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Sociodemographic and Clinical Characteristics of Palestinian Patients with Chronic Pain: A Cross-Sectional Study from Al-Shifa Hospital, Gaza

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ABSTRACT

This cross-sectional study examined chronic pain, mental health, and pain catastrophizing among 272 Palestinian patients at Al-Shifa Hospital in Gaza. Participants (median age 43; 57.7% female) completed assessments using the depression, anxiety, and stress (DASS-21) and pain catastrophizing (PCS) scales. Most were married (78.7%), unemployed (50%), and lived on <1,974 ILS/month (94.1%). Lower limb pain (26.8% knee) predominated, with a median pain duration of 4 years. High rates of mental health symptoms were observed: depression (83.1%), anxiety (83.8%), and stress (88.6%), with 56.3% showing extremely severe anxiety. Pain catastrophizing correlated strongly with psychological distress. Findings highlight the need for integrated, trauma-informed pain management addressing both biomedical and psychosocial factors in conflict-affected populations. Future research should explore how sociopolitical stressors and catastrophic thinking interact to exacerbate pain experiences in humanitarian crises.

Introduction

Pain is defined as an "unpleasant sensory and emotional experience associated with actual or potential tissue damage"[1]. Chronic pain affects approximately 30% of the global population [2], with prevalence rates ranging from 10–30% among adults in Europe and impacting over 50 million Americans, often referred to as a "silent epidemic" [3,4]. In the Middle East, chronic pain affects 19% of the population in Al-Kharj, Saudi Arabia, and 20% in Libya [5,6]. Across low- to high-income nations, chronic pain remains a persistent public health challenge[7,8].

Chronic pain management requires a multimodal approach that integrates pharmaceutical and non-pharmaceutical interventions encompassing psychotherapy, physical rehabilitations and multidisciplinary care models[9]. International guidelines emphasize a holistic approach aiming to reduce pain severity, improve functional outcomes, and address the high burden of comorbid mental health symptoms among those patients[10]. However, in a resource-limited environment such as Gaza, chronic pain patients have a fundamental right to access pain medication[11], yet Gaza's healthcare system faces significant obstacles in delivering adequate chronic pain services. Issues include limited prioritization of chronic pain within the healthcare system, the absence of specialized pain clinics, fragmented care pathways, and barriers to accessing pharmacological and non-pharmacological treatment [12].

Gaza's population has endured sixteen years of conflict and siege with prolonged socioeconomic hardship, resulting in substantial strain on the healthcare system and limited availability of comprehensive medical services [13,14]. These harsh conditions lead to a severe shortage of critical medical supplies and reduced access to both pharmacological and non-pharmacological health

interventions. In addition, the social stigmas surrounding chronic conditions, including chronic pain, particularly affect vulnerable groups such as women and individuals in financial hardship, which only worsens their suffering [13,15-17]. Individuals living in these conditions may experience heightened vulnerability to physical and psychological distress, underscoring the importance of examining the clinical and mental health characteristics of patients with chronic pain receiving care in this context.

The prolonged conflict and repeated injuries have resulted in a substantial number of wounded people living with long-term physical limitations in Gaza, increasing the demands for ongoing medical and rehabilitative care [1819]. Despite this, the available data for describing the clinical characteristics of patients presenting with chronic pain and accompanying psychological symptoms in healthcare settings remains scarce. Some studies highlighted a significant knowledge gap and negative attitudes toward pain management among healthcare staff [20]. A gap in understanding the demographic, pain-related, and mental health profiles of patients with chronic pain receiving outpatient care. Understanding this gap through descriptive clinical data is an important first step toward informing future research and service planning in this setting.

This research aims to measure sociodemographic variables in a sample of chronic pain syndrome patients, including geographic distribution, education level, monthly income, and comorbidities, as well as pain-related characteristics such as pain anatomy and duration. A key strength of this study is its focus on the mental health aspects of chronic pain syndrome, including depression, anxiety, stress, and pain catastrophizing. Furthermore, the study advocates for the integration of mental health assessments in the care of these patients.

Subject and method

Study Participants

This cross-sectional study was conducted among patients with chronic pain syndrome attending the rheumatology, orthopedics, and neurology outpatient clinics at Al-Shifa Hospital, Gaza City, between September 3 and 18, 2022.

The minimum required sample size was calculated using G*Power software based on an F-family test (linear multiple regression) to detect a moderate effect size ($f^2 = 0.15$) in the depression subscale of the DASS-21. The sample size calculation was initially based on planned analytical objectives; however, the current study presents descriptive findings. The power level was set at 0.95 with a significance level of $\alpha < 0.05$, yielding a minimum required sample of 107 participants. Due to the absence of a centralized registry for chronic pain patients in Gaza, a consecutive non-probability sampling method was used. All patients visiting the targeted clinics during the study period who met the eligibility criteria were invited to participate. These clinics - rheumatology, neurology, and diabetic foot - are the primary points of care for individuals suffering from chronic pain in the region.

A total of 318 patients were approached for participation, out of which 299 agreed to take part and completed the questionnaires, resulting in a response rate of 93.7%. Nineteen patients declined, citing personal or time-related constraints. Following the application of predefined exclusion criteria, 27 participants were excluded (15 with a known history of psychiatric disorders, 9 with cancer-related pain, and 3 with gastrointestinal causes of pain), resulting in a final analytic sample of 272 patients.

Inclusion Criteria: Participants eligible for inclusion in the study were aged 18 years or older, had been diagnosed with chronic pain, defined as pain persisting longer than three months, and were able to understand and communicate in Arabic.

Exclusion Criteria: Individuals who were excluded from the study if they were under 18 years or had a diagnosis of cancer or cancer-related pain, gastrointestinal pain, or a primary psychiatric disorder such as major depressive disorder, anxiety disorders, bipolar disorder, or psychosis-whether documented in medical records or self-reported by the patient. Additional exclusion criteria included a diagnosis of autoimmune or systemic inflammatory diseases such as rheumatoid arthritis, systemic lupus erythematosus, or polymyositis to isolate pain mechanisms primarily related to non-inflammatory etiologies as well as cases where disc herniation was identified as the primary cause of pain, to minimize neuropathic/radicular pain mechanisms that may differentially affect pain perception and treatment responses compared to generalized musculoskeletal pain. Furthermore**,** individuals with cognitive impairments or dementia that interfered with their ability to participate in the survey were also excluded from the study.

Data Collection:

Trained research assistants conducted structured face-to-face interviews using validated Arabic versions of standardized instruments. Data collected included sociodemographic variables, pain-related characteristics (duration, intensity, site), medication use (prescription analgesics, NSAIDs, opioids, or self-medication), and mental health indicators (depression, anxiety, stress, and pain catastrophizing).

Participants were asked how they typically responded to chronic pain. Of the participants, 45.95% reported using painkillers as their primary coping mechanism, with non-steroidal anti-inflammatory drugs (NSAIDs) being the most commonly used category. Mental health history was screened through both self-report and medical records. Any participant with ongoing psychiatric treatment or a known past psychiatric diagnosis was excluded.

Ethical Approval and Consent:

This study was approved by the Palestinian Ministry of Health Research Ethics Committee (Approval No. 688733). Written informed consent was obtained from all participants prior to enrollment. Participants were provided with detailed information about the study's purpose, procedures, risks, and benefits, and were assured of confidentiality and voluntary participation. All methods were performed in accordance with the relevant guidelines and regulations, including the Declaration of Helsinki.

Instruments and study variables

Family Income:

Participant family income was categorized into five groups: 1) less than 1974 New Israeli Shekels (NIS), 2) 1974-2470 NIS, 3) 2471-2967 NIS, 4) 2968-3464 NIS, and 5) greater than 3465 NIS. This classification was used to capture the economic status of the households.

Working Status:

Participants self-reported their employment status, classified as: 1) full-time/part-time employment, 2) housewife duties, 3) unemployment due to pain, and 4) retired. This aimed to examine the impact of pain on participants' ability to work or engage in income-generating activities, and how it might influence their daily life and socioeconomic status.

Pain:

Pain intensity was measured using the Numerical Rating Scale (NRS) 0-10 scale, with a higher score indicating greater pain [21]. The Arabic NRS (NAPRS) was employed to ensure cultural and

linguistic appropriateness in the assessment [22]. Pain severity was categorized as 1-4 for mild pain, 5-6 for moderate pain, and 7-10 for severe pain [23].

Depression, Anxiety, and Stress-21 (DASS-21):

The depression, anxiety, and stress scale (DASS-21) was used to assess the psychological distress[24,25]. The cut-off values were: ≥10 for depression, ≥8 for anxiety, and ≥15 for stress [24]. The Cronbach's alpha value was 0.877, and individual subscales ranged from 0.743 to 0.762, further confirming the scale's reliability and consistency in this context [26].

Pain Catastrophizing (PCS):

The Pain Catastrophizing Scale (PCS) 13-item tool that is used to measure catastrophic thoughts and feelings related to pain. A total score ranging from 0 to 52. A score > 30 is considered clinically significant [27]. The PCS yields three subscales: rumination, magnification, and helplessness [28]. In this study, the Arabic version of the Pain Catastrophizing Scale (PCS-A) was used, demonstrating excellent internal consistency with a Cronbach's alpha of 0.86. The reliability for the individual subscales was also good: rumination ($\alpha = 0.646$), magnification ($\alpha = 0.709$), and helplessness ($\alpha = 0.783$) [26].

Statistical analysis:

Descriptive statistical tests were used to summarize the data, with the mean and standard deviation (SD) employed for parametric variables, while the medians and interquartile range (IQR) were used for non-parametric variables. Sociodemographic characteristics, pain intensity, depression, anxiety, stress, and pain catastrophizing scores were described. Statistical analyses were performed using SPSS (VERSION 26), with a significant threshold set at 0.05 for all tests.

Results

Baseline Characteristics of Study Participants:

Table 1 summarizes the sociodemographic characteristics of participants (n=272). Most patients were female (57.7%) with a median age of 43 (IQR 34-55) for the whole sample. The majority of participants (82.7%) resided in Gaza City, and 78.8% were married. About 50% of the participants were engaged in home duties. Approximately 34.9% had completed high school, and 94.1% had an income below the poverty line. Chronic pain was found to contribute to unemployment in 29.4% of the cases

Table 1. Sociodemographic characteristics of study participants (n = 272).

Presents demographic and socioeconomic details, including age, sex, marital status, education level, employment status, and household income.

Comorbidities:

As shown in **Figure 1,** among the participants, 27.2% had at least one comorbidity, with a median of 2 comorbidities (IQR 1-3). Over 51.8% of participants had osteoarthritis, and 54% had a spinal cord disorder. Around 20% of participants had diabetes-related chronic pain, with diabetic foot and neuropathy being the main causes. Further details on the nature and prevalence of comorbidities among our sample are illustrated in **Figure 1.**

Pain-Related Characteristics:

Table 2 summarizes the pain-related characteristics of participants. The median pain duration among the participants was four years (IQR 1.5 – 12 years). The majority of participants (82.4%) reported severe pain (7-10) over the last week. The most common site of pain was the lower limbs, particularly the knee joint (27.2%). Generalized pain was reported by 26.1% of the

participants. Additionally, 45.95% of the patients used painkillers as their primary coping mechanism for pain.

Table 2. Pain-related characteristics of study participants.
Includes duration, intensity, anatomical distribution of pain, and coping strategies, among Palestinian patients with chronic pain.

Pain related characteristics	Number	Percentage
Pain duration (years)		
≤ 10	202	74.3%
11-20	49	18%
21-30	13	4.8%
≥ 31	7	2.6%
Pain Anatomy		
Upper shoulders and upper limbs	25	9.2%
Lower limbs	74	26.8%
Lower back, lower spine, sacrum	46	16.9%
Face, mouth, head	11	4%
Lower back and lower limbs	45	16.5%
Generalized pain (≥2 pain sites	71	26.1%
Pain intensity		
Mild	16	5.9%
Moderate	32	11.8%
Severe	224	82.4%

Mental health measurements:

As shown in **Figure 2,** a significant proportion of participants exhibited symptoms of depression (83.1%), anxiety (83.8%), and stress (88.6%). Additionally, 67.6% (186 participants) scored 30 or higher on the Pain Catastrophizing Scale (PCS), indicating clinically relevant pain catastrophizing. Participants' median scores and interquartile ranges (IQR) were as follows: Numerical Rating Scale (NRS): 10 (8–10), DASS-21: 36 (26–45), and PCS: 39 (29–46). These results, along with their subscales, are illustrated in **Figure 2**. In terms of severity, 31.6% of participants demonstrated moderate depression, while 56.3% exhibited severe anxiety, and 45.2% showed severe stress symptom **Figure 3** presents the severity of depression, anxiety, and stress among our sample.

Discussion

This study provides a descriptive profile of patients with chronic pain attending outpatient services at Al-Shifa Hospital in Gaza. Most participants were living below the poverty line, and a substantial proportion reported unemployment, mirroring Gaza's broader economic collapse [29]. Females represented more than half of the sample, most participants were married, and fewer than half had completed high school. These findings describe the sociodemographic characteristics of individuals seeking care for chronic pain within this clinical setting.

Our findings expose an alarmingly high prevalence of mental health issues - specifically depression (83.1%), anxiety (83.8%), and stress (88.6%). This is strongly supported by a large body of literature that supports the co-occurrence of psychological distress among individuals with chronic pain[30-34]. While our findings support the well-established link between chronic pain and mental health globally, the prevalence of depression (83.1%) and anxiety (83.8%) in our sample far exceeds rates reported in a recent global meta-analysis of chronic pain individuals across 50 countries, which reported lower rates for depression and anxiety (39.3% and 40.2%, respectively)[35]. The high prevalence rates observed in this study may be influenced by contextual, methodological, and sampling factors, and should therefore be interpreted cautiously when compared to international estimates.

Our findings also exceed rates described in several regional studies from the Middle East. For example, depressive symptoms were documented among 71% of patients with chronic pain in Saudi-Arabia, while lower rates (25%) have been observed among the same population from Oman[36,37]. Similarly, Alamam et al. (2019) found that among patients with chronic lower back pain, there were 33% experienced depression, 47% anxiety, and 42.6% stress above the normal range. Notably, severe or extreme symptoms were also reported (depression: 13.9%, anxiety: 21.7%, stress: 19.2%)[38]. Although comparisons should be interpreted cautiously due to differences in populations and assessment methods, these findings suggest a substantial psychological symptom burden among chronic pain patients in this clinical setting.

Such a high prevalence is not unexpected in conflict zones like Gaza, where chronic pain patients face compounded distress due to pain and conflict stressors. The humanitarian crisis could drive high rates of psychological distress across the general population overall and particularly among Palestinians with chronic pain[39,40]. For instance, a population-based study conducted in Gaza revealed high rates of depression, anxiety, and post-traumatic stress symptoms in the general population[41-43]. While those studies were not conducted among chronic pain patients, they provide important contextual background for understanding the broader mental health environment in which patients in the current study are living.

A key finding of our study is the high prevalence of pain catastrophizing, with 67.6% scoring ≥30 on PCS, a pattern linked to greater pain severity, psychological distress, and disability[44,45]. Cognitive-behavioral theory conceptualizes catastrophizing as a maladaptive coping mechanism, especially in a chronically threatening environment[46,47]. In a conflict setting such as Gaza, constant uncertainty, limited access to healthcare intensify helplessness and pain rumination[48]. Here, chronic trauma exposure, poverty, which worsened by severe medical supply shortages, provide important contextual background for understanding the lived experiences of patients in

this sample[49]. However, further analytical studies are needed to examine the specific mechanisms linking pain catastrophizing, psychological distress, and contextual stressors in this population.

These findings can be interpreted within the biopsychosocial model of chronic pain, which emphasizes the dynamic interaction between biological, psychological, and social factors in shaping pain experiences. In this context, psychological distress and pain catastrophizing are not merely comorbidities but integral components that influence pain perception and disability. Furthermore, cognitive-behavioral theory suggests that maladaptive thought patterns, such as catastrophizing, may amplify pain perception and emotional distress. In a conflict-affected setting such as Gaza, chronic exposure to trauma, uncertainty, and socioeconomic hardship may intensify these cognitive and emotional responses, thereby exacerbating both pain and psychological burden[50].

Over time, this adversity transforms pain into existential suffering that reflects systematic trauma[51-53]. Nearly half of our study participants (45.95%) relied on NSAIDs- highlighting potential gaps in chronic pain management within this clinical setting. This pharmacologic dependence reflects a healthcare system working in a resource-limited environment that is overwhelmed by conflict, prioritizes acute emergencies over chronic care, and lacks pain specialists, rehabilitation service and mental health support[54]. Without multidisciplinary pain management services, patients may become trapped in medication dependence, risking side effects, inadequate pain relief, and diminished mental well-being[50]. Given these findings, there urgent need for trauma-informed, multidisciplinary pain management in Gaza. Interventions must extend beyond pharmacological treatment to address both physical and psychological suffering. Integrating cognitive-behavioral therapy (CBT), stress management techniques, and community-based psychosocial support is crucial in conflict-affected settings[50,55]. These interventions must be culturally sensitive and specifically tailored to the lived experiences of Palestinians under occupation. The current humanitarian crisis, exacerbated by the ongoing violence, makes such integrated care models more critical than ever.

This study has several limitations. The cross-sectional design limits interpretation to descriptive findings and does not allow causal or directional inferences. Consequently, non-probability sampling from a single hospital may introduce selection bias and restrict generalizability. Data were based largely on self-reported measures, including psychological scales and medication use, which may be subject to recall and response biases. Additionally, the absence of trauma-specific measures such as post-traumatic stress disorder (PTSD) limits a comprehensive understanding of psychological distress in this population, particularly in a conflict-affected setting. Future studies using longitudinal designs and broader clinical and psychosocial assessments are warranted.

Conclusion

This study provides important insights into the clinical and psychological profile of patients living with chronic pain in Gaza, a highly vulnerable and underrepresented population. The findings reveal an exceptionally high burden of psychological distress and pain catastrophizing, emphasizing the need for integrated, trauma-informed approaches to pain management in conflict-affected settings.Importantly, this study contributes to the literature by highlighting how chronic pain in humanitarian contexts is deeply intertwined with psychological and social

stressors, supporting a biopsychosocial understanding of pain beyond purely biomedical models. Future research should extend beyond descriptive designs to explore causal relationships between trauma exposure, psychological distress, and pain outcomes. Longitudinal studies, inclusion of trauma-specific measures such as post-traumatic stress disorder (PTSD), and evaluation of culturally adapted multidisciplinary interventions are essential to improve care for patients in similar settings.

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Declarations
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