Original article

The Relationship of Pain Intensity, Pain Catastrophizing, and Disability with Physical and Mental Health-Related Quality of Life in Patients with Chronic Low Back Pain

Dijana Hnatešen [1], Iva Dimitrijević* [1, 2], Ivan Radoš [1, 2], Dino Budrovac [1, 2], Ozana Katarina Tot [1, 2], Vanja Matković [1, 3], Ana Sabol [1]

1 Department of Anesthesiology, Intensive Care and Pain Management, University Hospital Centre Osijek, Osijek, Croatia
2 Faculty of Medicine, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia
3 Department of Physiotherapy, College of Applied Sciences "Lavoslav Ružička", Vukovar, Croatia

*Corresponding author: Iva Dimitrijević, iva.trubeljak@gmail.com

Abstract

Aim: The aim of this cross-sectional study was to examine the relationship between pain intensity, pain catastrophizing, disability and the physical and mental dimensions of health-related quality of life (HRQoL) in patients with chronic low back pain (CLBP).

Methods: The study group consisted of 152 patients with CLBP. The following questionnaires were administered: a sociodemographic questionnaire, the SF-36 Health Survey (36-Item Short Form Health Survey), the Numerical Rating Scale (NRS), the Pain Catastrophizing Scale (PCS), and the Oswestry Disability Index (ODI). Multiple linear regression analyses were conducted to examine the relationship of pain intensity, pain catastrophizing, and disability with the physical and mental dimensions of HRQoL.

Results: Both regression models proved to be statistically significant. For the physical component of HRQoL, the multiple regression model was statistically significant ($F(3,109) = 27.335$; $p < 0.001$), explaining 42.7% of the variance, while for the mental component of HRQoL, the model was also statistically significant ($F(3,109) = 13.611$; $p < 0.001$) and explained 27.3% of the variance.

Conclusion: Pain intensity, pain catastrophizing, and disability were identified as independent predictors of the physical component of HRQoL, whereas disability and catastrophizing emerged as the only significant predictors for the mental component. The results of this study align with the biopsychosocial model of chronic pain, which emphasizes the necessity of identifying multiple factors to ensure individualized and comprehensive treatment for individuals with CLBP.

(Hnatešen D, Dimitrijević I, Radoš I, Budrovac D, Tot OK, Matković V, Sabol A. Relationship of Pain Intensity, Pain Catastrophizing, and Disability with Physical and Mental Health-Related Quality of Life in Patients with Chronic Low Back Pain. SEMEEDJ 2026:10(S1):1-14)

Received: Jul 2, 2025; revised version accepted: Sep 11, 2026; published: Oct 17, 2026

KEYWORDS: chronic low back pain; health-related quality of life; pain intensity; disability; pain catastrophizing

Introduction

The International Association for the Study of Pain (IASP) defines pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or resembling that associated with actual or potential tissue damage" (1), implying that pain is always a personal experience influenced by various, yet interconnected, biological, psychological, and social factors. This explanation aligns with Fillingim's biopsychosocial model of pain (2), which is based on Engel's biopsychosocial model dating back to 1977 (3). According to Fillingim's model, the experience of pain arises from the interaction between nociceptive stimuli and the individual's biological, psychological, and social context (2). Furthermore, the IASP defines chronic pain (CP) as pain that persists or recurs for more than three months, extending beyond the expected period of normal tissue healing (4). With a prevalence of 20% among the global adult population, CP represents a significant public health issue and is one of the primary reasons for seeking medical care (5). CP can be viewed through the lens of multiple components; it is important to note that, in addition to the sensory component, other factors—such as maladaptive cognitive and behavioral reactions—can impair overall psychological and physical functioning and contribute to the persistence of pain (6). Individuals with CP often exhibit various somatic symptoms, such as fatigue, difficulties falling or staying asleep, and reduced appetite. Furthermore, various psychosocial factors play a more significant role in the individual experience of CP than nociceptive mechanisms do (7). Chronic low back pain (CLBP) is the most prevalent CP condition and stands out as a major clinical, socioeconomic, and public health issue worldwide (8). It is estimated that approximately 619 million people globally suffer from low back pain (LBP), with a higher prevalence among women (9).

CLBP and health-related quality of life (HRQoL) are significantly negatively correlated (10). HRQoL is defined by those aspects of quality of life directly related to an individual's health status, encompassing physical, psychological, and social functioning, as well as the ability to perform daily self-care activities and maintain general well-being (11,12). A strong correlation has been found between CLBP and greater pain intensity, higher levels of disability, poorer treatment outcomes, reduced HRQoL, significant physical limitations (13), and work disability (14). Research findings suggest that even relatively low levels of pain intensity and disability in individuals with CLBP can result in a perceived reduction in quality of life compared to the general population (15). Furthermore, psychological factors have been identified as a key domain in CLBP and are crucial when assessing treatment success (16). A study by Hong et al. concluded that patients with CLBP experience significant disability, impaired psychological health, sleep disturbances, and significantly reduced HRQoL. All these results highlight the multidimensional impact of CLBP (17). In light of these findings, psychological factors are increasingly recognized as important determinants of clinical outcomes. Pain catastrophizing stands out as one of the strongest predictors of poor treatment outcomes (18–20). It is defined as a maladaptive cognitive and emotional response to actual or anticipated pain, characterized by persistent rumination on pain, an exaggerated perception of the threat it poses, and a sense of helplessness when coping with it (21,22). Various studies have concluded that higher levels of pain catastrophizing are negatively associated with HRQOL and psychological distress, and positively associated with pain intensity and physical disability (23–26).

The treatment of the patient with CLBP is still predominantly focused on the recognition and alleviation of physical symptoms despite the fact that there are numerous worldwide studies that highlight psychological aspects as significant determinants of HRQOL. With this in mind, the aim of this study was to examine the relationship between pain intensity, pain catastrophizing, disability, and physical and mental dimensions of HRQoL in patients with CLBP. With the obtained results, we want to support the biopsychosocial model of CP and

emphasize the need to include psychological assessment and intervention in the treatment of CLBP by clarifying the relative contributions of these components.

Materials and methods

Following approval by the Ethics Committee of the Clinical Hospital Centre Osijek (approval no. R1-5913-2/2026), a cross-sectional study was conducted in accordance with the principles of the Declaration of Helsinki. The study was conducted on a sample of 152 patients with CLBP recruited consecutively at the Pain Management Institute of the Clinical Hospital Centre Osijek between May and July 2026. Inclusion and exclusion criteria were defined. Inclusion criteria comprised: adult age (≥18 years), a diagnosis of CLBP, and a pain intensity score ≥ 3 on the Numerical Rating Scale (NRS). Exclusion criteria included: acute pain, primary pain located outside the lower back, pain caused by malignancy, psychotic disorders, moderate to severe cognitive impairment, and post-traumatic conditions. During the recruitment process, eight patients who met the inclusion criteria declined to complete the questionnaire set and were therefore not included in the study. All participants included in this study signed a written informed consent form prior to enrollment. A sociodemographic questionnaire was used to collect data on sex, age, place of residence, education level, employment status, marital status, and duration of chronic pain, alongside the following standardized self-assessment questionnaires: the 36-Item Short Form Health Survey (SF-36), the Pain Catastrophizing Scale (PCS), the Numerical Rating Scale (NRS), and the Oswestry Disability Index (ODI 2.1a).

HRQoL was assessed using the SF-36, one of the most widely used measures for assessing perceived health status. The SF-36 consists of eight subscales: physical functioning, role limitations due to physical health, bodily pain, general health, vitality, social functioning, role limitations due to emotional problems, and mental health. These domains are summarized into two composite scores representing the physical and mental dimensions of HRQoL. The physical and mental component scores of the SF-36 were calculated using the standard scoring algorithm based on the eight SF-36 domain scores. Norm-based scoring was not applied. Scores for each domain range from 0 to 100, with higher scores indicating better perceived health status (27). The Croatian version of the SF-36 has demonstrated satisfactory psychometric properties in the general adult population (28). In the present study, internal consistency was acceptable across all SF-36 subscales. Cronbach's alpha coefficients ranged from 0.59 for the General Health subscale to 0.88 for the Role Emotional subscale.

Pain catastrophizing was measured using the PCS, a 13-item self-report instrument designed to assess exaggerated negative cognitive and emotional responses to actual or anticipated pain. Participants rated the extent to which they experienced each thought or feeling during a previous painful episode using a 5-point Likert scale ranging from 0 ("not at all") to 4 ("all the time"). The PCS comprises three dimensions: rumination, magnification, and helplessness. Total scores range from 0 to 52, with higher scores reflecting greater levels of pain catastrophizing. Because the three dimensions are highly interrelated, the total score is commonly used in research (29). The Croatian version of the PCS scale confirmed the original structure of the instrument and demonstrated good internal consistency, with a Cronbach's alpha coefficient of 0.88 (30). In this study, the PCS showed excellent internal consistency, with a Cronbach's alpha coefficient of 0.94.

NRS was used to assess pain intensity with a single-item ranging from 0 to 10, where 0 indicates no pain and 10 represents the worst pain. Scores of 1–3 indicate mild pain, 4–6 moderate pain, and 7–10 severe pain (31). The patients rated their average pain intensity during the previous week.

ODI is a standardized questionnaire that assesses the degree of disability due to lower back pain—specifically, the negative impact of

pain on daily functioning activities (32). In this study was used the validated Croatian version of the ODI version 2.1a, that demonstrated good internal consistency with a Cronbach's alpha coefficient of 0.94 (33). Previous studies have reported good psychometric properties (34,35). The total score was calculated according to the standard ODI scoring procedure, with higher scores indicating greater disability. In this study, Cronbach's alpha coefficient was 0.77.

Statistical analysis of the data was performed using IBM SPSS Statistics for Windows, version 24.0 (IBM Corp., Armonk, NY, USA), with a significance level of α = 0.05. All statistical tests and corresponding P values were two-sided. The distribution of continuous variables was assessed using the Shapiro–Wilk test, supplemented by examination of analyzing skewness and kurtosis values. Descriptive statistics were used to describe sociodemographic characteristics, health-related quality of life (SF-36), pain intensity (numerical rating scale), pain catastrophizing (Pain Catastrophizing Scale), and functional ability (Oswestry Disability Index). Pearson correlation coefficients were used to examine associations between study variables, and two multiple linear regression analyses were conducted to determine whether pain intensity, pain catastrophizing, and functional disability served as independent predictors of health-related quality of life. In the first model, the physical component score of the SF-36 questionnaire was used as the dependent variable, while in the second model, the mental component score of the SF-36 questionnaire served as the dependent variable; pain intensity, pain catastrophizing, and functional disability were the independent variables in both regression models. Missing data were handled using listwise deletion, whereby cases with missing values on any variable included in the regression model were excluded from the analysis.

Results

This study involved 152 patients with a mean age of 57.48 years (SD = 11.103). Of these, 117 (76.9%) were women, 91 (59.9%) resided in urban areas, 106 (69.7%) had completed secondary education, 87 (57.2%) were employed, and 103 (67.8%) were married. The mean duration of pain was 11.43 years (SD = 9.49), while the mean pain intensity was 7.37 (SD = 1.49).

The distribution of the study variables was assessed by examining skewness and kurtosis values. The results indicated that the assumptions for parametric statistical analyses were met. Descriptive statistics for all study questionnaires are presented in Table 1.

Table 1. Distribution of questionnaire scores

Variables	Mean (SD)	Minimum	Maximum
NRS	7.37 (1.494)	3	10
SF-PhyH	22.61 (10.373)	5.50	61.00
SF-PsyH	42.18 (16.617)	5.20	83.48
PCS	26.40 (12.006)	0	52
ODI 2.1a	31.76 (8.214)	15	58

NRS - Numeric Pain Rating Scale, SF-PhyH - Health Status Questionnaire-Physical Health, SF-PsyH - Health Status Questionnaire-MentalHealth, PCS–Pain Catastrophizing Scale, ODI 2.1a - Oswestry Disability Index

Table 2 presents the Pearson correlation coefficients among the study variables. Significant correlations were observed between the physical and mental components of HRQoL (SF-36).

In addition, both the physical and mental dimensions of HRQoL were significantly correlated with NRS, PCS, and ODI 2.1a.

Table 2. Pearson's correlation coefficients among the measured variables

	NRS	SF-PhyH	SF-PsyH	PCS	ODI
NRS	1				
SF-PhyH	−0.46 (P < 0.001)	1			
SF-PsyH	−0.29 (P < 0.001)	0.54 (P < 0.001)	1		
PCS	0.29 (P < 0.001)	−0.42 (P < 0.001)	−0.45 (P < 0.001)	1	
ODI 2.1a	0.49 (P < 0.001)	−0.58 (P < 0.001)	−0.46 (P < 0.001)	0.48 (P < 0.001)	1

NRS - Numeric Pain Rating Scale, SF-PhyH - Health Status Questionnaire-Physical Health, SF-PsyH - Health Status Questionnaire-Mental Health, PCS - Pain Catastrophizing Scale, ODI 2.1a - Oswestry Disability Index

Multivariate linear regression analysis was performed to examine the association between pain intensity, pain catastrophizing, and disability as independent variables and the physical component of HRQoL (SF-36 Physical Component Summary) as the dependent variable. The regression coefficients are presented in Table 3. The overall regression model was statistically significant, $F(3, 109) = 27.335$, $P < 0.001$, explaining 42.7% of the variance in the physical component of HRQoL ($R^2 = 0.427$; adjusted $R^2 = 0.411$). Pain intensity ($\beta = -0.300$, $P < 0.001$), pain catastrophizing ($\beta = -0.183$, $P <= 0.05$), and disability ($\beta = -0.343$, $P < 0.001$) were all significant independent predictors of physical HRQoL, with higher levels of each predictor being associated with poorer physical HRQoL. All associations were negative, indicating that greater disability, higher pain intensity, and greater pain catastrophizing were independently associated with poorer physical HRQoL after adjustment for the other predictors in the model.

Table 3. Summary of multivariate linear regression analysis for the dependent variable SF-PhyH

R^2		Adjusted R^2	
0.427		0.411	
Predictors	β	t	P Value
(Constant)		13.568	P < 0.001
NRS	−0.300	−3.619	P < 0.001
PCS	−0.183	−2.219	P = 0.03
ODI 2.1a	−0.343	−3.738	P < 0.001

R^2 - coefficient of determination, Adjusted R^2 - adjusted coefficient of determination, NRS - Numeric Pain Rating Scale, PCS - Pain Catastrophizing Scale, ODI 2.1a - Oswestry Disability Index

Multivariate linear regression analysis was performed to examine the association between pain intensity, pain catastrophizing, and disability as independent variables and the mental component of HRQoL (SF-36 Mental Component Summary) as the dependent variable. The regression coefficients are presented in Table 4. The overall regression model was statistically significant, $F(3, 109) = 13.611$, $P < 0.001$, explaining 27.3% of the variance in the mental component of HRQoL ($R^2 = 0.273$; adjusted $R^2 = 0.252$). Pain catastrophizing ($\beta = -0.283$, $P = 0.003$) and disability ($\beta = -0.289$, $P = 0.007$) were significant independent predictors of mental HRQoL, whereas pain intensity was not a significant predictor ($\beta = -0.064$, $P = 0.49$). Higher levels of pain catastrophizing and disability were associated with poorer mental HRQoL.

Table 4. Summary of multivariate linear regression analysis for the dependent variable SF-PsyH

R^2		Adjusted R^2	
0.273		0.252	
Predictors	β	t	P Value
(Constant)		10.170	P < 0.001
NRS	−0.064	−0.686	P = 0.49
PCS	−0.283	−3.039	P = 0.005
ODI 2.1a	−0.289	−2.771	P = 0.05

R^2 - coefficient of determination, Adjusted R^2 - adjusted coefficient of determination, NRS - Numeric Pain Rating Scale, PCS - Pain Catastrophizing Scale, ODI 2.1a - Oswestry Disability Index

Discussion

The present study aimed to examine whether pain intensity, pain catastrophizing, and disability predict the physical and mental dimensions of HRQoL in patients with CLBP. The findings demonstrated that all three variables were significant predictors of the physical dimension of HRQoL. In contrast, pain catastrophizing and disability emerged as significant predictors of the mental dimension of HRQoL, whereas pain intensity was not independently associated with mental HRQoL.

The study population consisted predominantly of women, participants with secondary-level education, residents of urban areas, and married individuals. This sociodemographic profile is consistent with that reported in a previous Croatian studies (36,37) of patients with CLBP conducted in a comparable clinical setting, in which female patients likewise constituted the majority of the study population and the overall demographic characteristics were similar. In addition, participants demonstrated impaired HRQoL in both the physical and mental domains of the SF-36. However, the physical component was more severely affected than the mental component, as reflected by substantially lower mean scores for physical HRQoL (M = 22.61, SD= 10.373) compared with mental HRQoL (M = 42.18; SD= 16.617). The present study demonstrated that patients with CLBP reported high pain intensity accompanied by impaired HRQoL in both the physical and mental domains. The more substantial impairment observed in the physical component of HRQoL is consistent with previous evidence demonstrating that CLBP adversely affects multiple dimensions of HRQoL, with physical health generally exhibiting greater deterioration than mental health (38–40).

Given the characteristics of the study participants, specifically the average pain duration of 11.43 years, it is notable that this period is significantly longer than the three-month threshold at which pain is classified as chronic. Considering previous research indicating that pain duration plays a major role in treatment outcomes, with patients experiencing shorter pain duration achieving better results (41), we can assume that the participants in this study are in a considerably less favorable position regarding treatment success. Chronic pain remains a major therapeutic challenge, despite significant research progress and the ongoing development of pharmacological and non-pharmacological treatment methods. The reasons for this lie in the complex pathophysiology of chronic pain and the interplay of biopsychosocial factors, which can significantly compromise treatment outcomes by perpetuating persistent difficulties and limitations regarding physical functioning, psychological well-being, and overall quality of life (42,43). Regarding reported pain intensity the participants reported average NRS of 7.37 which is within the severe pain range, indicating a major symptom burden. This finding is clinically relevant, as high pain intensity has consistently been associated with greater functional

impairment, increased healthcare utilization, and poorer HRQoL in patients with CLBP (44).

Significant correlations were observed between the physical and mental components of HRQoL. In addition, both the physical and mental dimensions of HRQoL were significantly correlated with pain intensity (NRS), pain catastrophizing (PCS), and disability (ODI 2.1a). Furthermore, the results of the study indicate a statistically significant correlation between the mental and physical dimensions of HRQoL and all the investigated factors: pain intensity, pain catastrophizing and disability. Numerous studies have confirmed such findings and highlighted the connection between the mentioned factors and the HRQoL of patients with CLBP (26,45,46). Moreover, as expected, this study found a negative correlation between pain catastrophizing and HRQoL, which is in accordance with the research findings from the study conducted by authors Semeru and Halim (45). In the present study, disability, as measured by the ODI 2.1a, was significantly and negatively associated with both the physical and mental dimensions of HRQoL. Moreover, the strength of these associations exceeded those observed for pain intensity. These findings are consistent with those reported by Mutubuki et al., who demonstrated that disability was more strongly associated with impaired HRQoL than pain intensity in patients with CLBP, highlighting disability as a key determinant of patient-reported outcomes (13).

Multiple linear regression analysis demonstrated that pain intensity, pain catastrophizing, and disability were all significant independent predictors of the physical component of HRQoL. Disability emerged as the strongest independent predictor of poorer physical HRQoL, followed by pain intensity and pain catastrophizing, indicating that functional limitations may contribute to patients' physical health status more than pain severity. The obtained results are in line with other researches that point out that functional disability has a greater impact on health-related quality of life (HRQoL) than pain intensity itself in patients with CLBP (11,13). Given that catastrophizing emerged as an independent predictor of physical HRQOL, the results of this study may point to the contribution of psychological factors in explaining the physical dimension of HRQoL. This observation is consistent with the biopsychosocial model of CP, which emphasizes that the physical consequences of CLBP are not only influenced by pain severity and functional disability, but also by maladaptive cognitive reactions to pain, which is in line with previous research (20,47,48).

Multiple linear regression analysis demonstrated that disability and pain catastrophizing were significant independent predictors of the mental component of HRQoL, which is consistent with previous research in which disability (38) and pain catastrophizing (20) have been identified as important determinants of mental HRQOL in patients with CLBP. Unlike disability and catastrophizing pain intensity did not stand out as an independent predictor of mental HRQoL, which is inconsistent with earlier studies that identified pain intensity as an independent predictor of mental HRQoL (37,49). This finding may suggest that functional impairment and pain catastrophizing have a greater impact on mental HRQoL than pain severity alone. Finally, it should be emphasized that the term predictor is used throughout this manuscript in its statistical sense, referring to the independent variables included in the regression models, and should not be interpreted as implying causality, temporal precedence, or prognostic value because of the cross-sectional study design. Nevertheless, these findings should be interpreted with caution because diagnostic assessments of the assumptions underlying multiple linear regression, including linearity, residual diagnostics, homoscedasticity, and multicollinearity, were not formally evaluated.

Implications

The results of this study have several practical implications for the treatment of patients with chronic low back pain. The established associations between pain intensity, disability, and catastrophizing suggest that routine clinical assessment should be expanded to include the evaluation of functional disability and

psychological factors, in addition to pain intensity alone. Identifying maladaptive cognitive patterns, such as catastrophizing, can help pinpoint patients who might benefit from a more comprehensive assessment and targeted support. These findings further support a multidisciplinary approach to treating chronic low back pain that integrates physical and psychological factors. Furthermore, there is a need for psychological support and structured education on how to complement medical and rehabilitation treatments, with the aim of improving patients' coping strategies, functional capacity, and overall well-being.

Limitations

This study has several limitations. First, single-center, cross-sectional design that limits the generalizability of the findings. Second, predominance of females in the sample, and potential confounding clinical factors such as pharmacotherapy and comorbidities. Furthermore, numerous other psychological variables that may influence the HRQoL of individuals with CLBP, such as self-efficacy, coping strategies, kinesiophobia, psychological resilience, and illness perception, were not included in this study. In addition, participants were recruited from a specialized pain treatment center, and only patients with chronic low back pain and a pain intensity of NRS ≥ 3 were included. Therefore, the findings may not be generalizable to the broader population of individuals with chronic low back pain, particularly those treated in primary care settings or those with milder pain. Finally, all study variables were assessed using self-report instruments, which may be subject to bias.

Conclusion

The aim of this study was to examine the relationship of pain intensity, pain catastrophizing, and disability with the physical and mental dimensions of HRQoL in patients with chronic low back pain CLBP. All three variables proved to be significant independent predictors of the physical component of HRQoL, whereas disability and pain catastrophizing emerged as significant predictors of the mental component of HRQoL. Pain intensity did not emerge as an independent predictor of the mental component of HRQoL. The results of this study support the biopsychosocial model of chronic pain, highlighting that HRQoL is determined not only by pain intensity but also by functional impairments and maladaptive psychological responses to pain; in clinical practice, this implies moving beyond the traditional biomedical approach. These findings suggest the importance of comprehensive assessment and the selection of treatment methods based on the biopsychosocial model.

Disclosure

Funding. No funding was received.
Competing interests. The authors declare that they have no conflict of interest.

Acknowledgement. No acknowledgment.

References

1. Raja S, Carr D, Cohen M, Finnerup N, Flor H, Gibson S. The Revised IASP definition of pain: concepts, challenges, and compromises. Pain 2021;161(9):1976-82. Available from: https://doi.org/10.1097/j.pain.0000000000001939

2. Fillingim RB. Individual differences in pain: Understanding the mosaic that makes pain personal. Pain 2017;158(4):S11–8. Available from: https://doi.org/10.1097/j.pain.0000000000000775

3. Engel GL. The need for a new medical model: a challenge for biomedicine. Science 1977;196(4286):129–36. Available from: https://doi.org/10.1126/science.847460

4. International Association for the Study of Pain. IASP announces revised definition of pain [Internet]. Washington (DC): International Association for the Study of Pain; 2020 [cited 2026 Jul 1]. Available from: https://www.iasp-pain.org/publications/iasp-news/iasp-announces-revised-definition-of-pain/

5. Rometsch C, Mansueto G, Maas Genannt Bermpohl F, Martin A, Cosci F. Prevalence of functional disorders across Europe: a systematic review and meta-analysis. Eur J Epidemiol 2024;39(6):571–86. Available from: https://doi.org/10.1007/s10654-024-01109-5

6. Moseley GL, Vlaeyen JWS. Beyond nociception: The imprecision hypothesis of chronic pain. Pain 2015;156(1):35–8. Available from: https://doi.org/10.1016/j.pain.0000000000000014

7. Sturgeon JA. Psychological therapies for the management of chronic pain. Psychol Res Behav Manag 2014;7:115–24. Available from: https://doi.org/10.2147/PRBM.S44762

8. Manchikanti L, Singh V, Datta S, Cohen SP, Hirsch JA. Comprehensive review of epidemiology, scope, and impact of spinal pain. Pain Physician 2009;12(4):35–70.

9. Ferreira ML, De Luca K, Haile LM, Steinmetz JD, Culbreth GT, Cross M, 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):e316–29. Available from: https://doi.org/10.1016/S2665-9913(23)00098-X

10. Grabovac I, Dorner TE. Association between low back pain and various everyday performances: Activities of daily living, ability to work and sexual function. Wien Klin Wochenschr 2019;131(21):541–9. Available from: https://doi.org/10.1007/s00508-019-01542-7

11. Agnus Tom A, Rajkumar E, John R, Joshua George A. Determinants of quality of life in individuals with chronic low back pain: a systematic review. Heal Psychol Behav Med 2022;10(1):124–44. Available from: https://doi.org/10.1080/21642850.2021.2022487

12. Torrance GW. Utility approach to measuring health-related quality of life. J Chronic Dis 1987;40(6):593–600. Available from: https://doi.org/10.1016/0021-9681(87)90019-1

13. Mutubuki EN, Beljon Y, Maas ET, Huygen FJPM, Ostelo RWJG, van Tulder MW, van Dongen JM. The longitudinal relationships between pain severity and disability versus health-related quality of life and costs among chronic low back pain patients. Qual Life Res 2020;29(1):275–87. Available from: https://doi.org/10.1007/s11136-019-02302-w

14. Kamal KC, Alexandru DO, Kamal D. Managing low back pain in primary care. Curr Heal Sci J 2020;46:396–404. Available from: https://doi.org/10.12865/CHSJ.46.04.11

15. Urquhart DM, Shortreed S, Davis SR, Cicuttini FM, Bell RJ. Are low levels of low back pain intensity and disability associated with reduced well-being in community-based women? Climacteric 2009;12(3):266–75. Available from: https://doi.org/10.1080/13697130802635645

16. Tagliaferri SD, Miller CT, Owen PJ, Mitchell UH, Brisby H, Fitzgibbon B, Masse-Alarie H, Van Oosterwijck J, Belavy DL. Domains of Chronic Low Back Pain and Assessing Treatment Effectiveness: A Clinical Perspective. Pain Pract 2020;20(2):211–25. Available from: https://doi.org/10.1111/papr.12846

17. Hong JH, Kim HD, Shin HH, Huh B. Assessment of depression, anxiety, sleep disturbance, and quality of life in patients with chronic low back pain in Korea. Korean J Anesthesiol 2014;66(6):444–50. Available from: https://doi.org/10.4097/kjae.2014.66.6.444

18. Feinstein AB, Sturgeon JA, Darnall BD, Dunn AL, Rico T, Kao MC, Bhandari RP. The Effect of Pain Catastrophizing on Outcomes: A Developmental Perspective Across Children, Adolescents, and Young Adults With Chronic Pain. J Pain 2017;18(2):144–54. Available from: https://doi.org/10.1016/j.jpain.2016.10.009

19. Montag LT, Salomons TV, Wilson R, Duggan S, Bisson EJ. Examining the roles of depression, pain catastrophizing, and self-efficacy in quality of life changes following chronic pain treatment. Can J Pain 2023;7(1). :2156330. Available from: https://doi.org/10.1080/24740527.2022.2156330

20. France CR, Ysidron DW, Slepian PM, French DJ, Evans RT. Pain resilience and catastrophizing combine to predict functional restoration program outcomes. Heal Psychol 2020;39(7):573–9. Available from: https://doi.org/10.1037/hea0000877

21. Crombez G, Bijttebier P, Eccleston C, Mascagni T, Mertens G, Goubert L, Verstraeten K. The child version of the pain catastrophizing scale (PCS-C): a preliminary validation. Pain 2003;104(3):639–46. Available from: https://doi.org/10.1016/s0304-3959(03)00121-0

22. Sullivan MJ, Bishop SR, Pivik J. The pain catastrophizing scale: development and validation. Psychol Assess 1995;7(4):524-32. Available from: https://psycnet.apa.org/doi/10.1037/1040-3590.7.4.524

23. Wollaars MM, Post MWM, van Asbeck FWA, Brand N. Spinal cord injury pain: the influence of psychologic factors and impact on quality of life. Clin J Pain 2007;23(5):383–91. Available from: https://doi.org/10.1097/ajp.0b013e31804463e5

24. Severeijns R, Vlaeyen JW, van den Hout MA, Weber WE. Pain catastrophizing predicts pain intensity, disability, and psychological distress independent of the level of physical impairment. Clin J Pain 2001;17(2):165–72. Available from: https://doi.org/10.1097/00002508-200106000-00009

25. Keefe FJ, Brown GK, Wallston KA, Caldwell DS. Coping with rheumatoid arthritis pain: catastrophizing as a maladaptive strategy. Pain 1989;37(1):51–6. Available from: https://doi.org/10.1016/0304-3959(89)90152-8

26. Kishikawa Y, Tanaka S, Iwanaga K, Nakagawa I, Shiotsuka T, Tsuda N, Kobachi Y, Hirano K, Murakami Y. Effects of pain-related catastrophic thinking, anxiety, and depression on pain intensity and quality of life in patients with knee and low back pain. J Phys Ther Sci 2022;34(9):625–9. Available from: https://doi.org/10.1589/jpts.34.625

27. Ware JEJ. SF-36 Health Survey Update. Spine (Phila Pa 1976) 2000;25(24):3130–9. Available from: https://doi.org/10.1097/00007632-200012150-00008

28. Maslić Seršić D, Vuletić G. Psychometric Evaluation and Establishing Norms of Croatian SF-36 Health Survey: Framework for Subjective Health Research. Croat Med J 2006;47(1):95–102.

29. Pedler A. The pain catastrophising scale. J Physiother 2010;56(2):137. Available from: https://doi.org/10.1016/s1836-9553(10)70047-3

30. Marić A, Banožić A, Ćosić A, Kraljević S, Sapunar D, Puljak, L. Validation of the Croatian Pain Catastrophizing Scale through a study on the influence of medical education on pain catastrophizing. Period Biol 2011;113(2):171–5.

31. Vrbanić TSL. Evaluation of Pain and Local Pharmacological Pain Treatment in Rheumatology. Reumatizam 2016;63(1):31–8.

32. Chaturvedi SK, Muliyala KP. The Meaning in Quality of Life. J Psychosoc Rehabil Ment Heal 2016;3(2):47–9. Available from: https://doi.org/10.1007/s40737-016-0069-2

33. Domazet I, Nemir J, Barl P, Đurić KS, Pašalić I, Barić H, Stančić M. Validation of the Croatian version of the Oswestry Disability Index. Eur Spine J 2018;27(11):2814–22. Available from: https://doi.org/10.1007/s00586-018-5757-z

34. Grotle M, Garratt AM, Krogstad Jenssen H, Stuge B. Reliability and construct validity of self-report questionnaires for patients with pelvic girdle pain. Phys Ther 2012;92(1):111–23. Available from: https://doi.org/10.2522/ptj.20110076

35. Miekisiak G, Kollataj M, Dobrogowski J, Kloc W, Libionka W, Banach M, Latka D, Sobolewski T, Sulewski A, Nowakowski A, Kiwic G, Pala A, Potaczek T, Gierlotka M. Validation and cross-cultural adaptation of the Polish version of the Oswestry Disability Index. Spine (Phila Pa 1976) 2013;38(4):237-43. Available from: https://doi.org/10.1097/brs.0b013e31827e948b

36. Hnatešen D, Pavić R, Radoš I, Dimitrijević I, Budrovac D, Čebohin M, Gusar I. Quality of Life and Mental Distress in Patients with Chronic Low Back Pain: A Cross-Sectional Study. Int J Environ Res Public Health 2022;19(17). :10657. Available from: https://doi.org/10.3390/ijerph191710657

37. Dimitrijević I, Hnatešen D, Radoš I, Budrovac D, Raguž M. Relationship Between Psychological Factors and Health-Related Quality of Life in Patients with Chronic Low Back Pain. Healthcare 2024;12(24):2531. Available from: https://doi.org/10.3390/healthcare12242531

38. Aminde JA, Aminde LN, Bija MD, Lekpa K, Kwedi FM, Yenshu EV, Chichom AM. Health-related quality of life and its determinants in patients with chronic low back pain at a tertiary hospital in Cameroon: A cross-sectional study. BMJ Open 2020;10(10):e035445. Available from: https://doi.org/10.1136/bmjopen-2019-035445

39. Berković-Šubić M, Grazio S, Hofmann G, Zoričić Z. Correlation of Physical and Mental Components of Health-Related Quality of Life, Function and Pain in Patients with Chronic Nonspecific Low Back Pain. Acta Clin Croat 2025;64(2):251–60. Available from: https://doi.org/10.20471/acc.2025.64.02.09

40. van den Ameele J, Fuge J, Pitceathly RDS, Berry S, McIntyre Z, Hanna MG, Lee M, Chinnery PF. Chronic pain is common in mitochondrial disease. Neuromuscul Disord 2020;30(5):413–9. Available from: https://doi.org/10.1016/j.nmd.2020.02.017

41. Pagé MG, Romero Escobar EM, Ware MA, Choinière M. Predicting treatment outcomes of pain patients attending tertiary multidisciplinary pain treatment centers: A pain trajectory approach. Can J Pain 2017;1(1):61–74. Available from: https://doi.org/10.1080/24740527.2017.1325715

42. Cohen SP, Vase L, Hooten WM. Chronic pain: an update on burden, best practices, and new advances. Lancet 2021;397(10289):2082–97. Available from: https://doi.org/10.1016/s0140-6736(21)00393-7

43. Guven Kose S, Kose HC, Celikel F, Tulgar S, De Cassai A, Akkaya OT, Hernandez N. Chronic Pain: An Update of Clinical Practices and Advances in Chronic Pain Management. Eurasian J Med 2022;54(1):57–61. Available from: https://doi.org/10.5152/eurasianjmed.2022.22307

44. Perrot S, Doane MJ, Jaffe DH, Dragon E, Abraham L, Viktrup L, Bushmakin AG, Cappelleri JC, Conaghan PG. Burden of chronic low back pain: Association with pain severity and prescription medication use in five large European countries. Pain Pr 2021;22(3):359–71. Available from: https://doi.org/10.1111/papr.13093

45. Semeru GM, Halim MS. Acceptance versus catastrophizing in predicting quality of life in patients with chronic low back pain. Korean J Pain 2019;32(1):22–9. Available from: https://doi.org/10.3344/kjp.2019.32.1.22

46. Mammadov T, Bölük Şenlikci H, Ayaş Ş. A public health concern: Chronic low back pain and the relationship between pain, quality of life, depression, anxiety, and sleep quality. J Surg Med 2020;4(9):808–11. Available from: https://doi.org/10.28982/josam.710076

47. McPeak AE, Allaire C, Williams C, Albert A, Lisonkova S, Yong PJ. Pain Catastrophizing and Pain Health-Related Quality-of-Life in Endometriosis. Clin J Pain 2018;34(4):349-356. Available from: https://doi.org/10.1097/ajp.0000000000000539

48. Hashimoto A, Sonohata M, Mawatari M. The Use of Oral Analgesics and Pain Self-Efficacy Are Independent Predictors of the Quality of Life of Individuals with Rheumatoid Arthritis. Pain Res Manag 2020;23:7409396. Available from: https://doi.org/10.1155/2020/7409396

49. Iguti AM, Guimarães M, Barros MBA. Health-related quality of life (SF-36) in back pain: A population-based study, Campinas, São Paulo State, Brazil. Cad Saude Publica 2021;37(2):e00206019. Available from: https://doi.org/10.1590/0102-311x00206019

Author contribution.

Acquisition of data: DH, ID, VM, AS
Administrative, technical, or logistic support: VM, AS
Analysis and interpretation of data: DH, ID
Conception and design: IR, DH, ID
Critical revision of the article for important intellectual content: IR, OKT, DB
Drafting of the article: DH, ID
Final approval of the article: IR, OKT
Guarantor of the study: DH, ID
Provision of study materials or patients: IR, DH, ID
Statistical expertise: ID, DH

 2026. Hnatešen D, Dimitrijević I, Radoš I, Budrovac D, Tot OK, Matković V, Sabol A. This article is published under the terms of the Creative Commons Attribution License (CC BY 4.0) (https://creativecommons.org/licenses/by/4.0/),

Odnos intenziteta boli, katastrofizacije boli i funkcionalne onesposobljenosti s kvalitetom života kod osoba s kroničnom križoboljom

Sažetak

Cilj: Cilj ovog presječnog istraživanja bio je ispitati povezanost između intenziteta boli, katastrofiziranja boli, funkcionalne onesposobljenosti te fizičke i mentalne dimenzije kvalitete života povezane sa zdravljem kod pacijenata s kroničnom križoboljom.

Metode: Skupinu ispitanika činila su 152 pacijenta s kroničnom križoboljom. Primijenjeni su sljedeći upitnici: sociodemografski upitnik, Upitnik kvalitete života povezane sa zdravljem (SF-36), numerička ljestvica procjene (NRS), Skala katastrofiziranja boli (PCS) i Oswestry indeks onesposobljenosti (ODI). Provedene su analize višestruke linearne regresije kako bi se ispitala povezanost intenziteta boli, katastrofiziranja boli i onesposobljenosti s fizičkom i mentalnom dimenzijom kvalitete života povezane sa zdravljem.

Rezultati: Oba regresijska modela pokazala su se statistički značajnima. Za fizičku komponentu kvalitete života povezane sa zdravljem model višestruke regresije bio je statistički značajan ($F(3,109) = 27,335$; $p < 0,001$) i objašnjavao je 42,7 % varijance, dok je za mentalnu komponentu kvalitete života povezane sa zdravljem model također bio statistički značajan ($F(3,109) = 13,611$; $p < 0,001$) i objašnjavao je 27,3 % varijance.

Zaključak: Intenzitet boli, katastrofiziranje boli i onesposobljenost utvrđeni su kao neovisni prediktori fizičke komponente kvalitete života povezane sa zdravljem, dok su se onesposobljenost i katastrofiziranje pokazali kao jedini značajni prediktori za mentalnu komponentu. Rezultati ovog istraživanja u skladu su s biopsihosocijalnim modelom kronične boli, koji naglašava potrebu za prepoznavanjem višestrukih čimbenika kako bi se osiguralo individualizirano i sveobuhvatno liječenje osoba s kroničnom križoboljom.

Ključne riječi: kronična križobolja; kvaliteta života povezana sa zdravljem; intenzitet boli; onesposobljenost; katastrofiziranje boli