DOI 10.11603/2411-1597.2026.2.16463
УДК 616-009.7:616-036.22

CHRONIC PAIN: CONTEMPORARY CONCEPTS AND EPIDEMIOLOGY

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Introduction. The lack of scientific understanding of the epidemiology of chronic pain has led to significant disparities in the allocation of healthcare resources, including a shortage of statistical data and epidemiological studies on chronic pain.

The aim of the study – to analyze contemporary concepts of chronic pain and to summarize current scientific data on its prevalence, epidemiological trends, and impact on quality of life and healthcare systems.

The main part. The study analysed current scientific publications and reports from web-cites and international organisations, in particular the World Health Organisation, available on the Internet. Epidemiological studies show that chronic pain is widespread worldwide: on average, around one in five people suffer from this condition. The findings of numerous studies indicate a substantial burden of pain in Europe and the United States. Earlier studies estimated the global prevalence of chronic pain to be approximately 20 %, suggesting that nearly 1.6 billion people worldwide are affected by this condition. Unfortunately, it is very difficult to estimate the economic losses in Ukraine at present, but it can be assumed that the scale is comparable to that observed in other European countries.

Conclusion. Chronic pain is a highly prevalent and multifactorial public health problem that significantly affects physical health, mental well-being, and quality of life. Epidemiological evidence highlights the growing burden of chronic pain worldwide and underscores the importance of comprehensive prevention and management strategies. Understanding the epidemiological patterns and determinants of chronic pain is essential for improving healthcare policies, optimizing clinical care, and reducing the social and economic consequences associated with chronic pain conditions.

Keywords: chronic pain; epidemiology; characteristics.

ХРОНІЧНИЙ БІЛЬ: СУЧАСНІ КОНЦЕПЦІЇ ТА ЕПІДЕМІОЛОГІЯ

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Вступ. Недостатнє наукове розуміння епідеміології хронічного болю призвело до значних диспропорцій у розподілі ресурсів охорони здоров'я, зокрема до нестачі статистичних даних та епідеміологічних досліджень щодо хронічного болю.

Мета роботи – провести аналіз сучасних концепцій хронічного болю та узагальнення актуальних наукових даних щодо його поширеності, епідеміологічних тенденцій і впливу на якість життя та системи охорони здоров'я.

Основна частина. У статті проаналізовано актуальні наукові публікації та звіти з веб-сайтів і міжнародних організацій, зокрема Всесвітньої організації охорони здоров'я, доступні в інтернеті. Епідеміологічні дослідження демонструють, що хронічний біль поширений у всьому світі: в середньому приблизно кожна п'ята людина страждає від цього стану. Результати численних досліджень вказують на значний тягар болю в Європі та США. Раніше проведені дослідження оцінювали глобальну поширеність хронічного болю приблизно у 20 %, що свідчить про наявність цього стану майже в 1,6 млрд людей у всьому світі. На жаль, на даний час дуже складно оцінити економічні втрати в Україні, але можна припустити, що їх масштаб порівнянний із тим, який спостерігають в інших європейських країнах.

Висновки. Хронічний біль – це досить поширена та багатофакторна проблема охорони здоров'я, яка суттєво впливає на фізичне здоров'я, психічне самопочуття та якість життя. Епідеміологічні дані свідчать про зростання тягаря хронічного болю в усьому світі та підкреслюють важливість комплексних стратегій профілактики і лікування. Розуміння епідеміологічних закономірностей та визначальних факторів хронічного болю є надзвичайно важливим для вдосконалення політики в галузі охорони здоров'я, оптимізації клінічної допомоги і зменшення соціальних та економічних наслідків, пов'язаних із хронічними больовими синдромами.

Ключові слова: хронічний біль; епідеміологія; характеристики.

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Introduction. Chronic pain is one of the most common causes of disability and a major contributor to the global burden of disease, leading to a significant deterioration in the quality of life of people worldwide and substantial direct and indirect societal costs [1–3]. Pain and pain-related conditions are a pressing issue in both developed and middle- and low-income countries, having a significant impact on individuals and national healthcare systems [4, 5]. This pathological condition affects millions of people and is accompanied by a significant increase in the need for medical care, emotional exhaustion, social maladjustment and a reduction in functional activity. For a long time, chronic pain was viewed primarily as a symptom of an underlying disease; however, the results of modern epidemiological and neurobiological studies have demonstrated the complexity of its pathogenesis and its independent clinical significance. In this regard, the International Association for the Study of Pain (IASP) and the World Health Organisation (WHO) have included chronic pain in the International Classification of Diseases, 11th Revision (ICD-11) as a separate nosological entity [6].

According to the IASP, chronic pain is defined as pain that lasts for more than three months and can significantly interfere with daily activities, including work, social interactions and self-care. Pain may present as acute or chronic, as well as continuous or intermittent; however, chronic pain (CP) persists over an extended period and represents a highly disabling condition that substantially affects both patients and their family members [7, 8]. This condition significantly interferes with everyday functioning and quality of life. Limitations in occupational performance, physical activity, and the ability to carry out basic activities of daily living (ADL) create a considerable personal burden [9]. The COVID-19 pandemic has led to a further increase in the prevalence of chronic pain due to lifestyle changes caused by remote working with poor ergonomics, chronic emotional stress and anxiety, depression, catastrophising of pain, social isolation, physical inactivity, weight gain caused by changes in eating habits, and other factors [10]. In addition, chronic pain negatively influences psychological and social well-being, contributing to increased healthcare utilisation and a substantial decline in overall quality of life [11, 12]. Chronic pain can be caused by a wide variety of factors, such as cancer, arthritis and rheumatic diseases [13]. The lack of scientific understanding of the epidemiology of chronic pain has led to significant disparities in the allocation of healthcare resources, including a shortage of statistical data and epidemiological studies on chronic pain [14].

The aim of this review article is to analyze contemporary concepts of chronic pain and to summarize current scientific data on its prevalence, epidemiological trends, and impact on quality of life and healthcare systems.

The main part. The study analysed current scientific publications and reports from web-cites and international organisations, in particular the World Health Organisation, available on the Internet. Epidemiological studies show that chronic pain is widespread worldwide: on average, around one in five people suffer from this condition [15, 16]. The findings of numerous studies indicate a substantial burden of pain in Europe and the United States [17, 18]. The Global Burden of Disease Study 2019 confirmed that low back pain and headache disorders remain among the ten leading causes of Disability-Adjusted Life Years (DALYs) across the age groups of 10–24, 25–49, and 50–74 years [19]. At the same time, the global population is rapidly aging, resulting in an increasing number of individuals living with two or more chronic conditions, which are associated with poorer quality of life and higher mortality rates [20]. Earlier studies estimated the global prevalence of chronic pain (CP) to be approximately 20%, suggesting that nearly 1.6 billion people worldwide are affected by this condition [21]. These findings correspond with data reported in the United States in 2022 [18] and are also consistent with results from a systematic review conducted in the United Kingdom. In the UK, the overall prevalence of chronic pain among the adult population was estimated at 43.5%, with a 95 % confidence interval ranging from 38.4 % to 48.6 % [22]. The European Pain Survey, which comprised 3,849 telephone surveys and 300 in-depth interviews, estimated the prevalence of chronic pain at 26 % [23]. The results of Fayaz et al. demonstrated considerable variability, with prevalence rates ranging from 13% to 50% depending on the methodology and characteristics of the included studies [22]. For certain subtypes of chronic pain, the prevalence rate can reach 47 % globally [24]. Although such variability is partly due to differences in definitions and methodological approaches to assessment, the high prevalence of chronic pain across different countries and regions is undeniable. For instance, in the United States of

America between 2019 and 2021, chronic pain was reported in 20.9 % of the adult population, amounting to approximately 51.6 million people [25]. At the same time, the results of a survey conducted in 2023 showed an increase in this figure to approximately 24.3 % [26]. In France, according to the results of a large-scale postal survey involving nearly 25,000 respondents, the prevalence of chronic pain was 31.7 % [27]. In Morocco, the results of a survey of 5,328 people showed that 21 % of participants (95 % CI: 19.9–22.2 %) reported experiencing chronic daily pain [28]. In Australia, 17.1 % of men and 20.0 % of women among 17,543 respondents reported chronic pain [29]. Meanwhile, in Japan, according to a study involving 6,000 adults, the prevalence of chronic pain was estimated at 39.3 % [30]. Furthermore, a meta-analysis incorporating data from 28 low- and middle-income countries revealed that 34% of the adult population suffered from chronic pain [31]. Similar inconsistencies have been observed in studies from other countries, where the reported prevalence of chronic pain varied according to the population studied and the diagnostic criteria applied for chronic pain assessment [32, 33]. This results in annual costs of €294–441 billion. Unfortunately, it is very difficult to estimate the economic losses in Ukraine at present, but it can be assumed that the scale is comparable to that observed in other European countries [34].

The global distribution of chronic pain is characterised by clear patterns. In particular, high-income countries with a rapidly ageing population typically report higher age-standardised prevalence rates for this condition. Data from the Global Burden of Disease (GBD) study show that the highest age-standardised prevalence of chronic pain is found in regions with a high socio-demographic index [35]. This may be linked to longer life expectancy and a significant proportion of older people in developed countries, which contributes to an increase in the incidence of chronic pain. Among the health problems most commonly affecting older adults, chronic pain occupies a prominent place. In Europe, approximately 19 % of the adult population experiences moderate to severe chronic pain, with Italy ranking among the countries with the highest prevalence [36]. Furthermore, increased life expectancy contributes to a growing population of individuals living with persistent chronic pain for prolonged periods. At the same time, in some developing countries, overall prevalence rates may be somewhat lower; however, the high proportion of manual labour and limited access to healthcare resources mean that chronic pain has a significant negative impact on public health and social development. Furthermore, the perception of pain and the frequency of reports of it are influenced by cultural characteristics and socio-economic conditions. For instance, a study conducted across 52 countries revealed significant cross-national differences in the prevalence of chronic pain, which may indicate the influence of social, economic and political factors on pain-related behavioural responses at the national level [37].

Although specific prevalence rates may vary across countries and regions due to demographic structures, cultural contexts and diagnostic criteria, the overall impact of chronic pain remains a critical global issue.

Conclusions. Chronic pain is a highly prevalent and multifactorial public health problem that significantly affects physical health, mental well-being, and quality of life. Epidemiological evidence highlights the growing burden of chronic pain worldwide and underscores the importance of comprehensive prevention and management strategies. Understanding the epidemiological patterns and determinants of chronic pain is essential for improving healthcare policies, optimizing clinical care, and reducing the social and economic consequences associated with chronic pain conditions.

Sources of funding. This article was funded by the author's own resources.

Author's contribution:

Svetlana Aynbinder – methodology, research, and writing; validation and visualization.

Mariya Marushchak – conceptualization; review and editing.

Conflict of interest. The authors declares no conflict of interest.

Information about the use of artificial intelligence. The authors declare that no generative artificial intelligence technologies were used in the development of this article.

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Received by the editorial office: 18.05.2026
Accepted after review: 20.05.2026
Submitted for printing: 25.05.2026