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Demographic characteristics and pain treatments of patients applying to the algology polyclinic of Fırat university medical faculty

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Abstract

Aim: The aim of this study is to retrospectively evaluate the patients who were admitted to the Algology polyclinic with pain, focusing on their sociodemographic characteristics, types of pain, and pain management.

Materials and Methods: In this study, the pain assessment forms of patients who presented to our Algology polyclinic with pain complaints between January 2022 and December 2022 were examined. The sociodemographic characteristics of the patients, pain properties, and treatments administered were retrospectively evaluated.

Results: Within one-year period, a total of 2001 patients have been admitted to our clinic. 75.5% of the patients were between the ages of 15 and 64. The average age of men was found to be significantly lower than the average age of women. 71.7% of the patients were overweight or obese, with obesity being more prevalent in women. Additionally, 69.8% of the patients had at least one comorbidity, with cardiovascular disease (CVD) and diabetes mellitus (DM) being the most common. The most common causes of pain were low back pain, neck pain, myofascial pain, and knee pain. The Visual Analog Scale (VAS) score was found to be 6.64. Interventional pain treatment was applied to 53.3% of the patients, with the most common methods were caudal epidural injection, cervical epidural injection, and ozone trigger point injection.

Conclusion: Close examination of patients' responses to treatment and knowledge of sociodemographic characteristics are important. In addition to well-planned medical treatment for pain, we believe that interventional pain treatment can alleviate patients' pain, improve their quality of life, and potentially prevent work loss due to chronic pain.

Introduction

Pain is defined by the International Association for the Study of Pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage" [1]. Pain involves objective, subjective, sensory, and psychogenic components, leading to varied responses among individuals and even within the same individual over time [2,3]. According to the World Health Organization (WHO), pain can be classified based on its duration, etiology, anatomical location, and pathophysiological mechanisms [4,5]. Chronic pain is a significant condition associated with decreased quality of life, increased medical expenses, and substantial economic costs. Multicenter studies by the WHO indicate that the prevalence of chronic pain is 37.3% in developed countries and 41% in developing countries [6]. Common chronic pain syndromes include headaches, low back pain, neuropathic pain, myofascial pain, and cancer pain.

Measuring pain is challenging due to its subjective nature. Variations in pain thresholds and perceptions among individuals make objective assessment difficult. Moreover, cultural, psychological, and biological factors can also influence the pain experience. Therefore, employing multidimensional assessment methods is essential for reliably and accurately measuring pain. The goal of pain assessment is to determine the localization, cause, type, and temporal characteristics of pain, while also assessing the emotional, social, and psychological state of the individual [7,8]. Assessing a painful patient is crucial not only for selecting appropriate treatment but also for evaluating the effectiveness of the administered treatment [9].

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Both medical and invasive interventions are applied for the treatment of pain, with substantial amounts of money are spent on pain management. Individuals unable to perform daily activities due to pain, as well as those suffering from chronic pain, may experience psychosocial and behavioral disorders, and in some cases, may lose hope in life. From these perspectives, pain, recognized as a societal issue, should also be acknowledged as a social and economic problem. Algology clinics contribute to resolving pain issues, increasing quality of life, and enhancing societal productivity.

In this study, we aimed to examine cases presenting to the algology polyclinic due to pain between January 2022 and December 2022 to determine the services provided, identify the treatments administered, and compare the sociodemographic characteristics and pain conditions of the patient population presenting to polyclinic with those in other pain studies conducted globally and in our country.

Materials and Methods

This study examined the files of 2001 patients (756 males and 1,245 females) who presented to the algology polyclinic for the first time due to pain between January 2022 and December 2022. After obtaining ethical approval, pain assessment forms archived in the algology polyclinic were retrospectively reviewed, and the data were recorded.

The patients' demographic data (age, gender, height, weight, body mass index (BMI)), history of COVID-19 infection, referral method (self-referral, consultation), educational status, frequency and duration of pain, nature of pain, pain intensity at presentation, previous treatments (medical, surgical, physical therapy), presence of comorbidities (such as diabetes mellitus (DM), cardiovascular diseases (CVD), rheumatological diseases, etc.), tobacco use, alcohol use, pain diagnosis (low back pain, neck pain, neuropathic pain, knee pain, herpes zoster pain, cancer pain), treatment methods applied (pharmacological, interventional), specific medical treatments (nonsteroidal anti-inflammatory drugs (NSAID), weak opioids, strong opioids), and interventional treatments performed (radiofrequency therapy (RFT), cervical epidural injection, caudal epidural injection, laser therapy, ozone therapy, Transcutaneous Electrical Nerve Stimulation (TENS), ganglion impar block, Gasserian ganglion block, intra-articular injection, and other interventional treatments such as genicular nerve injection, greater occipital nerve block, stellate ganglion block, infraorbital/supraorbital/mental block, suprascapular nerve injection, erector spinae plane block, etc.) were recorded.

When classifying the nature of pain, the responses were grouped into three categories: Group 1 (throbbing, electric shock, and lightning), Group 2 (aching, squeezing, burning, and stabbing), and Group 3 (dull, sharp).

Statistical analysis

Data were analyzed using SPSS (Statistical Package for Social Sciences; SPSS Inc. Chicago, IL) version 22 software. Pearson Chi-square analysis was applied for the comparison of categorical variables between groups. The Kolmogorov-Smirnov test was used to evaluate the normal distribution of continuous variables. The Mann-Whitney U test was used for the comparison of binary groups. A p-value of <0.05 was considered statistically significant in the analyses.

Results

In this study, a total of 2001 patients were included, consisting of 756 males (37.8%) and 1245 females (62.2%). The average age of the patients was 52.71 years, with 69% being 45 years and older. The average age of males was lower than that of females (p=0.024) (Table 1). It was found that 58.7% of the patients came to the clinic on their own, while 41.3% were referred. Additionally, 71.7% of the patients were evaluated as overweight or obese. Males had higher height and weight, but lower BMI (p<0.001) (Table 2). The majority of the patients had a primary education level, and it was observed that patients with higher

Table 1. Comparison of age by gender in patients.

Age Group (year)	Male N (%)	Female N (%)	p
<15	1 (0.1)	1 (0.1)	**<0.001***
15-24#	38 (5.0)	23 (1.8)	**<0.001***
25-34#	88 (11.6)	96 (7.7)	**<0.001***
35-44	153 (20.2)	220 (17.7)	**<0.001***
45-54#	143 (18.9)	314 (25.2)	**<0.001***
55-64#	128 (16.9)	310 (24.9)	**<0.001***
≥65#	205 (27.1)	281 (22.6)	**<0.001***
Mean Age (year) (Min-Max)	51.70±16.40 (11.00-92.00)	53.32±14.10 (5.00-92.00)	**0.024****

Chi-square analysis, **Mann Whitney U test was applied. #Group from which the difference originated.

Table 2. Comparison of anthropometric measurements according to gender.

	Male N: 756	Female N: 1245	p*
Height (cm) (Min-Max)	172.74±6.73 (150.00-203.00)	161.84±5.61 (110.00-183.00)	**<0.001**
Weight (kg) (Min-Max)	78.87±12.07 (44.00-135.00)	73.76±12.21 (25.00-130.00)	**<0.001**
BMI (kg/m²) (Min-Max)	26.41±3.61 (15.59-52.73)	28.19±4.68 (14.69-54.11)	**<0.001**

* Mann Whitney U test was applied.

Table 3. Comparison of educational status according to gender in patients.

Educational status	Male N (%)	Female N (%)	p*
No education	70 (9.3)	397 (31.9)	**<0.001**
Primary education	210 (27.8)	469 (37.7)	**<0.001**
Secondary education	273 (36.1)	229 (18.4)	**<0.001**
Higher Education	203 (26.9)	150 (12.0)	**<0.001**

* Chi-square analysis was applied.

Table 4. Comparison of comorbidities according to gender.

Comorbidity	Male N (%)	Female N (%)	p
DM	115 (15.2)	270 (21.7)	**<0.001**
CVD	256 (33.9)	543 (43.6)	**<0.001**
Rheumatologic disease	24 (3.2)	93 (7.5)	**<0.001**
Neurological disease	45 (6.0)	105 (8.4)	**0.041**
Cancer	75 (9.9)	73 (5.9)	**0.001**
Psychiatric illness	24 (3.2)	77 (6.2)	**0.003**
Others	215 (28.4)	543 (43.6)	**<0.001**

* Chi-square analysis was applied.

education levels visited our clinic less frequently (Table 3). It was found that 33.4% of the patients used tobacco, with a higher rate in males ($p<0.001$). It was observed that 69.8% of the patients had at least one comorbidity, and this condition was more prevalent in females (Table 4). Additionally, 37.9% of the patients had a history of COVID-19 infection ($p<0.05$).

22% of the patients visiting algology clinic had pain complaints for less than three months (acute pain), while 61.9% had chronic pain lasting more than three months. Chronic pain was more common in females. The nature of the pain was often described as aching, burning, or stinging ($p<0.001$) (Table 5). Almost all of the patients (99%) received medical treatment before visiting algology clinic. Additionally, they received physical therapy (26.5%), complementary medical treatment (3.3%), interventional treatment (3.3%), or surgical treatment (8%).

Among the 2001 patients, the most common complaint was low back and back pain (65.8%), followed by neck pain (18.9%) and knee pain (6.6%). Low back and back pain was reported at the same frequency in both males and females; however, neck pain (23.1%), knee pain (8%), and myofascial pain (0.8%) were more prevalent in females ($p<0.05$). The incidence of malignant pain was higher in males (8.2% versus 3.4%) ($p>0.05$) (Table 6).

The majority of the patients visiting algology clinic received medical treatment, and NSAIDs and weak opioids being frequently prescribed. Strong opioids were prescribed more often to males. In addition to medical treatment, 53.3% of the patients received various interventional pain treatments. These treatments included RFT (60.8%), caudal epidural injection (50%), cervical epidural injection (6.7%), ozone therapy (12.9%), laser treatment (2.4%), TENS (2.2%), ganglion impar block (0.6%), Gasserian ganglion block (0.4%), and intra-articular injection (3.6%). It was observed that interventional pain treatments were more frequently applied to females (49.2% versus 55.8%) ($p<0.05$) (Table 7).

Discussion

The inadequate treatment of patients with acute and chronic pain is a widespread issue globally. As life expectancy increases, so does the prevalence of chronic pain and cancer-related pain, necessitating specialized care for pain management to ensure patients' comfort and quality of life. Pain clinics, such as algology polyclinic, play a crucial role in providing multidisciplinary care to patients suffering from pain.

The primary aim of this study is to examine the records of patients who visited algology polyclinic for the first time between January 2022 and December 2022 due to pain, identify the services we provide, evaluate their efficiency, and further improve these services. The secondary aim of this study is to compare the sociodemographic characteristics and pain conditions of patient population with other pain studies conducted worldwide, highlighting similarities and differences. For this purpose, a total of 2001 patients, 756 (37.8%) male and 1245 (62.2%) female, who visited algology polylinic for the first time due to pain were examined. Similar to previous studies, it was observed that the number of female patients visiting algology polyclinic was higher [10]. This can be attributed to women's tendency to report pain and seek help for their health, their ability to express pain more easily, and men's reluctance to describe their pain.

The average age of the patients was 52.71 years, and it was observed that pain complaints increased proportionally with age, consistent with the literature. This is thought to be due to the increase in musculoskeletal system deformities, comorbid diseases, and exposure to harmful stimuli or injuries that can trigger pain with age [11,12].

Obesity, a risk factor for musculoskeletal disorders, increases the mechanical load on the musculoskeletal system due to excessive body weight, leading to degeneration and systemic inflammation, which triggers nociception. It has been shown that morbidly obese individuals have lower pain thresholds and higher pain scores [13,14]. In this study, 47% of the patients were overweight and 24.7% were obese, and it was observed that obesity was more common in patients visiting algology polylinic than in the normal population.

Higher education levels have been shown to reduce the prevalence of pain, with those having primary education or below experiencing pain 1.87 times more. However, no relationship was found between income level and chronic pain [15]. A study conducted in Turkey reported that the frequency of pain was 65.1% among those who were illiterate and 55.5% among university graduates, a statistically significant difference [16]. It was concluded that individuals with lower education levels typically work in physically demanding jobs and, due to lack of education and awareness, engage in incorrect postural positions and movements that trigger pain, increasing pain severity. Additionally, nutritional deficiencies and uncomfortable living conditions (such as non-orthopedic beds and shoes) are other factors that can affect pain frequency [17]. In this study, consistent with the literature, it was found that the majority of the patients visiting the polyclinic (57.2%) had primary education or below, and the education level was lower among women.

During the Coronavirus (COVID-19) pandemic in 2020, pain was one of the clinical symptoms. COVID-19 patients frequently experienced muscle pain (myalgia), headaches, sore throats, and chest pain [18]. Additionally, during this period, there were disruptions in the treatment of patients with chronic pain due to the pandemic [19]. An increase

Table 5. Comparison of pain-related characteristics of patients according to gender.

		Male		Female		p
		N	(%)	N	(%)	
Pain characteristic	Acute	205	27.1[a]	236	19.0[b]	**<0.001***
	Subacute	119	15.7	203	16.3	
	Chronic	432	57.1[a]	806	64.7[b]	
Frequency of pain	Permanent	503	66.5	834	67.0	0.126*
	1-2 times per day	57	7.5	72	5.8	
	Multiple times per day	189	25.0	314	25.2	
	Many times per week	7	0.9	25	2.0	
Nature of pain	Throbbing, electric/lightning flashes	106	14.0	168	13.5	0.371*
	Stinging, pinching, pity	579	76.6	981	78.8	
	Sharp, blunt	71	9.4	96	7.7	
Duration of pain (months) (Min-Max)		34.54±56.24 (0.25-390.00)		42.61±60.69 (0.25-390.00)		**<0.001****
VAS score (Min-Max)		6.60±.76 (2.00-9.00)		6.66±.69 (5.00-9.00)		0.076**

*Square analysis, **Mann Whitney U test was applied. [a,b]Group from which the difference originated.

Table 6. Comparison of pain types of patients according to gender.

	Male		Female		p*
	N	(%)	N	(%)	
Low back pain (hip-sacroiliac)	500	66.1	817	65.6	0.814
Neck pain	91	12.0	288	23.1	**<0.001**
Knee pain	33	4.4	99	8.0	**0.002**
Coccyodynia	3	0.4	14	1.1	0.086
Trigeminal neuralgia	11	1.5	8	0.6	0.069
Zona zoster	25	3.3	36	2.9	0.600
Myofascial-fibromyalgia	0	0.0	10	0.8	**0.017**
Neuropathic pain	3	0.4	2	0.2	0.373
Cancer pain	62	8.2	42	3.4	**<0.001**
Others	95	12.6	141	11.3	0.404

* Chi-square analysis was applied.

Table 7. Comparison of the patients according to gender in terms of the treatments applied in our clinic.

		Male		Female		p*
		N	(%)	N	(%)	
Medical treatment	Nonsteroid	21	2.8	37	3.0	0.013*
	Weak opioid	710	93.9	1191	95.7	
	Strong opioid	25	3.3[a]	17	1.4[b]	
Interventional pain management		372	49.2	695	55.8	0.004
RF		195	52.4	454	65.3	<0.001
Caudal epidural injection		248	66.7	286	41.2	<0.001
Cervical epidural injection		23	6.2	48	6.9	0.651
Ozone therapy		35	9.4	103	14.8	0.012
Laser treatment		4	1.1	22	3.2	0.035
TENS		4	1.1	20	2.9	0.058
Ganglion impar block		3	0.8	3	0.4	0.435
Gasser ganglion block		2	0.5	2	0.3	0.614
Intra-articular injection		8	2.2	30	4.3	0.069
Others		3	0.8	4	0.6	0.700

* Chi-square analysis was applied. [a,b]Group where the difference originated.

in the incidence of musculoskeletal pain is expected due to the development of new-onset chronic pain or the exacerbation of pre-existing pain following the COVID-19 pandemic [20]. In this study, 37.9% of the patients reported that their pain worsened after a COVID-19 infection.

Although nicotine dependence has been shown to reduce pain in the short term, long-term smoking has been shown to play a role in the onset and progression of many chronic painful conditions [21]. In this study, it was found that 33.4% of the patients were smokers, with a higher prevalence among men. The higher smoking rate compared to the general population indicates, in line with the literature, that smoking is more common among patients with pain.

Epidemiological studies have shown that chronic pain is a significant public health issue. Prevalence studies conducted in different countries have not reached a consensus on the frequency of pain, and it has been observed that the rate of pain in a community is influenced by its cultural structure, education level, level of development, and social structure [22]. The rate of patients visiting clinic due to chronic pain was 61.9%. As the definition of chronic pain and treatment options evolve, the rate of patients with chronic pain visiting algology polylinics has increased. While the rate of visits to algology polylinics for cancer pain was 95%, this rate has increased in favor of non-cancer pain in recent years. Indeed, in this study, the rate of patients visiting the algology polylinic for cancer pain was found to be 5.2%. The decrease in the rate of cancer patients can be considered normal due to the increased awareness of algology polylinics over time and the direct referral of patients with non-cancer pain complaints to algology. Among the non-cancer pain causes, low back pain and headaches are quite common [23]. A study conducted in our country by Kuru et al. reported that the most common pain complaints were shoulder, back, neck, and knee pain, respectively [24]. Erdine et al. reported the most common pain areas as head, back, and lower extremities, respectively [16]. Consistent with the literature, most of the patients visiting our polylinic had low back and neck pain (65.8% and 18.9%, respectively). Additionally, it was observed that neck pain, knee pain, and myofascial-fibromyalgia pain were more common in women, while cancer pain was more common in men.

Patients with chronic pain have been reported to have high rates of physical and mental health comorbidities, leading to worse health outcomes and a greater burden, and these comorbidities (e.g., DM, arthritis, cardiovascular diseases) are associated with chronic pain [25]. It was found that 69.8% of the patients in this study had at least one comorbidity, and comorbidity was more common in women. In the general population, it was found that both the prevalence of pain and comorbidity were higher in women. The high rate of comorbidity in this study may be due to the higher proportion of women and the advanced age of the patients. Pain has been identified in many studies as the most common reason people visit a doctor [26]. In this study, when the treatments patients received before visiting our clinic were questioned, it was found that a large majority (99%) had used painkillers prescribed by other clinics or chosen by the patients themselves. Both this study and similar studies show that patients seek different treatment methods for a pain-free, comfortable daily life and will continue to seek pain treatment as long as their pain is not adequately treated. It was found that 58.7% of the patients in this study self-referred to our polylinic. This shows that our algology polyclinic has high awareness in our province and surrounding areas.

Pain is important because it disrupts the patient's quality of life and affects the patient's independence. Therefore, pain management should include methods that reduce pain perception and improve the patient's functions [27]. It was found that the majority of the patients visiting our polyclinic had chronic musculoskeletal pain that limited their daily activities and were making efforts to treat this pain. A treatment strategy was planned and implemented for the patients in line with the WHO recommendations, according to the cause and severity of the pain, following the step principle. In this study, it was observed that pharmacological treatment was given to all patients, and interventional pain treatment was applied to 53.3% of them. In medical treatment, weak opioid drugs (second-step analgesic treatment) were most commonly preferred, and 60.8% of the patients received RF, 50% caudal epidural injection, 6.7% cervical epidural injection, 12.9% ozone therapy, 2.4% laser treatment, 2.2% TENS, 0.6% ganglion impar blockade, 0.4% gasserian ganglion blockade, 3.6% intra-articular injection, and 0.7% other interventional pain treatments. It was found that more interventional pain treatment applications were performed in females.

This study has several limitations. First, our sample size is relatively small, which may limit the generalizability of the results. Second, the data were collected using self-report methods, which can introduce bias based on participants' subjective perceptions. Additionally, since this study employs a cross-sectional design, it was not possible to establish causal relationships. Being aware of these limitations, it is recommended that future studies use larger and more diverse samples and employ longitudinal designs

Conclusion

In conclusion, the increasing number of pain clinics and the results obtained from multidisciplinary approaches to pain treatment are promising for pain management and improving patients' quality of life. In this study, we aimed to identify the services we provide, outline the treatments applied, and determine the sociodemographic characteristics and pain conditions of the patient population visiting our pain clinic. From this analysis, we found that patients visiting our clinic with pain complaints were predominantly female and mostly had non-cancer-related pain. It was observed that weak opioids were primarily preferred in treatment. We found that with the medical treatment and interventional pain therapy applied in our clinic, patients' pain levels were reduced to more acceptable levels.

We encountered a few studies similar to this study, and we believe that new studies will further enhance the success of pain management.

Ethical approval

Fırat University Ethics Committee approval was obtained. No: 2022/15-29.

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