Revista Médica del
Hospital General de México

PERMANYER

Check for updates

ORIGINAL ARTICLE

# Prevalence of chronic primary pain in pediatric patients. "Dr. Eduardo Liceaga" General Hospital of Mexico

*Claudia I. Gutiérrez-Román[1]* and María A. Flores-Muñoz[2]*

*[1]Department of Biological Chemical Sciences, Instituto Politécnico Nacional, Unit of Epidemiological Resesearch in Endocrinology and Nutrition, Hospital Infantil de México Federico Gómez; [2]Department of Pediatrics, Pain and Palliative Care Clinic, Hospital General de México "Dr. Eduardo Liceaga". Mexico City, Mexico*

## Abstract

**Objective:** *To ascertain the prevalence of chronic primary pain in pediatric patients treated at the "Dr. Eduardo Liceaga" General Hospital of Mexico (HGM) Pain Clinic.* **Materials and Method***: A retrospective, observational and cross-sectional study was conducted on the records of patients aged 2 to 17 years treated at the General Hospital of Mexico Pain Clinic from January 2014 to October 2019, who were classified as patients with chronic primary or secondary pain based on the international classification of diseases (ICD-11). Data was collected and analysed in Excel format with measures of central tendency and Chi Square for non-parametric data using Sigma Plot 14.0 software.* **Results:** *An analysis of 184 patients was conducted, 48.4% of which suffered from chronic primary pain (66.3% women and 33.7% men). Chronic head and neck pain is the most prevalent type of pain, affecting 62.9% of the patients, followed by musculoskeletal pain with 23.5%. The primary causes are: chronic migraine (47.2%), chronic tension headache (15.7%) and irritable bowel syndrome (15.7%). The most affected age group is adolescents.* **Conclusions:** *Pediatric patients register a prevalence of 48.4% for chronic primary pain, predominantly in adolescent women.*

***Keywords:*** *Chronic primary pain. ICD-11. Pediatrics. Prevalence.*

## Introduction

Pain is the most common sensation reported by both adult and paediatric patients. 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[1-4]. Pain has received different classifications focused on providing a description of it in accordance with the origin (nociceptive or neuropathic) and the temporality (acute and chronic) thereof. In 2019, the international classification of diseases (ICD-11) was updated, which, together with the IASP, included chronic primary pain[5-10]. Chronic primary pain has an obscure etiology and pathophysiology, and is defined as pain in one or more anatomical regions that persists or recurs for more than 3 months and is associated with significant emotional distress (for example, anxiety, anger, frustration and depression) and/or significant functional disability (interference in day-to-day activities and participation in social roles), and the symptoms thereof are not better explained by any other diagnosis[9].

The prevalence of pain in pediatric patients is 86%; up to 80.9% of hospitalised children suffer pain in the first 24 hours. Regarding chronic pain, a 2011 systematic

***Correspondence:**
Claudia I. Gutiérrez-Román
E-mail: claudiagtzr23@gmail.com

Date of reception: 28-09-2022
Date of acceptance: 23-01-2023
DOI: 10.24875/HGMX.22000062

Available online: 15-06-2023
Rev Med Hosp Gen Mex. 2023;86(2):53-57
www.hospitalgeneral.mx

review provided estimates of prevalence for headache (8% to 83%), abdominal pain (4% to 53%), and back pain (14% to 24%), all of which are now part of the classification of chronic primary pain[11-15]. The purpose of the ICD is to facilitate epidemiological reports, while being familiar with the prevalence of primary chronic primary pain in pediatric patients with chronic pain will enable us to view this type of pain as a pathology present in this age group.

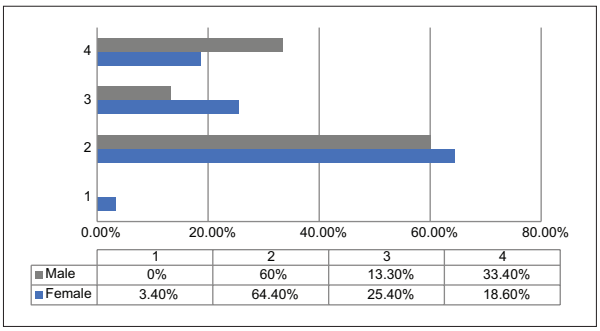
## Materials and method

A retrospective, observational and cross-sectional study was conducted on the records of patients of both sexes aged 2 to 17 years treated at the "Dr. Eduardo Liceaga" General Hospital of Mexico Pain Clinic from January 2014 to October 2019, to which an algological diagnosis was added based on ICD-11. The data was collected and analysed in Excel format with measures of central tendency and Chi Square for non-parametric data using Sigma Plot 14.0 software. The protocol was accepted by the hospital's research and bioethics committee under registration number DECS/JPO-CT-580-2020.

## Results

An analysis of 184 patients was conducted, 51.6% of which registered chronic secondary pain (48.4% female and 51.6% male). The remaining 48.4% registered chronic primary pain. The mean (M) age was 12.5 years, the median (Me) age 14 years and the mode (Mo) 17 years. It should be stressed that the results do not change significantly with respect to gender: women.

The prevalence was higher for head and neck pain (62.9%), followed by musculoskeletal pain (23.5%), visceral pain (21.2) and complex regional pain syndrome (2.2%); 14.6% of the patients registered pain in more than one region. The causes in order were chronic migraine (47.2%), followed by chronic tension headache and irritable bowel syndrome (15.7% each), limbs (11.2%), thoracic pain (6.7%), lower back pain (5.6%), abdominal pain (4.4%), type 1 complex regional pain syndrome (2.2%) and pelvic pain (1.1%). When conducting an analysis of prevalence by gender, we observed that visceral pain in women comes in second place, while in men it is musculoskeletal pain (Figure 1).




| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Male | 0% | 60% | 13.30% | 33.40% |
| Female | 3.40% | 64.40% | 25.40% | 18.60% |

**Figure 1.** Prevalence of chronic primary pain in pediatric patients by gender. We observed a graph with the prevalence of complex regional syndrome (1), chronic primary head and orofacial (2), visceral (3) and musculoskeletal pain (4), in female (blue) and male (grey) patients.

### *Head and neck pain*

Chronic head and neck pain seems to be focused on 2 items, chronic migraine (75%) and chronic tension headache (25%). In both men and women the prevalence is higher for chronic migraine (50% and 45.8% respectively). However, the ratio between women with respect to men is 1.8:1 and 3.6:1 respectively. The most affected population is adolescents with 69.6%: only 15% were schoolchildren and 5.4% preschoolers (Figure 2).

### *Chronic primary visceral pain*

Chronic primary visceral pain was the third cause of chronic primary pain; irritable bowel syndrome accounts for 73.7%, followed by abdominal pain with 21% and pelvic pain with 5.3%. Irritable bowel syndrome is more common in women with a relative risk of 3.6:1. However, there is almost no difference in prevalence by gender (73.3% x 75% for women and men respectively), while abdominal pain accounts for 26.7% in women and pelvic pain 25% in men. Once again, adolescents registered the highest prevalence (68.4%), followed by schoolchildren (26.3%) and preschoolers (5.3%).

### *Chronic primary musculoskeletal pain*

The most prevalent chronic primary musculoskeletal pain was limb pain (47.6%), followed by thoracic pain (28.6%) and lower back pain (23.8%). The same order was registered in female patients with 45.4%, 36.4% and 18.2% respectively (with a significant difference between

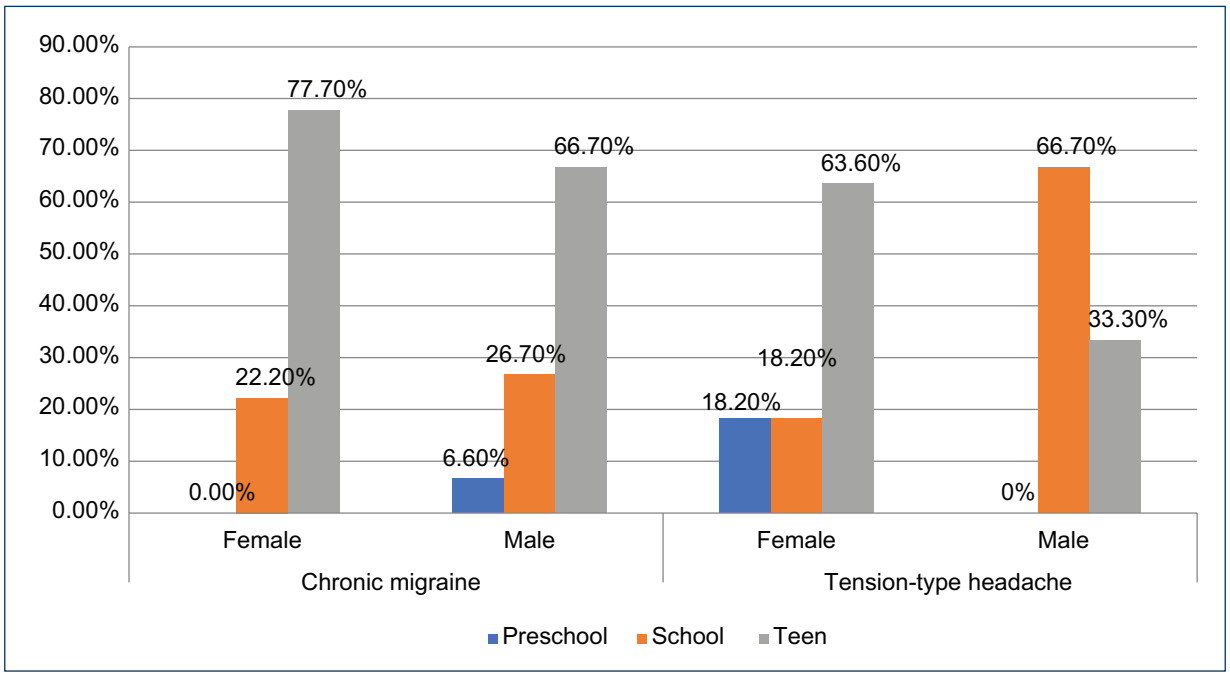



**Figure 2.** Prevalence of chronic migraine and chronic tension-type headache by gender and age in pediatric patients.

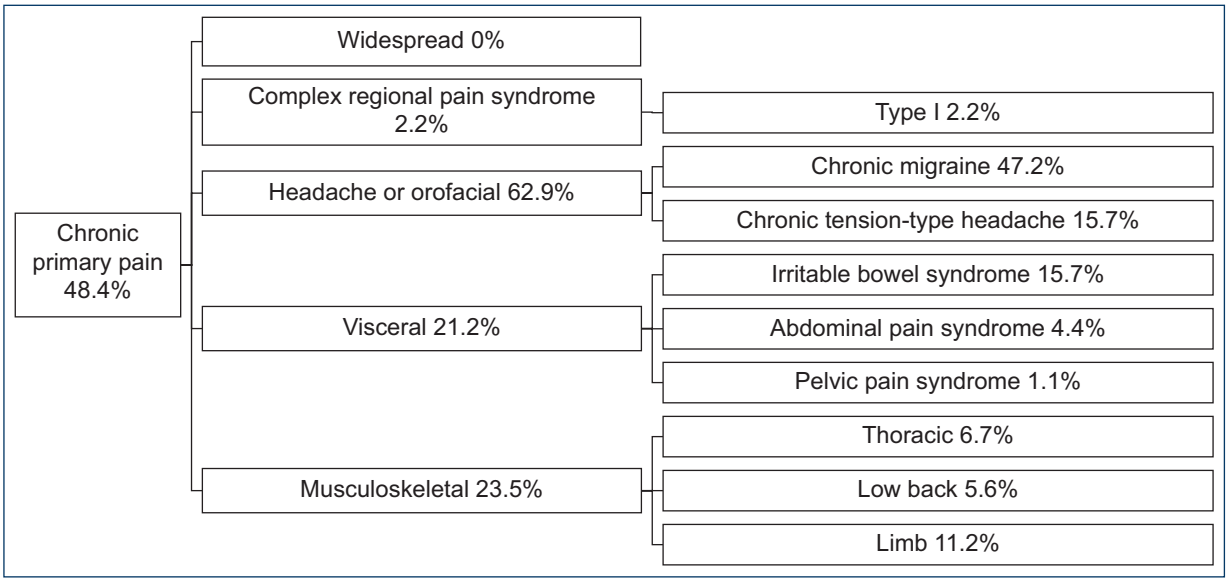



**Figure 3.** Prevalence of chronic primary pain in pediatric patients aged 2 to 17 years.

genders for the last two with a $p < 0.05$). First place among male patients continues to be limbs with 50%, with lower back pain (30%) in second place once again. Regarding prevalence by age range, we ascertained that 66.70% are adolescents, 23.80% schoolchildren, and 9.5% preschoolers. Analyses by gender and age showed that 81.3% and 50% respectively of the female and male population are adolescents, while these figures are 0% and 50% respectively for schoolchildren and 18.2% and 0% respectively for preschoolers ($p < 0.05$).

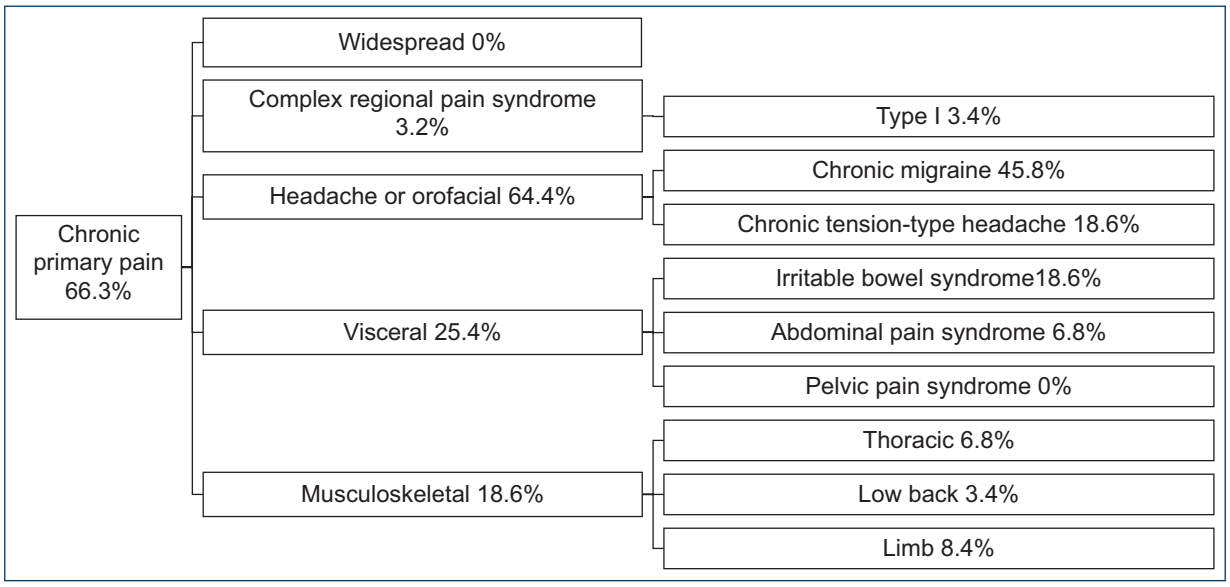



**Figure 4.** Prevalence of chronic primary pain in female pediatric patients aged 2 to 17 years.

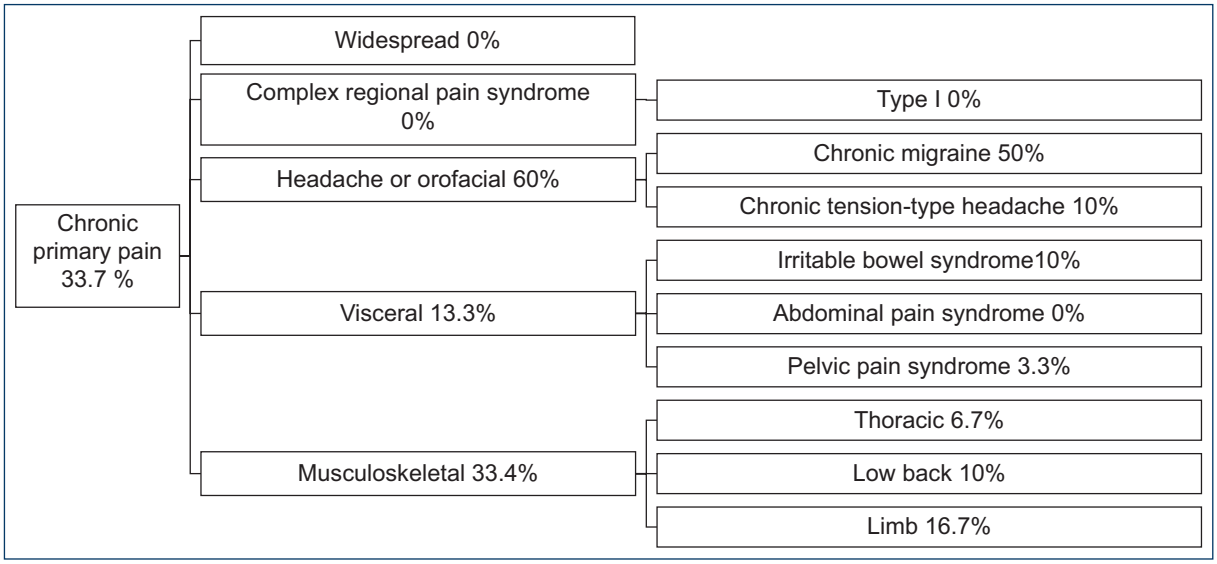



**Figure 5.** Prevalence of chronic primary pain in male pediatric patients aged 2 to 17 years.

### *Chronic primary pain in two or more sites*

14.6% (13 patients) of the general population experienced pain in more than 1 site, 11 (84.6%) of which were women and 2 were (15.4%) were men. Only 3 patients (23%) also suffered from chronic primary pain. The remaining 10 patients reported two sites of chronic primary pain (7 women and 2 men) and 1 woman only reported 3 sites of chronic primary pain sites. The most frequent combination was chronic tension headache and irritable bowel syndrome in 30% of the general population, in 37.5% of the women and 0% of the men.

## Discussion

Estimates of the prevalence of chronic pain in the pediatric population are reported to be 20% to 35%. In adult patients with chronic pain, it is usually of a

secondary origin, while in pediatric patients, the main causes of chronic primary pain include headaches and irritable bowel syndrome[16-17]. This study registered a prevalence of 48.4% for chronic primary pain, and coinciding with the previously reported bibliography a higher incidence of chronic pain was observed in women than in men (57% x 43%). However, when specifying secondary chronic pain the prevalence it is almost the same in both sexes (48.4% x 51.6%), while chronic primary pain is more prevalent in women (66.3%) (Figs. 3-5).

Chronic pain has multiple associated physical, psychological and social factors, and even today the IASP has taken the psychological environment into account for the diagnosis of chronic primary pain. Chronic pain in pediatric patients has been shown to be associated with higher rates of mental health disorders such as anxiety (21.1% x 12.4% of pain-free adolescents) and depressive disorders (24.5% x 14.1%)[17]. The data was consistent, where adolescents were the most affected and the main causes of pain were mood-related pathologies.

## Conclusions

The prevalence of chronic primary pain in pediatric patients is 48.4%, 66.3% of which are women and 33.7% men. The most affected age group is adolescents in both sexes.

## Acknowledgements

The authors would like to thank the Pain and Palliative Care Clinic at the “Dr. Eduardo Liceaga” General Hospital of Mexico for allowing us to conduct this project.

## Funding

The authors declare that there was no funding for this article.

## Conflicts of interest

The authors declare that they have no conflicts of interest.

## Ethical disclosures

**Protection of people and animals.** The authors declare that no experiments were carried out on humans or animals for this research.

**Data confidentiality.** The authors declare that no patient data appears in this article.

**Right to privacy and informed consent.** The authors declare that no patient data appears in this article.

## References

1. IASP. IASP Announces Revised Definition of Pain. 16 July 2020. Available at https://www.iasp-pain.org/PublicationsNews/NewsDetail.aspx?ItemNumber=10475&navItemNumber=643
2. Raffaeli W y Arnaudo E. Pain as a disease: an overview. J of Pain Res. 2017:10 2003–2008. https://doi.org/10.2147/JPR.S138864.
3. Nicholas M, Vlaeyen J, Rief W, Barkee A, Aziz Q, Benoliel R, et.al. The IASP classification of chronic pain for ICD-11: chronic primary pain. PAIN; 2019: 28 to 37. International Association for the Study of Pain http://dx.doi.org/10.1097/j.pain.0000000000001390.
4. American Society of Anesthesiologists. Practice Guidelines for Acute Pain Management in the Perioperative Setting. Anesthesiol 2012; 116:248–73.
5. Ellison D.L. Physiology of Pain. Crit Care Nurs Clin N. 2017:26;397–406 http://dx.doi.org/10.1016/j.cnc.2017.08.001.
6. Marchand S. The Physiology of Pain Mechanisms: From the Periphery to the Brain. Rheum Dis Clin N. 2008:34;285–309.
7. Dissanayake D W N y Dissanayake D M D. The physiology of pain: an update and review of clinical relevanc. J of the Cey Col of Phy, 2015:46; 19-23.
8. Świeboda P, Filip R, Prystupa A, Drozd M. Assessment of pain: types, mechanism and treatment. Ann Agric Environ Med. 2013;1: 2–7
9. Alcántara Montero A, Sánchez Carnerero CI, Goicoechea García C. Terapias emergentes en desarrollo clínico y nuevas aportaciones en dolor neuropático. Rev Esp Anestesiol Reanim. 2019;66:324-34.
10. Treede R.D, Rief W, Barke A, Aziz Q, Bennett MI, Benoliel R, et.al. A classification of chronic pain for ICD-11. Pain J. 2015; 156(6): 1003-1007. Doi: 10.1097/j.pain.0000000000000160
11. Kozlowski LJ, Kost-Byerly S, Colantuoni E, Thompson CB, Vasquenza KJ, Rothman SK, et.al. Pain prevalence, intensity, assessment and management in a hospitalized pediatric population. Pain Manag Nurs. 2014 Mar;15(1):22-35. doi: 10.1016/j.pmn.2012.04.003.
12. Mazhin S.A, Kiarsi M, Moosavi A, Maniey M, Zakeri O and Mohaddam AS. Investigating the frequency, prevalence and management of pain in children. J Adv Pharm Edu Res 2018;8(4):109-115
13. King S, Chambers CT, Huguet A, MacNevin RC, McGrath PJ, Parker L, et.al. The epidemiology of chronic pain in children and adolescents revisited: a systematic review. Pain. 2011 Dec;152(12):2729-38. doi: 10.1016/j.pain.2011.07.016
14. Baldridge S, Wallace L, Kadakia A. The epidemiology of outpatient pain treatment in pediatrics. J Pain Res. 2018 May 3;11:913-921. doi: 10.2147/JPR.S158520.
15. Pérez-Guerrero AC, Aragón M del C, Torres L. Dolor postopeatorio: ¿hacia dónde vamos? Rev la Soc Esp Dol. 2017;24(1):1–3: http://gestoreditorial.resed.es/DOI/PDF/ArticuloDOI_3566.pdf
16. Friedrichsdorf SJ, Giordano J, Desai Dakoji K, Warmuth A, Daughtry C, Schulz CA. Chronic Pain in Children and Adolescents: Diagnosis and Treatment of Primary Pain Disorders in Head, Abdomen, Muscles and Joints. Children (Basel). 2016;3(4):42. doi:10.3390/children3040042
17. Mills SEE, Nicolson KP, Smith BH. Chronic pain: a review of its epidemiology and associated factors in population-based studies. Br J Anaesth. 2019;123(2):e273-e283. doi:10.1016/j.bja.2019.03.023