the difficulty of access to and lack of knowledge about health services^{33,34}.

Of all the independent variables investigated, self-perceived health was the variable most strongly associated with pain, with participants who reported a negative self-perception of their health having a 51% higher prevalence of chronic pain than those who reported a positive self-perception of their health. Self-perceived health is an important indicator because it encompasses multiple physical, cognitive, emo-

Table 4. Characteristics of chronic musculoskeletal pain among users of primary health care in six small municipalities in the state of Paraná, Brazil (2022; n=1,048).

Characterization of Chronic Musculoskeletal Pain	n (%)
Number of pain sites	
1	380 (36.3)
2	238 (22.7)
3	165 (15.7)
4	103 (9.8)
5 or more	162 (15.4)
Most bothersome pain location	
Head	61 (5.8)
Neck	22 (2.1)
Shoulder	74 (7.1)
Arms	141 (13.5)
Hands	27 (2.6)
Chest	24 (2.3)
Abdomen	20 (1.9)
Thoracic spine	73 (7.0)
Lumbar spine	236 (22.5)
Hip/Pelvis	36 (3.4)
Legs	219 (20.9)
Knees	57 (5.4)
Feet/Ankles	45 (4.3)
Others	13 (1.2)
Mean pain intensity	
No pain	5 (0.5)
Mild pain	153 (14.6)
Moderate pain	418 (39.9)
Intense pain	472 (45.0)
Interference with daily activities	
No interference	92 (8.8)
Light interference	194 (18.5)
Moderate interference	331 (31.6)
Extreme interference	431 (41.1)

Source: Authors.

tional and social factors. A negative self-perception of health shows that users consider their health condition fair, poor or very poor, which can be explained by the fact that users who have chronic pain have a long history of suffering and negative experiences related to diagnosis and treatment. However, these individuals may already have more than one site of pain or a disease associated with pain^{28,30-33}.

Self-reported diagnoses of hypertension, hypercholesterolemia, diabetes mellitus, rheumatic diseases and depression were associated with chronic musculoskeletal pain, corroborating

Table 5. Treatment of chronic musculoskeletal pain among users of primary health care in six small municipalities in the state of Paraná, Brazil (2022; n=1,048).

Treatments of Chronic Musculoskeletal Pain	n (%)
Pharmacological treatment	
Yes	764 (72.9)
No	284 (27.1)
Nonpharmacological treatment	
Yes	190 (18.1)
No	858 (81.9)
Nonpharmacological and pharmacological treatment	
No treatment	260 (24.8)
Pharmacological treatment only	598 (57.1)
Nonpharmacological treatment only	24 (2.3)
Pharmacological and nonpharmacological treatment	166 (15.8)

Source: Authors.

the findings of Malta *et al.*²⁸, who analyzed data from the 2019 National Health Survey and reported a significant association of chronic pain with hypertension and hypercholesterolemia in the adjusted analysis. In patients with diabetes mellitus, high glucose levels are toxic to nerves and can lead to diabetic neuropathy and diabetic foot, among other conditions, that cause pain in these individuals³⁵. Rheumatic diseases can be caused by degeneration or inflammation of the joints, with common symptoms including pain, heat, redness and loss of joint mobility³⁶. Since pain levels are inferred from information provided by users, the perception of a painful condition may be altered by social factors and treatment for mental disorders, such as depression³⁷.

CNCDs are responsible for 63% of deaths worldwide³⁸. The changes caused by human aging, as well as unhealthy habits, such as low physical activity, smoking, and inadequate diet, among others, may contribute to the increased prevalence of these diseases³⁹ and increased musculoskeletal pain. Therefore, developing strategies for coping with CNCDs are important. In Brazil, the Strategic Action Plan for Coping with Chronic Noncommunicable Diseases in Brazil⁴⁰ has been adopted.

No associations were detected between leisure-time physical activity and chronic musculoskeletal pain. The literature indicates several

benefits of physical activity, including endogenous pain control effects⁴¹, and previous studies reported this association^{14,29}. However, these two studies used different criteria to characterize physical activity. One study¹⁴ investigated active elderly individuals who performed at least 150 minutes of leisure-time physical activity per week, whereas the other study²⁹ investigated individuals aged 15 years and older who performed intense or vigorous physical activity. These differences in criteria and study population may be responsible for the difference in results. In addition, reverse causality cannot be ruled out, as some individuals with chronic pain may be active in their spare time precisely to help cope with their chronic musculoskeletal pain.

Similarly, with respect to obesity, previous studies^{17,28} have indicated that obese people have a higher prevalence of chronic musculoskeletal pain, which was different from the results of the present study. Obesity can overload joints and bone structures, in addition to causing decreased muscle mass. However, the mechanisms of obesity are multifactorial and may involve biological, psychological, economic, political and social factors, which differ across individuals⁴².

One indicator by which pain is evaluated is the intensity, which can be compared during and at the end of treatment and is considered an individual parameter²⁰. Among users who reported chronic musculoskeletal pain in this study, more than 80% considered their pain moderate or severe. A study by Souza *et al.*⁴³ also evaluated individuals who utilized basic health units and reported that 62.9% rated their pain as severe.

Chronic pain can influence daily activities, including leisure-related activities, work and sleep^{44,45}. In this study, among individuals who reported chronic musculoskeletal pain, 72.7% reported moderate or extreme interference of pain in performing daily activities, similar to the study by Rodrigues *et al.*²⁰, in which 64.4% of individuals who reported chronic pain reported having difficulty performing basic activities of daily living. Studies indicate that chronic pain is a potential reason for social isolation and a cause of mental disorders such as depression^{27,46}.

In this study, 63.7% of the respondents reported pain in more than one location. Among the individuals who reported pain in three or more locations, 84.9% reported moderate or severe pain. Moderate or severe pain at multiple body sites, especially sites associated with gait, can lead to decreased autonomy and in-

dependence²⁷. In this study, the lumbar spine was identified as the most prevalent site of pain (22.5%), which is consistent with the findings of a previous study⁴³, in which the prevalence of low back pain was 28.6%. A systematic review with a global meta-analysis reported that low back pain had the greatest prevalence¹⁷. Other studies that also reported that low back pain was highly prevalent, highlighted postural factors, repetitive movements, overload and a lack of muscle strengthening as possible causes of low back pain^{18,20,45}.

Most individuals who reported chronic pain in this study were receiving some type of treatment. Approximately seven out of 10 people reported receiving pharmacological treatment. These results are similar to those of Souza *et al.*⁴³, who reported that 84.8% of users reported using analgesics for chronic pain relief. Professionals need to be cautious regarding the use of drugs⁴⁶ and need to constantly evaluate and reassess the need for medication use, as recommended by the Ministry of Health through Ordinance No. 1083, of October 2, 2012⁴⁷. This caution is necessary because each type of pain requires a specific medication; in addition, the possible side effects of medication use and contraindications to specific drugs need to be considered⁴⁸.

In contrast, only 18.1% of participants with chronic pain reported receiving nonpharmacological treatment. Some studies have reported the efficacy of nonpharmacological methods for treating chronic pain⁴⁹⁻⁵¹. Although there is no consensus on the most effective nonpharmacological method, the chosen method needs to be appropriately managed to not only promote pain relief but also provide greater functionality and improve the quality of life of users⁴⁹⁻⁵¹.

Of the individuals with chronic pain, only 15.8% reported using a combination of nonpharmacological and pharmacological treatment, and 57.1% reported using only pharmacological treatment. These data seem to reinforce the low use of nonpharmacological treatments. We did not study the issue of access to these treatments in this study; however, it is plausible that, in general, pharmacological treatments are still easier to access and simpler to perform, because nonpharmacological treatments, such as physical therapy, body practices and other physical activities, often require patients to have the time and finances to complete these treatments.

Notably, small municipalities generally face specific challenges in structuring health care networks. All small municipalities should not be homogenized because each municipality has

unique characteristics¹⁵. The challenges faced include the low technological density and the high complexity of the diagnoses and treatments. Another challenge is the instability and lack of employment of professionals, especially physicians, in each municipality, related to the need for continuous training and the number of multidisciplinary teams^{52,53}.

Other factors may influence the organization of health systems in these municipalities, such as their distance from larger municipalities and the proportion of social and economic vulnerability that characterizes these locations⁵³. Although small municipalities represent the majority of Brazilian municipalities, few studies have analyzed PHC in these regions, making it essential to conduct more research in small municipalities.

This study has several limitations. This study was cross-sectional in design, which limits the inferences that can be drawn about causality and is subject to reverse causality. In addition, the six municipalities investigated in this study are not representative of all the municipalities of Paraná. In addition, this study was not a population-based study, as the data collection took place in health units that provide PHC, and participants were recruited from users on the waiting list to receive care. Notably, these units offer health services, which may have influenced the results, possibly overestimating the prevalence of chronic musculoskeletal pain compared with a cross-sectional study. Thus, caution should be exercised when comparing the prevalence observed in this study with those reported in population-based studies. Regarding the strengths of this study, we emphasize the methodological importance of the study and the fact that there are few studies on this topic in small municipalities, which have important unique characteristics.

Final considerations

The frequency of chronic musculoskeletal pain was 55.8% among PHC users who were on the waiting list for care in small municipalities of Paraná. In the adjusted analyses, a higher prevalence of chronic pain was observed among women than among men, with the prevalence increasing with age, and a lower prevalence of chronic pain was observed among participants with higher levels of education than among those with less education. Among the health variables, chronic pain was associated with a negative self-perception of health and self-reported diagnoses of hypertension, diabetes mellitus, hypercholesterolemia, rheumatic diseases and depression.

In addition, users who reported chronic musculoskeletal pain had a high prevalence of moderate or severe pain (84.9%), which interfered in a moderate or extreme way with daily activities (72.7%). The lumbar region was the most common site of pain (22.5%). With respect to treatments, pharmacological treatment was the most prevalent (72.9%).

The results of this study reinforce the importance of treating chronic pain as a public health problem. PHC can play a key role in the prevention and treatment of chronic pain, including providing pharmacological treatment according to the analgesic ladder proposed by the WHO and nonpharmacological treatments, which include physical exercise and healthy eating.

Notably, the management of chronic pain involves multidisciplinary and interprofessional action due to its multifactorial complexity; therefore, it is necessary to train health professionals from the entire care network, especially those from PHC, to be able to provide better care for users with chronic pain.

Collaborations

LT Tsuzuki was responsible for the study conception, design, data analysis and interpretation, and writing of the article. MR Loch participated in the study conception, design, data analysis and interpretation, and drafting and critically reviewing the study. FGG Ziegler and PG Caldarelli contributed to the drafting and critically reviewing the article. SS Coutinho and LJ Borges contributed to the conception of the idea, planning data collection, assistance with writing, and critically reviewing the manuscript. PH Guerra contributed to the data analysis and interpretation and drafting and critically reviewing the article.

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Data availability statement

The data sources adopted in the research are indicated in the article's body.

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