Original Article

Epidemiological data on pain complaints in emergency orthopedic care

Dados epidemiológicos sobre queixas de dor em atendimento ortopédico de urgência e emergência

Márcio Fin[1], André Wan Wen Tsai[2], Ibrahim Afrânio Willi Liu[3]

1. Clínica DORTO, Sete Lagoas, MG, Brazil

2. Departamento de Ortopedia e Traumatologia do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo (HCFMUSP), São Paulo, SP, Brazil

3. Clínica de Dor do Hospital das Clínicas da Universidade Federal de Minas Gerais (HC-UFMG), Belo Horizonte, MG, Brazil

Abstract

Objective: To evaluate the pain profile in patients treated at an emergency orthopedic care unit in a private hospital. **Methods:** This study included adult patients who were seen at the emergency orthopedic care unit. Only patients during their first visit were included. Follow-up visits and patients under 18 years old were excluded from the sample. **Results:** A total of 138 medical records were consecutively evaluated at the emergency orthopedic care unit. The average age was 48.7 years, ranging from 18 to 98 years old, with 58.5% being female. The average pain score (VAS) was 6.2, with 5.9 for males and 6.4 for females. The most common anatomical site was the spine (27%), followed by the shoulder (16%). Half of the patients reported trauma-related complaints, with 52.2% of these being male. There was a 71.7% prevalence of disability due to painful conditions among patients. Only 71% of the patients reported acute symptoms. **Conclusion:** One reason for overcrowding in emergency care could be poor outpatient pain management, leading to exacerbation of chronic conditions. Only half of the emergency orthopedic cases were trauma-related, and nearly one-third of the visits were due to chronic pain.

Keywords: Pain; Medical care; Adult; Epidemiology.

Resumo

Objetivo: Avaliação do perfil da dor em pacientes atendidos em pronto atendimento ortopédico em hospital da rede privada. **Métodos:** Foram alocados nesse estudo, pacientes adultos atendidos na unidade de pronto atendimento ortopédico. Somente pacientes em primeiro atendimento foram incluídos. Retornos de controle e pacientes com menos de 18 anos foram excluídos da amostra. **Resultados:** foram avaliados 138 prontuários consecutivamente no pronto atendimento ortopédico. A idade média foi de 48,7 anos, variando de 18 a 98 anos, com 58,5% do sexo feminino. A média da intensidade de dor na escala visual analógica foi de 6,2, sendo 5,9 para sexo masculino e 6,4 para o feminino. O sítio anatômico mais encontrado foi queixa de dor em coluna (27%) seguido do ombro (16%). Metade dos pacientes tinha queixa de trauma, sendo 52,2% desses do sexo masculino. Houve uma prevalência de 71,7% de incapacidade devido a situação dolorosa dos pacientes. Somente 71% dos pacientes relaram sintomas agudos. **Conclusão:** Um dos motivos de superlotação em pronto atendimento pode ser o mau controle da dor a nível ambulatorial, levando a agudizações de condições crônicas. Somente metade dos atendimentos ortopédicos em urgência tem caráter traumático e quase um terço dos atendimentos são por motivos de dor crônica.

Palavras-chave: Dor; Atendimento médico; Adulto; Epidemiologia.

Study performed at the Clínica DORTO, Sete Lagoas, MG, Brazil.
Correspondence: Márcio Fin. Rua Cândido Azeredo 21/404, 35700-019, Sete Lagoas, MG, Brazil.
Email: fim.marcio@gmail.com.
Conflict of Interest: None.
Source of funding: None.
Received: November 5, 2024.
Accepted: January 06, 2025.

Citation: Fin M, Tsai AWW, Liu IAW. Epidemiological data on pain complaints in emergency orthopedic care. J Braz Musculoskelet Pain Soc. 2025;1(1):e1

Introduction

The International Association for the Study of Pain (IASP) defines pain as an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage[1].

According to IASP data, pain management is inadequate in most parts of the world. Several reasons contribute to this fact[2]:

- Ineffectiveness in addressing acute pain;
- Failure to recognize chronic pain;
- Healthcare professionals unprepared for identifying mechanisms and managing pain;
- Weak public health policies for addressing pain;
- Lack of formal recognition of the pain clinic field; and
- Ineffective pharmacological treatment based on the fears and beliefs of professionals and patients.

Almost all adults experience one or more episodes of musculoskeletal pain (MSKP), brief as they may be, associated with trauma or overload. The prevalence rates of MSKP vary widely across studies due to the population or methodology applied. However, rates range from 2% for fibromyalgia incidence in the population to high rates of low back pain affecting 30-40% of individuals[3].

"Pain as a symptom" is among the main complaints of patients seeking emergency care[4], resulting from acute or chronic conditions or acute exacerbations of chronic conditions[5].

Acute pain serves as a defense mechanism of the body against aggression from the environment[6]. Investigation, treatment, and control of pain is the responsibility of the healthcare team and a right of the patient, which is often not respected[2]. Failure to treat, or inadequate treatment, can delay recovery, lead to complications, and cause delays in returning to daily functions or chronicity, resulting in harm to the patient's quality of life and significant social and financial burdens[7,8].

This text presents the epidemiology of pain in individuals treated in an orthopedic emergency unit, evaluating intensity, gender, location, and its impact on daily activities.

Methods

Data collection was carried out in the medical records department of an orthopedic emergency unit of a tertiary hospital, catering to patients with health insurance.

A descriptive, cross-sectional, and observational study was conducted. The selection criteria included adult patients in orthopedic care in the emergency unit. Patients over 18 years old attending this sector during the period, who were there for follow-up visits for trauma and examinations, removal of immobilizations, or children and adolescents, were excluded.

Demographic data, pre-existing comorbidities, symptom duration, pain intensity using the visual analog scale (VAS)[9], impact of the current pain on the patient's daily life, location of the complaint, and prior treatments for the symptom under evaluation were assessed. Pain intensity was subdivided according to the World Health Organization analgesic scale: (0) no pain, (1-3) mild pain, (4-6) moderate pain, and (7-10) severe pain[10]. Regarding the duration of the main complaint, a period of 3 months was used to distinguish acute from chronic episodes of pain under evaluation.

The data was entered into a Microsoft Excel® spreadsheet, followed by statistical and descriptive analysis of the findings.

Results

During the period, 138 patients were identified for the study, with 56.5% being women. The average age of the group was 48.7 years old. Fifty percent of the cases had complaints of traumatic origin. Regarding the previous medical history (PMH), 42% were undergoing some chronic treatment besides the main complaint on the day of medical evaluation (Table 1).

Table 1. Demographic data

Gender	**N**
M	60 (43.5%)
F	78 (56.5%)
Average age (y)	
M	46.1
F	50.8
Time (acute < 3 months)	**N**
CHRONIC	40 (29%)
ACUTE	98 (71%)
Trauma	**N**
YES	69 (50%)
NO	69 (50%)
PMH	**N**
YES	58 (42%)
NO	80 (58%)

F, female; M, male; (y), years; N, number of individuals.

The average pain intensity was 6.2 on the VAS. Considering the groups, the average VAS for females was 6.4 and for males was 5.9. Regarding symptom duration, the average VAS was 5.8 for chronic cases versus 6.3 for acute cases (Graph 1). When evaluated by gender compared to duration, higher scores were identified in females, both in acute and chronic cases (Graph 2).

Regarding the impact of patients' symptoms on their activities of daily living (ADLs), 71.7% reported that pain affected their daily routines, in both basic and/or work activities. Stratification by gender showed no difference in the incidence of routine limitations (Table 2). Considering the duration of symptoms, a clear relationship was identified between acute events and ADL limitations (Table 3). In 77.6% of acute cases, there were functional limitations versus 57.5% of chronic complaints.

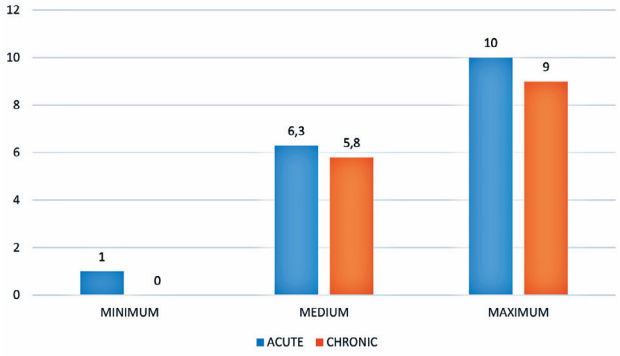
Another analysis conducted was of the affected anatomical site. The spine alone accounted for 27% of cases, followed by the shoulder with 16%, feet 12%, and ankle 11%. The remaining 44% were spread across other sites (Graph 3).

When evaluating pain intensity by symptom severity, 52.9% of patients experienced moderate pain, and 33.3% severe pain (Graph 4). Among chronic cases, 60% had moderate pain, and 22.5% severe pain. In acute cases, 50% reported moderate pain, and 37.8% had severe pain (Table 4).

Segregating by gender and evaluating the duration of symptoms, their general intensity, and temporal characteristics, 78.3% of male patients had acute pain symptoms, while this rate was 65.4% in females. Acute pain intensity was similar between genders, but in terms of chronic pain, intensity was higher in women (6.2) compared to men (4.8) (Table 5).

Table 2. Prevalence of Impairment in Activities of Daily Living

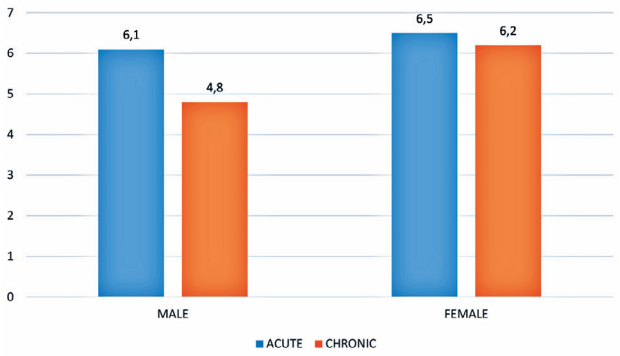
Poor ADLs	Total		Male		Female	
	N	%	N	%	N	%
Yes	99	71.7%	44	73.3%	55	70.5%
No	39	28.3%	16	26.7%	23	29.5%



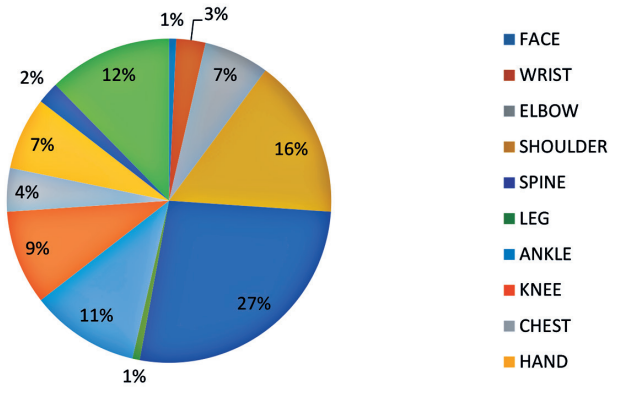
Graph 1. Distribution of pain intensity by chronicity.

Table 3. Symptom Duration and Limitations in Activities of Daily Living (ADLs)

ADLs	Chronic		Acute		Total
Yes	23	23.2%	76	76.8%	99
	57.5%		77.6%		71.7%
No	17	43,6%	22	56,4%	39
	42.5%		22.5%		28.3%
Total	40		98		138
	29.0%		71.0%		100,0%

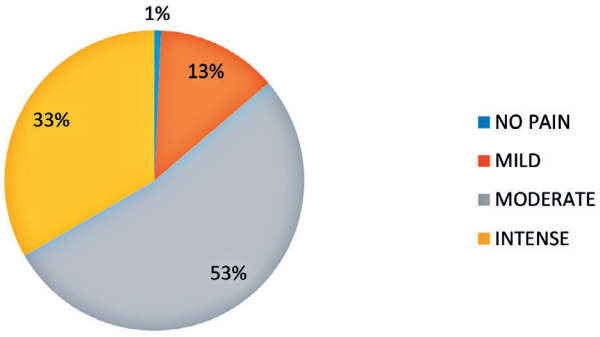


Graph 2. Pain intensity by gender vs chronicity.



Graph 3. Distribution of complaints by anatomical site.

In the analysis of the traumatic component of complaints, variations were seen by gender. Among cases of traumatic origin, 52.2% were male, while 65.2% of non-traumatic pain patients were female. Among male individuals, 60% reported initial trauma as the cause of pain, while only 42.3% of women had this complaint (Table 6).



Graph 4. Symptom severity stratification by who.

Table 4. Assessment of pain intensity using the VAS scale

	No pain		Mild		Moderate		Intense	
	N	%	N	%	N	%	N	%
Total	1	0.7%	18	13.0%	73	52.9%	46	33.3%
Chronic	0	0.0%	7	17.5%	24	60.0%	9	22.5%
Acute	1	1.0%	11	11.2%	49	50.0%	37	37.8%

Table 5. Relationship Between Gender, Symptom Duration, and Pain Intensity by VAS

	Total			Chronic			Acute		
	N	%	VAS	N	%	VAS	N	%	VAS
Male	60	43.5%	5.9	13	21.7%	4,8	47	78.3%	6.1
Female	78	56.5%	6.4	27	34.6%	6,2	51	65.4%	6.5

Table 6. Stratification of Traumatic Origin of Pain by Gender

Trauma	Total		Male		Female	
	N	%	N	%	N	%
Yes	69	50%	36	52.2%	33	47.8%
	50%		60%		42,3%	
No	69	50%	24	34.8%	45	65.2%
	50%		40%		57.7%	

Discussion

In this study, traumatic origin was more common in the male group (52.2%). This aligns with findings by Ibiapino[11], where 69.5% of patients with trauma-related pain were male.

Of the total patients, 56.5% were female. Bougle[12] found a 56% incidence of women seeking emergency care. Olivati[13] found 54.3% women in his study, corroborating the slight female predominance in this caseload. Also, 76.3% of patients did not have PMH. Our data showed 58%.

Population surveys indicated that in 2010, back pain was the second biggest health problem in Brazil, affecting 13.5% of the population, with hypertension at 14%. Another survey in 2013 showed 18.6%, and more recently in 2019, 21.9%, with women being predominant[14]. In this series, 27% of complaints involved the lumbar, thoracic, or cervical region, in line with the high prevalence of back pain in the population, bearing in mind the hospital sample may have biases.

Regarding the reported pain intensity, women had an index of 6.4 versus 5.9 in men. Miyazaki and Yamamoto[15] states higher intensity and prevalence of pain in men. Graven-Nielsen and Arendt-Nielsen[16] mentioned lower pain thresholds in women, especially related to greater sensitization during menstrual phases. Based on Couceiro et al.[17], women complain, report, and perceive more pain than men. Norbury et al.[18] concluded that women use medication and healthcare services more than men. This higher incidence of pain in females could be explained by the higher prevalence of conditions like fibromyalgia, irritable bowel syndrome, arthritis, and autoimmune diseases in this group[18-25].

The most prevalent pain sites recorded in the survey were, whether of traumatic origin or not, the spine (26.8%), shoulder (15.9%), and foot (12.3%). Patel et al.[26] evaluated pain presence in the last month in patients over 60, finding incidences in the spine (30.3%), knee (24.8%), and shoulder (19.9%).

Both acute and chronic pain are strongly associated with changes in patients' routines in both basic and work activities. In this article, 71% of patients reported some change in their basic or work routines due to pain. Andrew et al.[27] found in his study evaluating patients over 60, the presence of 69% changes in ADLs. According to Andrew, females made up 65.5% of the pain-affected group, compared to 54.2% in the control group.

Conclusion

Pain is among the primary reasons that lead people to seek urgent medical care. Best practices in pain management can help reduce the number of decompensations and/or relapses, improve patient quality of life, and decrease the demand for emergency services, easing the healthcare system's burden. Understanding this scenario and optimizing care, especially for acute pain, improves clinical outcomes, reduces the socioeconomic burden of pain, and aids in preventing chronic pain. An example is low back pain, which in 2020 affected 619 million people worldwide and was responsible for 10.5% of years lived with disabilities[28]. Screening protocols, treatment, and post-discharge control may help modify the burden of pain in emergency care units, reducing costs. Better epidemiological surveys by competent authorities are crucial for these statistics and intervention measures to yield effective results.

Authors' Contribution: MF: conceived and planned the activities that led to the study, wrote the paper, participated in the reviewing process, approved the final version; AWWT: interpreted the results of the study, participated in the reviewing process; IAWL: participated in the reviewing process, approved the final version.

References

1. Raja SN, Carr DB, Cohen M, Finnerup NB, Flor H, Gibson S, et al. The revised International Association for the Study of Pain definition of pain: concepts, challenges, and compromises. Pain. 2020;161(9):1976-82.
2. IASP - International Association for the Study of Pain. 2010 Annual Report. 2010. [Access: jun 24]. Available in: https://issuu.com/iasp/docs/2010annualreport
3. IASP - International Association for the Study of Pain. Global year against musculoskeletal pain. Epidemiology of Musculoskeletal Pain. October 2009 – october 2010. [Access: jun 24]. Available in: https://www.iasp-pain.org/wp-content/uploads/2022/10/Epidemiology_Final.pdf
4. Visentin M, Zanolin E, Trentin L, Sartori S, de Marco R. Prevalence and treatment of pain in adults admitted to Italian hospitals. Eur J Pain. 2005;9(1):61-7.
5. Marubayashi PM, Shimoda TY, Constantino E, et al. Avaliação da intensidade, tipo e localização da dor em pacientes que procuram o Pronto-Socorro de uma cidade de médio porte. Rev Dor. 2009;10(2):135-40.
6. International Association for study of pain (IASP). Consensus development conference statement: the integrated approach to the management of pain. J Accid Emerg Med. 1994; 6(3):491-92.
7. Freitas CC, Vieira PR, Torres GB, Pereira CRA. Avaliação da dor com o uso das escalas unidimensionais. Rev Dor. 2009;10(1):56-62.
8. Calil AM, Pimenta CAM. Gravidade da lesão e analgesia em pacientes que sofreram acidente de transporte. Acta Paul Enf. 2008;21(3):398-403
9. Huskisson EC. Measurement of pain. Lancet. 1974; 92(7889):1127-31.
10. Organización Mundial de la Salud. Alivio del dolor y tratamiento paliativo en cáncer. Informe de un Comité de Expertos. Ginebra: OMS. Serie de Informes Técnicos 804. 1990.
11. Ibiapino MK, Couto VBM, Sampaio VP, de Souza RAR, Padoin FA, Salomão IS. Serviço de atendimento móvel de urgência: epidemiologia do trauma no atendimento pré-hospitalar. Rev Fac Ciênc Méd Sorocaba. 2017;19(2):72-5.
12. Bougle APM. Caracterização da demanda do Pronto Socorro do Hospital das Clínicas da Faculdade de Medicina de Botucatu – UNESP [Monografia de Conclusão de Curso apresentada ao Curso de Graduação em Enfermagem]. Botucatu, SP: Faculdade de Medicina de Botucatu – UNESP; 2010.
13. Olivati FN, Brandão GAM, Vazquez FL, Paranhos LR, Pereira AC. Perfil da demanda de um pronto-socorro em um município do interior do estado de São Paulo. RFO UPF. 2010;15(3) 15:247-52.
14. Malta DC, Bernal RTI, Ribeiro EG, Ferreira EMR, Pinto RZ, Pereira CA. Dor crônica na coluna entre adultos brasileiros: dados da Pesquisa Nacional de Saúde 2019. Rev bras epidemiol [Internet]. 2022;25:e220032.
15. Miyazaki R, Yamamoto T. [Sex and/or gender differences in pain]. Masui. 2009;58(1):34-9.
16. Graven-Nielsen T, Arendt-Nielsen L. [Gender differences in response to pain]. Ugeskr Laeger. 2007;169(25):2425-7.
17. Couceiro TC, Valença MM, Lima LC, de Menezes TC, Raposo MC. [Prevalence and influence of gender, age, and type of surgery on postoperative pain]. Rev Bras Anestesiol. 2009;59(3):314-20.
18. Norbury TA, MacGregor AJ, Urwin J, Spector TD, McMahon SB. Heritability of responses to painful stimuli in women: a classical twin study. Brain. 2007;130(Pt 11):3041-9.
19. Kim H, Clark D, Dionne RA. Genetic contributions to clinical pain and analgesia: avoiding pitfalls in genetic research. J Pain. 2009;10(7):663-93.
20. Klein CJ, Wu Y, Kilfoyle DH, Sandroni P, Davis MD, Gavrilova RH, et al. InfrequentSCN9A mutations in congenital insensitivity to pain and erythromelalgia. J Neurol Neurosurg Psychiatry. 2013;84(4):386-9.
21. Leipold E, Liebmann L, Korenke GC, Heinrich T, Giesselmann S, Baets J. A de novo gain-of-function mutation in SCN11A causes loss of pain perception. Nat Genet. 2013;45(11):1399-404.
22. Zorina-Lichtenwalter K, Meloto CB, Khoury S, Diatchenko L. Genetic predictors of human chronic pain conditions. Neuroscience. 2016;338:36-62.

23. Smith MT, Muralidharan A. Pharmacogenetics. Pain: Clinical Updates 2010: XVIII:1–8.
24. Descalzi G, Ikegami D, Ushijima T, Nestler EJ, Zachariou V, Narita M. Epigenetic mechanisms of chronic pain. Trends Neurosci. 2015;38(4):237-46.
25. Schanberg LE, Anthony KK, Gil KM, Lefebvre JC, Kredich DW, Macharoni LM. Family pain history predicts child health status in children with chronic rheumatic disease. Pediatrics. 2001;108(3):E47.
26. Patel KV, Guralnik JM, Dansie EJ, Turk DC. Prevalence and Impact of Pain among Older Adults in the United States: Findings from the 2011 National Health and Aging Trends Study. Pain. 2013;154(12):10.1
27. Andrews JS, Cenzer IS, Yelin E, Covinsky KE. Pain as a Risk Factor for Disability or Death. J Am Geriatr Soc. 2013; 61(4):583–9.
28. GBD 2021 Low Back Pain Collaborators. Global, regional, and national burden of low back pain, 1990-2020, its attributable risk factors, and projections to 2050: a systematic analysis of the Global Burden of Disease Study 2021. Lancet Rheumatol. 2023;5(6):e316-e329.