ORIGINAL ARTICLE

Relationship of Quality of Life, Functional Disability, Kinesiophobia, Anxiety, and Depression with Pain in Patients with Chronic Low Back Pain Referred to the Emergency Department: A Cross-sectional Analytical Study

Mohammad Sazgar[1], Shiv Kumar Mudgal[2], Vipin Patidar[3], Mojtaba Forouzanfar[4], Zohreh Hosseini Marznaki[5], Fatemeh Hosseini Aghamalaki[6], Seyed Mohammad Hosseininejad[7*]

Received: 05 May 2026; *Accepted:* 10 June 2026

Abstract

Background: Chronic low back pain (CLBP) affects >619 million people worldwide, with an estimated 843 million by 2050. Emergency departments (EDs) concentrate more on acute symptom management, frequently overlooking other physical and psychosocial factors. This study examines the relationship of quality of life, functional disability, anxiety, kinesiophobia, and depression with pain in patients with CLBP referred to the ED.

Methods: This cross-sectional investigation took place at Imam Khomeini Teaching Hospital in Iran, enrolling 303 individuals diagnosed with CLBP. Pain, functional impairment, kinesiophobia, depression, anxiety, and quality of life were all evaluated using standardized measurement tools. Statistical analysis included Spearman's correlation and ordinal logistic regression using Statistical Package for the Social Sciences (SPSS) version 24.

Results: The severity of pain was strongly correlated with reduced quality of life ($r = -0.383$, $p < 0.001$), anxiety ($r = 0.780$, $p < 0.001$), depression ($r = 0.838$, $p < 0.001$), and functional impairment ($r = 0.612$, $p < 0.001$). Low educational attainment (OR = 60.9, 95% CI: 3.22–1150.85), low income (OR = 3.53, 95% CI: 1.04–11.93), and high depression (OR = 1.51, $p < 0.001$) were also significant predictors of severe pain among patients with CLBP.

Conclusion: The management of CLBP within EDs necessitates the implementation of interdisciplinary approaches that address psychosocial distress, health literacy, and socioeconomic disparities. The incorporation of mental health practitioners alongside socioeconomic interventions may effectively mitigate the chronicity of pain.

Keywords: Anxiety, Depression, Disability, Emergency department, Kinesiophobia, Low back pain, Quality of life.

Journal of The Association of Physicians of India (2026): 10.59556/japi.74.1630

Introduction

Chronic low back pain (CLBP) constitutes an important worldwide health issue, currently impacting approximately 619 million people globally.[1] Forecasts indicate that this figure will rise to 843 million by 2050, primarily driven by population aging and increased life expectancy.[2] This condition incurs annual economic costs exceeding $600 billion due to medical expenses.[3] CLBP is a major cause of disability globally, ranking among the 10 most common disorders in terms of years lived with disability. Its consequences extend beyond health, markedly decreasing productivity among employees, increasing absence from work, adversely affecting quality of life, and imposing a major financial burden on healthcare systems.[4]

The Global Burden of Disease study reported that CLBP is a leading cause of disability among noncommunicable diseases, with 90% of identified CLBP cases classified as nonspecific.[5–7] Emerging research underscores that functional impairment, psychological distress, and socioeconomic disparities interact in complex ways to shape pain severity and quality of life (QoL).[8,9] While acute episodes typically resolve within 6 weeks, 10–40% progress to chronicity, with psychological components such as depression and anxiety[10–12] playing a pivotal role in perpetuating pain.[13] Notably, the majority of patients with CLBP experience comorbid depression, which exacerbates functional disability and hinders adherence to treatment regimens.[14,15] Cognitive-behavioral frameworks, including the fear-avoidance model, posit that kinesiophobia is a debilitating fear of movement that triggers avoidance behaviors, physical deconditioning, and social withdrawal, thereby reinforcing a cycle of pain and disability.[16,17]

Globally, these patients account for a major portion of emergency department (ED) visits, making the assessment and management of their condition one of the most extensive services provided in emergency care settings.[18] With almost 4 million visits every year for back-related symptoms, the ED has become an increasingly common setting for people seeking treatment for CLBP.[19] In EDs, where acute CLBP exacerbations are commonly managed, care prioritizes immediate symptom relief over addressing physical or psychosocial contributors.[20,21]

Current management strategies frequently overlook essential factors such as kinesiophobia (fear of movement), anxiety, depression, and socioeconomic disparities, which collectively exacerbate pain severity and hinder recovery.[22] This study examines an important gap by thoroughly analyzing the relationship among functional impairment, quality of life, and psychological distress in ED-referred patients with CLBP. The present study integrates these

[1]Assistant Professor, Department of Emergency Medicine, Mazandaran University of Medical Sciences, Sari, Iran; Clinical Research Development Unit, Razi Qaimshahr Hospital, Mazandaran University of Medical Sciences, Sari, Iran; [2]Principal-cum-Professor, College of Nursing, Dr. Ram Manohar Lohia Institute of Medical Sciences (Dr. RMLIMS), Lucknow, Uttar Pradesh; [3]Tutor/Clinical Instructor, College of Nursing, All India Institute of Medical Sciences, Deoghar, Jharkhand, India; [4]Medical Student, Mazandaran University of Medical Sciences; [5]Clinical Instructor, Department of Nursing, Imam Ali Hospital at Amol City, Mazandaran University of Medical Sciences, Sari; [6]Assistant Professor, Department of Emergency Medicine, Yahya Nejad Hospital, Babol University of Medical Sciences, Babol; [7]Associated Professor, Department of Emergency Medicine, Gut and Liver Research Center, Mazandaran University of Medical Sciences, Sari, Iran; *Corresponding Author

How to cite this article: Sazgar M, Mudgal SK, Patidar V, *et al.* Relationship of Quality of Life, Functional Disability, Kinesiophobia, Anxiety, and Depression with Pain in Patients with Chronic Low Back Pain Referred to the Emergency Department: A Cross-sectional Analytical Study. J Assoc Physicians India 2026;74(9):e1–e7.

multifaceted determinants within a single analytical framework, particularly within Iran, a country mirroring global CLBP trends but with unique socioeconomic and cultural contexts. By identifying how these factors collectively influence pain intensity, the study pioneers actionable insights for tailored, interdisciplinary interventions aimed at breaking the cycle of chronicity and inequitable care, thereby offering a transformative approach to CLBP management in acute settings.

Materials and Methods

Study Design and Setting

This study investigated the experiences of patients with CLBP referred to the ED at Imam Khomeini Teaching Hospital in Sari (Mazandaran Province, Iran) between October 2023 and February 2024. The study followed a cross-sectional, descriptive design. The participants in this study were recruited by means of convenience sampling until the desired sample size had been achieved.

Population and Sample

Adults with CLBP who were at least 18 years old, clinically diagnosed, and under medical supervision for >12 weeks, who were referred to the ED, were included in the study. Exclusion criteria comprised serious physical conditions (e.g., bone malignancies), severe depression, a history of spinal injuries, prior surgical interventions for low back pain, or refusal to participate.

A previous study was used to determine the necessary sample size.[17] Using Cochran's formula with a 5% margin of error, the standard deviation was set at 4.23, and the desired precision was 3 units. Although the initial estimation yielded 252 participants, the final sample size was adjusted to 300 after accounting for an expected 20% attrition rate.

Data Collection Procedure and Instruments

The data collection procedure was carried out by the researcher in the ED of a selected teaching hospital. After receiving the ethical approval letter, written informed consent was obtained from every person who met the inclusion criteria before participating in a structured interview. A structured questionnaire was used to record demographic data such as age, gender, occupation, educational background, and clinical history (e.g., pain duration, previous interventions, etc.). The onset and nature of pain were self-reported by participants who attended their first appointment, and additional information was obtained from clinical records. Pain severity, functional disability, kinesiophobia, anxiety, depression, and QoL were then assessed using standardized, validated questionnaires.

Visual Analog Rating Scale

The Visual Analog Rating Scale (VAS) consists of 10 points representing the degree of discomfort experienced by a person, with 0 representing no discomfort and 10 representing the highest level of pain. The ratings are divided into three classifications: first, mild pain (1–3); second, moderate pain (4–6); and third, severe pain (7–9). The instrument has consistently demonstrated good validity and high reliability across both national and international studies.[21,22]

Quebec Back Pain Disability Scale

The Quebec Back Pain Disability Scale (QBPDS)[23] is a 20-item questionnaire developed to assess the degree of functional disability in people with CLBP. The total score (0–100) is determined by rating each question on a 6-point Likert scale, with 0 denoting no difficulty, 1 denoting mild difficulty, 2 denoting moderate difficulty, 3 denoting severe difficulty, 4 denoting very severe difficulty, and 5 denoting inability to perform the task because of CLBP. Higher scores reflect greater levels of disability and functional impairment. A higher score indicates more severe disability, whereas a lower score suggests less impairment in performing daily activities. The Persian version of the QBPDS has shown good internal consistency, demonstrating its reliability for evaluating functional disability in people with CLBP, with a Cronbach's alpha ranging from 0.7 to 0.8. This version has been validated for its psychometric properties and is considered suitable for both clinical and research settings. Mousavi et al. confirmed the validity and reliability of the QBPDS in various populations, ensuring its robustness as a trustworthy tool for measuring disability related to back pain.[24]

Tampa Scale of Kinesiophobia

Kinesiophobia was assessed using the short-form Tampa Scale of Kinesiophobia (TSK-17). The TSK is a well-established tool designed to measure fear of movement, specifically in individuals experiencing pain related to the musculoskeletal system. It is a 17-item questionnaire that reflects the belief that pain serves as a warning signal for potential reinjury caused by movement. The total score ranges from 17 to 68, with higher scores indicating greater fear of movement. Items are measured on a 4-point scale, with 1 denoting strongly disagree and 4 denoting strongly agree. A score of ≥37 is commonly used as the threshold to classify an individual as having kinesiophobia, signifying a higher level of fear associated with movement due to pain. The TSK-17 has shown excellent test-retest reliability, with correlation values between $r = 0.86$ and $r = 0.88$, ensuring its stability and consistency over time.[25]

Patient Health Questionnaire-9

The Patient Health Questionnaire-9 (PHQ-9) is a standardized measurement tool that has been validated and is widely used worldwide to assess the severity of depressive symptoms. It consists of nine questions that ask participants to report how often they have experienced each of the nine specified depressive symptoms during the previous 2 weeks.[26] Each question is rated on a 4-point scale from 0 (not at all) to 3 (nearly every day), with the total score ranging from 0 to 27. Based on the PHQ-9 score, depressive symptom severity is categorized as follows: (1) no or minimal depressive symptoms (0–4); (2) mild depressive symptoms (5–9); (3) moderate depressive symptoms (10–14); (4) moderately severe depression (15–19); and (5) severe depressive symptoms (20–27). Any score of 10 or greater is considered clinically significant, indicating that an individual is likely experiencing major depressive disorder. The Persian version of the PHQ-9 has been validated, demonstrating excellent psychometric properties, particularly in terms of internal consistency and construct validity, making it appropriate for research involving the Iranian population.[27,28]

Generalized Anxiety Disorder-7

The Generalized Anxiety Disorder-7 (GAD-7) is a scale widely used to screen individuals for anxiety disorders and assess the severity of anxiety symptoms. Similar to the PHQ-9, it is a 7-item tool that evaluates the frequency of anxiety symptoms during the previous 2 weeks. Each questionnaire item is scored using a 4-point scale (0 = not at all to 3 = nearly every day). The total GAD-7 score ranges from 0 to 21. The GAD-7 was originally developed with excellent psychometric properties, including a Cronbach's alpha of 0.92 and a 2-week test-retest reliability coefficient of 0.83, indicating high internal consistency and stability over time. Furthermore, it has demonstrated acceptable convergent validity, confirming its ability to measure anxiety in accordance with other established tools.[29] In the Iranian population, the Persian version of the GAD-7 has also been shown to be reliable and valid. The internal consistency in Iranian samples was reported with a Cronbach's alpha of 0.85, reflecting good reliability. In the current study, the GAD-7 also demonstrated satisfactory convergent validity, reinforcing its utility for research settings in Iran.[30]

Table 1: Sociodemographic and other clinical characteristics of participants with CLBP (*N* = 303)

Variables	*Categories*	*n (%)*
Age	<50	189 (62.4)
	50–60	51 (16.8)
	>60	63 (20.8)
	Mean ± SD	46.18 ± 15.92
BMI	<18.5	0 (0)
	18.5–25	112 (37)
	25–30	151 (49.8)
	>30	40 (13.2)
Gender	Female	155 (51.2)
	Male	148 (48.8)
Education level	Illiterate	21 (6.9)
	Under diploma	36 (11.9)
	Diploma	117 (38.6)
	University	129 (42.6)
Marital status	Single	90 (29.7)
	Married	159 (52.5)
	Divorced	30 (9.9)
	Widow	24 (7.9)
Occupation	Employee	73 (24.1)
	Worker	27 (8.9)
	Housewife	52 (17.2)
	Freelance job	117 (38.6)
	Retired	34 (11.2)
Residence	Urban	192 (63.4)
	Rural	111 (36.6)
Income status	Weak	115 (38)
	Medium	112 (37)
	Good	76 (25.1)
History of smoking	Yes	113 (37.3)
	No	190 (62.7)
Alcohol consumption	Yes	89 (29.4)
	No	214 (70.6)
Intensity of pain	Painless	96 (31.7)
	Moderate pain	146 (48.2)
	Severe pain	61 (20.1)
	Mean ± SD	5.455 ± 2.045

n, number of participants; SD, standard deviation

Table 2: Correlation between pain severity scores and other continuous variables in patients with CLBP (*N* = 303)

Variables	*Mean ± SD*	*Intensity of pain*	
		r	*p-value*
Age in years	46.18 ± 15.92	0.652	<0.001
BMI	26.37 ± 3.16	0.316	<0.001
Disability	22.50 ± 17.15	0.612	<0.001
Depression	11.49 ± 6.96	0.838	<0.001
GAD	11.37 ± 5.73	0.78	<0.001
Quality of life	26.71 ± 3.93	–0.383	<0.001
Kinesiophobia	40.69 ± 13.12	0.565	<0.001

r, correlation; SD, standard deviation

Quality of Life Questionnaire

The Short Form-12 Health Survey (SF-12v2) was used to assess health status. This tool is an abbreviated version of the Short Form-36 Health Survey (SF-36).[31,32] It was designed to capture essential health dimensions while minimizing respondent burden. The physical component summary (PCS) and mental component summary (MCS) allow individuals to obtain a single score representing their health based on all the questions answered as part of the SF-36 Health Survey. The individual subscales are scored on a scale ranging from 0 to 100, with higher scores indicating better health status. The Persian version of the SF-12 was used in this study and has demonstrated robust psychometric properties in previous research.[33,34]

Statistical Analysis

Statistical Package for the Social Sciences (SPSS) version 24 was used for data analysis. Clinical and demographic characteristics were summarized using descriptive statistics. Pain intensity was compared across all categories using nonparametric tests, such as the Mann–Whitney *U* test and the Kruskal–Wallis test. Spearman's correlation test was used to assess relationships between continuous variables. Ordinal logistic regression was conducted to identify independent predictors of pain intensity, with statistical significance established at $p < 0.05$. Missing data were managed using pairwise exclusion.

Results

Sociodemographic and Clinical Characteristics

This study included a total of 303 participants with a mean age of 46.18 years (± 15.92) who had a history of CLBP. A significant percentage of participants (62.4%) were under 50 years of age, and 51.2% were female. Overweight individuals [body mass index (BMI) 25–30] made up 49.8% of the study participants. Most participants were married (52.5%), had a university degree (42.6%), and resided in an urban area (63.4%). About 38% of the participants reported having a low income, whereas 62.7% did not smoke and 70.6% did not consume alcohol. The findings showed that 48.2% of participants had moderate pain, with a mean pain severity score of 5.46 ± 2.05, as displayed in Table 1.

Correlations Between Pain Severity and Other Variables

Spearman's correlation analysis found positive relationships between pain severity and several

Table 3: Severity of pain based on sociodemographic characteristics of patients with CLBP ($N = 303$)

Variable	*Category*	*Intensity of pain (Mean ± SD)*	*Z or Kruskal–Wallis H statistic (df)*	*p-value*
Gender	Female	5.70 ± 1.98	−2.01	0.04*
	Male	5.18 ± 2.08		
Education level	Illiterate	8.09 ± 0.94	96.95 (3)	<0.001**
	Under diploma	7.00 ± 1.47		
	Diploma	5.72 ± 1.75		
	University	4.35 ± 1.80		
Marital status	Single	4.21 ± 1.85	60.426 (3)	<0.001**
	Married	5.89 ± 1.90		
	Divorced	5.30 ± 1.60		
	Widow	7.37 ± 1.44		
Occupation	Employee	4.63 ± 1.85	65.79 (4)	<0.001**
	Worker	6.85 ± 1.79		
	Housewife	6.73 ± 1.65		
	Freelance job	4.82 ± 1.98		
	Retired	6.35 ± 1.49		
Residence	Urban	4.96 ± 1.96	−5.525	<0.001*
	Rural	6.29 ± 1.91		
Income status	Weak	6.48 ± 1.94	88.85 (2)	<0.001*
	Medium	5.57 ± 1.62		
	Good	3.72 ± 1.57		
Smoking	Yes	5.01 ± 2.06	−2.796	0.005*
	No	5.72 ± 1.99		
Alcohol consumption	Yes	4.13 ± 1.69	−7.057	<0.001*
	No	6.01 ± 1.92		

*Mann–Whitney *U* test; **Kruskal–Wallis test

variables, including age ($r = 0.652$, $p < 0.001$), BMI ($r = 0.316$, $p < 0.001$), impairment level ($r = 0.612$, $p < 0.001$), depression ($r = 0.838$, $p < 0.001$), anxiety ($r = 0.780$, $p < 0.001$), and kinesiophobia ($r = 0.565$, $p < 0.001$). There was also a negative correlation between pain severity and quality of life (QoL). Although this was a small effect size ($r = -0.383$, $p < 0.001$), it was statistically significant (Table 2).

Severity of Pain Across Demographic and Clinical Characteristics

Significant differences in pain intensity were observed across different clinical and demographic categories, as shown in Table 3. The mean pain severity was higher among female participants (5.70 ± 1.98) than among male participants (5.18 ± 2.08; $p = 0.04$), while pain intensity was higher among rural participants (6.29 ± 1.91) than among urban participants (4.96 ± 1.96; $p < 0.001$). Interestingly, compared with nonsmokers (5.72 ± 1.99) and nonalcohol users (6.01 ± 1.92; $p < 0.05$), smokers (5.01 ± 2.06) and alcohol users (4.13 ± 1.69) reported less severe pain. Pain severity was negatively correlated with educational attainment; patients who were illiterate had the highest pain severity scores (8.09 ± 0.94). Compared with married participants (5.89 ± 1.90), divorced participants (5.30 ± 1.60), and single participants (4.21 ± 1.85), widowed participants reported the highest levels of pain (7.37 ± 1.44; $p < 0.001$). Workers (6.85 ± 1.79), housewives (6.73 ± 1.65), and retirees (6.35 ± 1.49) reported more severe pain than employed participants (4.63 ± 1.85) and independent contractors (4.82 ± 1.98; $p < 0.001$). Lastly, there was a clear association between lower economic status and increased pain severity, with participants classified as having a low income reporting the highest pain rating (6.48 ± 1.94).

Independent Predictors of Pain Severity

Significant predictors of increased pain severity among patients with CLBP were identified using ordinal logistic regression analysis, as displayed in Table 4. The odds of experiencing severe pain were 60.9 times higher for illiterate patients than for those with a university degree (95% CI: 3.22–1150.85; $p = 0.006$). Participants with a low income (OR = 3.53, 95% CI: 1.04–11.93; $p = 0.043$) had a significantly greater likelihood of severe pain than those with a high income (reference group). Higher levels of depression were associated with a 51% increase in the likelihood of severe pain (OR = 1.51, 95% CI: 1.28–1.78; $p < 0.001$), whereas each additional year of age was associated with a 5.1% increase in the likelihood of severe pain (OR = 1.05, 95% CI: 1.002–1.102; $p = 0.04$). In contrast, an increase in quality of life was associated with a 14.9% decrease in the likelihood of severe pain (OR = 0.85, 95% CI: 0.76–0.95; $p = 0.005$). The following factors were not statistically associated with an increased risk of severe pain: gender, marital status, employment, residence, smoking status, alcohol consumption, BMI, disability level, anxiety level, and kinesiophobia.

Discussion

The research emphasizes the complex relationship among demographic characteristics, physical factors (functional disability and kinesiophobia), psychological factors (anxiety and depression), and quality of life that influence the pain severity experienced by patients with CLBP referred to emergency departments. The findings highlight the intricate nature of CLBP, raising questions about the traditional biomechanical focus in acute care settings and supporting a more comprehensive strategy for pain management.

Table 4: Ordinal logistic regression showing independent factors association with pain severity in patients with CLBP (*N* = 303)

Variables	*Category*	*OR*	*95% CI for OR*	*p-value*
Gender	Female	0.608	0.22–1.65	0.330
	Male	1	Reference	
Education level	Illiterate	60.9	3.22–1150.85	0.006*
	Under diploma	3.42	0.89–13.08	0.072
	Diploma	1.81	0.75–4.39	0.186
	University	1	Reference	
Marital status	Single	0.106	0.009–1.193	0.069
	Married	0.495	0.061–4.04	0.511
	Divorced	0.388	0.04–3.762	0.414
	Widow	1	Reference	
Occupation	Employee	1.812	0.365–8.987	0.467
	Worker	2.664	0.361–19.674	0.337
	Housewife	1.774	0.323–9.734	0.509
	Freelance job	2.340	0.431–12.703	0.325
	Retired	1	Reference	
Residence	Urban	0.998	0.431–2.410	0.99
	Rural	1	Reference	
Income status	Weak	3.528	1.043–11.93	0.043*
	Medium	5.661	1.978–16.205	0.001*
	Good	1	Reference	
Smoking	Yes	0.618	0.216–1.768	0.37
	No	1	Reference	
Alcohol consumption	Yes	1.428	0.464–4.397	0.53
	No	1	Reference	
Age	year	1.051	1.002–1.102	0.04*
BMI (body mass index)	–	0.994	0.88–1.123	0.92
Disability	–	1.023	0.99–1.054	0.135
Depression	–	1.510	1.284–1.776	<0.001*
Generalized anxiety disorder (GAD)	–	1.057	0.90–1.242	0.50
Quality of life	–	0.851	0.760–0.95	0.005*
Kinesiophobia	–	0.974	0.932–1.018	0.24

CI, confidence interval; OR, odds ratio; *$p < 0.05$

The findings showed that the majority of participants experienced moderate pain intensity (48.2%), with about 20.1% reporting severe pain episodes. Consistent with the findings of this study, John et al. reported that 58% of patients experienced moderate pain intensity.[35]

Correlation Between Study Variables

There was a positive correlation between pain severity and age, BMI, functional impairment, depression, anxiety, and kinesiophobia. Increased age and BMI were associated with higher levels of these physical limitations and psychological factors, resulting in greater pain intensity. The strongest correlations with pain intensity were observed for depression and anxiety, further supporting the role of mental health in chronic pain experiences. A systematic review and meta-analysis (SRMA) performed by Lin and colleagues indicated significant relationships among pain catastrophizing, fear of pain, pain vigilance, pain-related negative affect, anxiety, depression, pain intensity, and disability in daily living. These findings highlight the importance of the connection between various aspects of the pain experience and mental health and provide a basis for developing new therapeutic strategies for managing chronic pain.[36]

According to the biopsychosocial model of chronic pain, chronic pain is a multidimensional condition in which biological, psychological, and social (environmental) factors all contribute to the pain experience and overall level of disability. The fear-avoidance model describes how these components interact to influence an individual's pain severity and disability over time as chronic back pain (CBP) develops. Thus, pain is experienced not only physiologically but also through complex interactions among psychological factors such as fear and anxiety related to pain. Moreover, this study suggests that individuals who catastrophize pain and fear movement may be more susceptible to depression and anxiety, which in turn exacerbate their pain and disability.[37]

Additionally, the findings revealed a significant but weak inverse relationship between pain severity and QoL, indicating that higher levels of pain substantially diminish patients' overall well-being. These results highlight the importance of adopting multidimensional pain management approaches, including psychological interventions and rehabilitation strategies, to help mitigate the negative effects of chronic pain on patients' lives. Quality of life and pain intensity were found to be strongly inversely correlated, with lower QoL being significantly associated with higher pain levels. A study by Xavier Pericot-Mozo et al. showed that pain severity had a negative impact on mental health and overall quality of life.[38]

Association with Demographic and Clinical Characteristics

The findings of this study revealed that pain severity in patients with CLBP was positively and significantly associated with age and body mass index (BMI). These results are consistent with previous studies indicating that older age[39] and overweight status[40,41] are key risk factors contributing to the exacerbation of CLBP.[40,41]

Predictors of Pain Severity

The present study revealed that illiteracy, low income, higher levels of depression, and older age were associated with increased pain severity in patients with CLBP, whereas better quality of life was weakly and negatively associated with pain severity. Other factors, including gender, marital status, occupation, residence, smoking, BMI, alcohol use, disability, anxiety, and kinesiophobia, were not significantly associated with pain severity.

Specifically, depression was identified as a key factor associated with greater pain severity, aligning with the findings of Pinho et al.,[42] who found a substantial relationship among pain severity, depression, and

anxiety. Their model explained 34% of the variation in pain through psychological factors such as anxiety, depression, and disability. However, unlike the present study, Pinho et al. also identified disability and anxiety as significant predictors. This discrepancy may be attributable to differences in sample characteristics, measurement methods, or cultural factors affecting pain perception and disability. Additionally, this study identified educational level and income as significant predictors of pain severity, consistent with the findings of Whitley et al.[43] Researchers have demonstrated that individuals with lower levels of education and socioeconomic status perceive themselves as being less able to cope with pain. Systematic reviews by Karran et al.[44] also found associations among educational level, socioeconomic status, pain severity, functional impairment, absenteeism from work, and opioid prescribing patterns, highlighting the importance of social determinants in chronic pain outcomes. These findings underscore both the complexity of CLBP and the need for a comprehensive understanding of the psychological and social factors influencing treatment strategies. Clinical care and health policy should consider the impact of mental health, education, and income on effective pain management to reduce the burden of CLBP on both affected individuals and the healthcare system.

Limitations

This study has several limitations. First, the study was conducted at a single center, which may limit the generalizability of the findings to broader populations or different clinical settings. Therefore, the results should be interpreted with caution, particularly when extrapolating them to diverse demographic or geographic populations. Second, the cross-sectional study design precludes the establishment of temporal or causal relationships among the variables examined. Although associations can be identified, the direction and causality of these relationships cannot be determined without longitudinal data. Future research using prospective or experimental designs is needed to confirm causal relationships. Third, the use of self-reported data may introduce response bias, including recall bias and social desirability bias. Participants may intentionally or unintentionally overreport or underreport their behaviors or symptoms, which could affect the accuracy and reliability of the findings and should be considered when interpreting the results.

Implications for Clinical Practice and Research

The significant association between quality of life (QoL) and pain severity suggests that interventions aimed at improving QoL, such as physical rehabilitation, socioeconomic support, and mental health services, may play a crucial role in alleviating pain. Chronic or recurrent pain is not solely a physical condition; it is closely intertwined with psychological, social, and emotional factors. Therefore, effective pain management requires a holistic, multidimensional approach. In clinical settings such as EDs, the focus often remains on the rapid management of acute physical symptoms. However, this approach may overlook underlying psychological distress, which can exacerbate pain perception and hinder recovery. The integration of interdisciplinary strategies, including mental health evaluation and psychosocial support, is essential for providing patient-centered, comprehensive care. Incorporating trained professionals such as psychologists, social workers, or psychiatric nurses into ED teams can substantially enhance the quality and scope of care. These professionals can identify and address psychological comorbidities, provide crisis intervention, and facilitate referrals for continued care after discharge. By recognizing the broader context of pain and its impact on patients' lives, EDs can move beyond a symptom-based model toward one that promotes improved long-term health outcomes and quality of life.

Conclusion

The intricate relationships among the study variables highlight the complexity of managing CLBP. Effective treatment requires a holistic approach that addresses depression, improves health literacy, and reduces socioeconomic disparities. In EDs, where patients frequently seek care for pain exacerbations, integrating psychological support is essential. Brief interventions by psychologists or social workers, such as stress management techniques, supportive counseling, and depression screening, may reduce emotional distress and improve patient outcomes. Future studies should focus on interdisciplinary approaches and examine the interactions of lifestyle factors in influencing CLBP to improve therapeutic strategies. Embedding mental health professionals within ED teams may enhance patient care and reduce repeat visits by addressing underlying psychological needs.

Ethics Approval and Consent to Participate

The Ethics Committee of Mazandaran University of Medical Sciences, Iran, approved this study on 9th December 2023 (ethical code: IR.MAZUMS.REC.1402.082). Written informed consent was obtained from each individual who met the inclusion criteria before participating in a structured interview and completing the questionnaire after reviewing the detailed study information. All procedures performed in this study adhered strictly to the principles of the Declaration of Helsinki and its subsequent amendments, ensuring full compliance with ethical standards.

Availability of Data and Materials

The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Author Contributions

Study conception and design: MS and MF. Data acquisition, analysis, or interpretation: MF. Drafting of the manuscript: ZHM, MF, SKM, SKS, and VP. Critical revision of the manuscript for important intellectual content: ZHM, MS, SHMK, SKM, SKS, VP, and FHA. Statistical analysis: AF.

Acknowledgments

The authors extend their sincere gratitude to all the patients with low back pain who generously participated in this study. Their invaluable cooperation was fundamental to the successful completion of this research. The authors also acknowledge the dedication of the healthcare and research teams who supported the various stages of this project.

Orcid

Shiv Kumar Mudgal https://orcid.org/0000-0002-8062-0589
Vipin Patidar https://orcid.org/0000-0003-4595-9859
Zohreh Hosseini Marznaki https://orcid.org/0000-0002-5776-1914
Fatemeh Hosseini Aghamalaki https://orcid.org/0009-0002-2039-7714
Seyed Mohammad Hosseininejad https://orcid.org/0000-0002-1713-5791

References

1. Urits I, Burshtein A, Sharma M, et al. Low back pain, a comprehensive review: pathophysiology, diagnosis, and treatment. Curr Pain Headache Rep 2019;23:1–10.

2. Ferreira ML, De Luca K, Haile LM, et al. 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.
3. Wettstein M, Eich W, Bieber C, et al. Pain intensity, disability, and quality of life in patients with chronic low back pain: does age matter? Pain Med 2019;20(3):464–475.
4. Shariat A, Lam ET, Kargarfard M, et al. The application of a feasible exercise training program in the office setting. Work 2017;56(3):421–428.
5. Hammond M, Owusu NO, Nunoo EK, et al. How quality of work-life influence employee job satisfaction in a gas processing plant in Ghana. Discov Sustain 2023;4(1):10.
6. Chiarotto A, Koes BW. Nonspecific low back pain. N Engl J Med 2022;386(18):1732–1740.
7. Jones CM, Underwood M, Chou R, et al. Analgesia for non-specific low back pain. BMJ 2024;385.
8. Agnus Tom A, Rajkumar E, John R, et al. Determinants of quality of life in individuals with chronic low back pain: a systematic review. Health Psychol Behav Med 2022;10(1):124–144.
9. Hassan S, Nesovic K, Babineau J, et al. Identifying chronic low back pain phenotypic domains and characteristics accounting for individual variation: a systematic review. Pain 2023;164(10):2148–2190.
10. Magel J, Suslavich K, Roper K, et al. Emergency department evaluation, treatment, and functional outcomes among patients presenting with low back pain. Am J Emerg Med 2022;59:37–41.
11. Ranger TA, Cicuttini FM, Jensen TS, et al. Catastrophization, fear of movement, anxiety, and depression are associated with persistent, severe low back pain and disability. Spine J 2020;20(6):857–865.
12. Saravanan A, Bajaj P, Mathews HL, et al. Behavioral symptom clusters, inflammation, and quality of life in chronic low back pain. Pain Manag Nurs 2021;22(3):361–368.
13. Heuch I, Foss IS. Acute low back usually resolves quickly but persistent low back pain often persists. J Physiother 2013;59(2):127.
14. Hu Y, Yang Z, Li Y, et al. Prevalence and associated factors of depressive symptoms among patients with chronic low back pain: a cross-sectional study. Front Psychiatry 2022;12:820782.
15. Wang LY, Fu TS, Tsia MC, et al. The associations of depression, anxiety, and insomnia at baseline with disability at a five-year follow-up point among outpatients with chronic low back pain: a prospective cohort study. BMC Musculoskelet Disord 2023;24(1):565.
16. Slepian PM, Ankawi B, France CR. Longitudinal analysis supports a fear-avoidance model that incorporates pain resilience alongside pain catastrophizing. Ann Behav Med 2020;54(5):335–345.
17. Doualla M, Aminde J, Aminde LN, et al. Factors influencing disability in patients with chronic low back pain attending a tertiary hospital in sub-Saharan Africa. BMC Musculoskelet Disord 2019;20:1–11.
18. Capsey M, Ryan C, Mankelow J, et al. Emergency department use by people with back pain: an investigation. Br J Pain 2023;17(1):28–35.
19. Kim HS, Strickland KJ, Seitz AL, et al. Patient perspectives on seeking emergency care for acute low back pain and access to physical therapy in the emergency department. Ann Emerg Med 2023;82(2):154–163.
20. George SZ, Lentz TA, Goertz CM. Back and neck pain: in support of routine delivery of non-pharmacologic treatments as a way to improve individual and population health. Transl Res 2021;234:129–140.
21. Petrelis M, Soultanis K, Michopoulos I, et al. Associations of somatic symptom disorder with pain, disability and quality of life in patients with chronic low back pain. Psychiatriki 2023;34(3):221–230.
22. Oliveira IS, Vanin AA, Costa LOP, et al. Profile of patients with acute low back pain who sought emergency departments: a cross-sectional study. Spine 2020;45(5):E296–E303.
23. Kopec JA, Esdaile JM, Abrahamowicz M, et al. The Quebec back pain disability scale: measurement properties. Spine 1995;20(3):341–352.
24. Mousavi SJ, Parnianpour M, Mehdian H, et al. The Oswestry disability index, the Roland-Morris disability questionnaire, and the Quebec back pain disability scale: translation and validation studies of the Iranian versions. Spine 2006;31(14):E454–E459.
25. Eiger B, Errebo M, Straszek CL, et al. Less is more: reliability and measurement error for three versions of the Tampa Scale of Kinesiophobia (TSK-11, TSK-13, and TSK-17) in patients with high-impact chronic pain. Scand J Pain 2023;23(1):217–224.
26. Kroenke K, Spitzer RL, Williams JB. The PHQ9: validity of a brief depression severity measure. J Gen Intern Med 2001;16(9):606–613.
27. Maroufizadeh S, Omani-Samani R, Almasi-Hashiani A, et al. The reliability and validity of the Patient Health Questionnaire-9 (PHQ-9) and PHQ-2 in patients with infertility. Reprod Health 2019;16:1–8.
28. Ardestani MS, Ashtiani RD, Rezaei Z, et al. Validation of Persian version of PHQ-9 for diagnosis of major depressive episode in psychiatric wards in IRAN. Int J Appl Behav Sci 2019;5(2):1–8.
29. Bener A, Verjee M, Dafeeah EE, et al. Psychological factors: anxiety, depression, and somatization symptoms in low back pain patients. J Pain Res 2013:95–101.
30. Spitzer RL, Kroenke K, Williams JB, et al. A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch Intern Med 2006;166(10):1092–1097.
31. Ware JE, Kosinski M, Keller SD. A 12-Item Short-Form Health Survey: construction of scales and preliminary tests of reliability and validity. Med Care 1996;34(3):220–233.
32. Gandek B, Ware JE, Aaronson NK, et al. Cross-validation of item selection and scoring for the SF-12 Health Survey in nine countries: results from the IQOLA Project. J Clin Epidemiol 1998;51(11):1171–1178.
33. Montazeri A, Goshtasebi A, Vahdaninia M, et al. The Short Form Health Survey (SF-36): translation and validation study of the Iranian version. Qual Life Res 2005;14:875–882.
34. Montazeri A, Vahdaninia M, Mousavi SJ, et al. The Iranian version of 12-item Short Form Health Survey (SF-12): factor structure, internal consistency and construct validity. BMC Public Health 2009;9:1–10.
35. John JN, Ugwu EC, Okezue OC, et al. Kinesiophobia and associated factors among patients with chronic non-specific low back pain. Disabil Rehabil 2023;45(16):2651–2659.
36. Rogers AH, Farris SG. A meta-analysis of the associations of elements of the fearavoidance model of chronic pain with negative affect, depression, anxiety, pain-related disability and pain intensity. Eur J Pain 2022;26(8):1611–1635.
37. Vlaeyen JW, Crombez G, Linton SJ. The fear-avoidance model of pain. Pain 2016;157(8):1588–1589.
38. Pericot-Mozo X, Suñer-Soler R, Reig-Garcia G, et al. Quality of life in patients with chronic low back pain and differences by sex: a longitudinal study. J Pers Med 2024;14(5):496.
39. Wong CK, Mak RY, Kwok TS, et al. Prevalence, incidence, and factors associated with non-specific chronic low back pain in community-dwelling older adults aged 60 years and older: a systematic review and meta-analysis. J Pain 2022;23(4):509–534.
40. Lucha-López MO, Hidalgo-García C, Monti-Ballano S, et al. Body mass index and its influence on chronic low back pain in the Spanish population: a secondary analysis from the European Health Survey (2020). Biomedicines 2023;11(8):2175.
41. Lee CA, Jang HD, Moon JE, et al. The relationship between change of weight and chronic low back pain in population over 50 years of age: a nationwide cross-sectional study. Int J Environ Res Public Health 2021;18(8):3969.
42. Pinho H, Neves M, Costa F, et al. Associations between pain intensity, pain sensitivity, demographics, psychological factors, disability, physical activity, pain phenotype and COVID-19 history in low back pain: an observational study. Physiother Res Int 2024;29(3):e2094.
43. Whitley MD, Herman PM, Aliyev GR, et al. Income as a predictor of self-efficacy for managing pain and for coping with symptoms among patients with chronic low back pain. J Manipulative Physiol Ther 2021;44(6):433–444.
44. Karran EL, Grant AR, Moseley GL. Low back pain and the social determinants of health: a systematic review and narrative synthesis. Pain 2020;161(11):2476–2493.