

# IMPACT OF PAIN CATASTROPHIZING ON MENTAL AND PHYSICAL HEALTH AMONG PATIENTS WITH CHRONIC PAIN: THE MODERATING ROLE OF PAIN SELF-EFFICACY

Omaima Khan<sup>a\*</sup>

<sup>a</sup>Department of Psychology, The University of Lahore, Sargodha Campus, Pakistan

\*Correspondence to: Ms. Omaima Khan, Department of Psychology, The University of Lahore, Sargodha Campus, Pakistan. E-mail: [omaimakhan145@gmail.com](mailto:omaimakhan145@gmail.com)

## KEYWORDS

Pain Catastrophizing, Mental Health, Physical Health, Pain Self-Efficacy

## CITE THIS ARTICLE:

Khan, O. (2026). Impact of pain catastrophizing on mental and physical health: the moderating role of pain self-efficacy. *Pakistan Journal of Positive Psychology*, 3(2), 29-33.

## ABSTRACT

Chronic pain is a multifaceted condition influenced by psychological as well as physiological factors, significantly impairing individuals' mental and physical health. The present study aimed to examine the impact of pain catastrophizing on mental and physical health among patients with chronic pain, and to investigate the moderating role of pain self-efficacy. A cross-sectional research design was employed, with a sample of 200 chronic pain patients recruited from public and private healthcare settings in Sargodha, Pakistan, using purposive sampling. Standardized instruments, including the Pain Catastrophizing Scale (PCS), Physical Health Questionnaire (PHQ), Mental Well-Being Scale, and Pain Self-Efficacy Questionnaire (PSEQ), were administered. The findings revealed that pain catastrophizing significantly predicted poorer mental and physical health outcomes. Moreover, pain self-efficacy was found to significantly moderate this relationship, such that higher levels of self-efficacy weakened the negative effects of catastrophizing on health outcomes. These results underscore the importance of targeting maladaptive cognitive patterns and enhancing self-efficacy in psychological interventions for chronic pain management. The study highlights the need for integrated biopsychosocial approaches to improve overall well-being in individuals suffering from chronic pain.

## I. INTRODUCTION

Chronic pain is a pervasive and complex health condition that significantly affects individuals' physical, psychological, and social well-being. Unlike acute pain, which serves as a protective biological mechanism, chronic pain persists beyond normal tissue healing time and is often associated with long-term disability and reduced quality of life. Globally, it represents a major public health concern, contributing to increased healthcare utilization and economic burden. Research indicates that chronic pain is not solely a physiological phenomenon but is strongly influenced by cognitive and emotional processes, highlighting the need for a biopsychosocial approach to its understanding and management (Quartana et al., 2014; Lee et al., 2015).

Among the psychological factors implicated in chronic pain, constructs such as pain catastrophizing and self-efficacy have received considerable attention. Pain catastrophizing refers to an exaggerated negative mental set brought to bear during actual or anticipated painful experiences, often leading to heightened pain perception and emotional distress. Conversely, self-efficacy, defined as an individual's belief in their ability to perform tasks or manage challenges, has been shown to play a protective role by reducing perceived disability and improving coping strategies. Empirical studies suggest that individuals with higher self-efficacy tend to report lower pain

intensity and better functional outcomes, emphasizing its importance as a therapeutic target (Costa et al., 2011; Cheng et al., 2018).

Furthermore, the interaction between psychological variables and physical health outcomes underscores the importance of integrated interventions in chronic pain management. Acceptance-based therapies, cognitive-behavioral approaches, and motivational interventions have demonstrated effectiveness in addressing maladaptive beliefs and enhancing adaptive coping mechanisms. These approaches not only reduce pain severity but also improve emotional well-being and daily functioning. Consequently, understanding the interplay between cognitive, emotional, and behavioral factors is essential for developing comprehensive treatment strategies aimed at reducing the burden of chronic pain and enhancing patients' quality of life (Veehof et al., 2011; Tse et al., 2013).

## II. METHOD

### Participants

The present study employed a cross-sectional research design. A total of 200 participants were recruited using a non-probability purposive sampling technique. Participants were selected from private and public hospitals and clinics in Sargodha, Pakistan. Inclusion criteria required participants to be patients aged 18 years and above, diagnosed with chronic pain for at least 3 months, while individuals with severe psychiatric disorders or cognitive impairments were excluded to ensure reliability of responses. The sample comprised 28.5% males and 71.5% females. Ethical approval was obtained from the relevant institutional review board, and informed consent was secured from all participants prior to data collection.

### Measures

**[1]** Data were collected using standardized, validated self-report questionnaires. A demographic information sheet was used to obtain participants' background characteristics such as age, gender, education, and medical history. **[2]** Pain-related symptoms were assessed using the Physical Health Questionnaire (PHQ) developed by Schat et al. (2005), which measures somatic complaints including sleep disturbance, headaches, gastrointestinal problems, and respiratory symptoms. The scale has demonstrated good internal consistency and construct validity. **[3]** Pain catastrophizing was measured using the Pain Catastrophizing Scale (PCS) developed by Sullivan et al. (1995), which evaluates rumination, magnification, and helplessness related to pain experiences. Responses are recorded on a Likert scale, with higher scores indicating greater catastrophizing. **[4]** Self-efficacy was assessed using the Pain Self-Efficacy Questionnaire (PSEQ) (Nicholas, 2007), which measures individuals' confidence in performing activities despite pain. The instrument has strong psychometric properties and is widely used in chronic pain research. All instruments used in the study demonstrated acceptable reliability, with Cronbach's alpha coefficients above 0.70.

### Procedure

After obtaining ethical approval, permission was sought from relevant institutions to approach participants. Potential participants were informed about the purpose, nature, and confidentiality of the study. Written informed consent was obtained prior to participation. Data were collected either individually or in small groups in a quiet and comfortable setting. Participants were provided with the questionnaire booklet containing the demographic form and standardized instruments. Instructions were explained verbally, and participants were encouraged to respond honestly. The average completion time was approximately 20–30 minutes. Participants were assured that their responses would remain confidential and used solely for research purposes. They were also informed of their right to withdraw at any stage without penalty. Upon completion, questionnaires were checked for completeness and securely stored for data analysis.

### III. RESULTS

**Table I: Psychometric Properties of the Scales**

Variables	M	SD	Range	α
Pain Catastrophizing Scale	23.16	10.21	0-74	.79
Physical Health Scale	46.04	13.54	14-85	.82
Mental Well-Being Scale	43.84	11.76	14-70	.90
Pain Self-Efficacy Scale	30.77	14.45	0-60	.92

\*\* $p < .01$

Table I shows psychometric properties for the scales utilized in present examination. The Cronbach's  $\alpha$  an incentive for Pain Catastrophizing Scale was .79 ( $>.70$ ) which demonstrated palatable inward consistency. The Cronbach's  $\alpha$  an incentive for Physical Health Scale was .82 ( $>.70$ ) which demonstrated good inward consistency. The Cronbach's  $\alpha$  an incentive for Mental Well-Being Scale was .90 ( $>.70$ ) which demonstrated high inside consistency. The Cronbach's  $\alpha$  an incentive for Pain Self Efficacy Scale was .92 ( $>.90$ ) which demonstrated High inward consistency.

**Table II: Model Fit Indices of Modified Model**

Model	$\chi^2$			RMSEA		AIC	BIC
	Value	df	p	Value	95% CI		
Saturated Model	.20	1	$>.05$	.30	[.68, .74]	198.54	198.75

Note. RMSEA = Root mean square error of approximation, CI = Confidence interval, AIC = Alkaile information criterion, BIC = Bayesian information criterion.

Table II shows model fit indices of final modified model of study. Results show that the above mentioned model was the best fitted model of the current study. Pain catastrophizing effected mental and physical health was highly significant. Model fit indices were satisfactory (NFI & CFI  $< .95$ ). Results revealed that pain self-efficacy highly significantly moderated the relationship between pain catastrophizing, mental and physical health ( $p < .001$ ).

**Figure-I: Framework of Proposed Model**

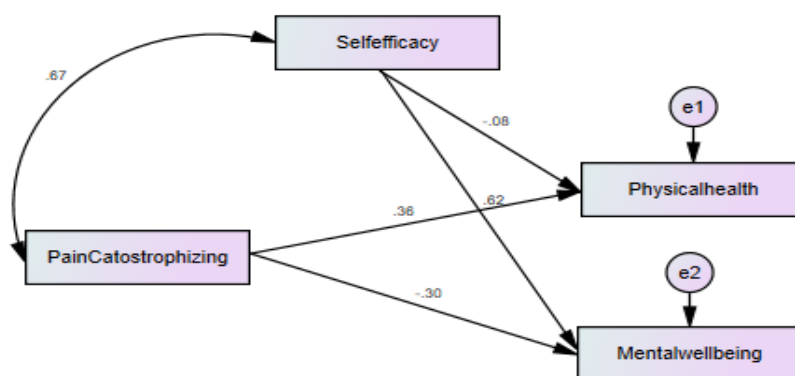


Figure 1 illustrates the conceptual framework of the study, depicting the direct effect of pain catastrophizing on both mental health and physical health outcomes, as well as the moderating role of pain self-efficacy. The model shows that higher levels of pain catastrophizing are associated with poorer mental well-being and increased physical health complaints. Simultaneously, pain self-efficacy is positioned as a moderator that influences the strength and direction of these relationships. Specifically, the diagram suggests that individuals with higher self-efficacy are better able to mitigate the negative impact of catastrophizing on health outcomes. The overall structure of the model highlights the interaction between cognitive vulnerability (catastrophizing) and adaptive coping resources (self-efficacy), providing a comprehensive representation of the psychological processes underlying chronic pain experiences.

## IV. DISCUSSION

The present findings indicate that pain catastrophizing is a significant predictor of both poor mental well-being and deteriorated physical health among patients with chronic pain, which is consistent with contemporary biopsychosocial models of pain. The strong internal consistency of the measures used ( $\alpha = .79-.92$ ) supports the reliability of the observed relationships. The significant effect of pain catastrophizing aligns with prior research demonstrating that maladaptive cognitive appraisals amplify pain perception, emotional distress, and somatic complaints (Quartana et al., 2014; Lee et al., 2015). Individuals who engage in rumination, magnification, and helplessness are more likely to experience heightened psychological burden, which in turn exacerbates physical symptoms, suggesting a cyclical interaction between cognitive distortions and health outcomes.

A key contribution of this study lies in identifying pain self-efficacy as a significant moderating variable. The results revealed that higher levels of self-efficacy buffer the adverse effects of pain catastrophizing on both mental and physical health ( $p < .001$ ). This finding is supported by earlier empirical work indicating that individuals with strong self-efficacy beliefs are better able to manage pain, maintain daily functioning, and employ adaptive coping strategies (Costa et al., 2011; Cheng et al., 2018). The moderation effect suggests that even in the presence of high catastrophizing, individuals with greater confidence in their ability to manage pain may experience less severe negative outcomes. This highlights the protective psychological mechanism of self-efficacy and underscores its importance in therapeutic interventions.

These findings have important clinical implications for the management of chronic pain. Interventions such as cognitive-behavioral therapy (CBT), acceptance-based therapies, and self-management programs should prioritize reducing catastrophizing thoughts while simultaneously enhancing pain self-efficacy. Previous studies have shown that such integrated approaches not only reduce perceived pain intensity but also improve emotional regulation and overall quality of life (Veehof et al., 2011; Tse et al., 2013). Therefore, incorporating self-efficacy enhancement strategies—such as goal setting, skill-building, and mastery experiences—into treatment plans may lead to more sustainable outcomes. Future research should employ longitudinal designs to establish causal relationships and further explore additional moderating or mediating variables influencing chronic pain outcomes.

## V. CONCLUSION

In conclusion, the findings of the present study demonstrate that pain catastrophizing plays a significant detrimental role in both mental and physical health outcomes among individuals with chronic pain, reinforcing the importance of cognitive factors in pain perception and management. Moreover, pain self-efficacy emerged as a crucial protective factor, significantly moderating this relationship by reducing the negative impact of maladaptive thought patterns. These results highlight the need for comprehensive, psychologically informed interventions that not only target the reduction of catastrophic thinking but also strengthen individuals' confidence in managing their pain. Overall, enhancing pain self-efficacy may serve as a key mechanism in improving health outcomes and quality of life for patients suffering from chronic pain.

### Disclosure Statement

No potential conflict of interest was reported by the authors.

### Funding

The author received no funding from any organizations.

## VI. REFERENCES

American Psychological Association. (2020). *Publication manual of the American Psychological Association* (7th ed.).

- Cheng, J. O. Y., Ng, E. M. L., Ko, J. S. S., & Kwan, R. L. C. (2018). The role of pain self-efficacy in the relationship between pain intensity and disability in patients with chronic pain. *Journal of Pain Research, 11*, 1887–1896. <https://doi.org/10.2147/JPR.S168849>
- Costa, L. D. C. M., Maher, C. G., McAuley, J. H., Hancock, M. J., Herbert, R. D., & Costa, L. O. P. (2011). Self-efficacy is more important than fear of movement in mediating the relationship between pain and disability in chronic low back pain. *European Journal of Pain, 15*(2), 213–219. <https://doi.org/10.1016/j.ejpain.2010.06.014>
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage.
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics, 5*(1), 1–4.
- Lee, D. M., Pendleton, N., Tajar, A., O'Neill, T. W., O'Connor, D. B., Bartfai, G., Boonen, S., Casanueva, F. F., Finn, J. D., Forti, G., Giwercman, A., Han, T. S., Huhtaniemi, I. T., Kula, K., Lean, M. E. J., Punab, M., Silman, A. J., Vanderschueren, D., & Wu, F. C. W. (2015). Chronic widespread pain is associated with slower cognitive processing speed in middle-aged and older European men. *Pain, 156*(10), 1996–2003. <https://doi.org/10.1097/j.pain.0000000000000257>
- Nicholas, M. K. (2007). The Pain Self-Efficacy Questionnaire: Taking pain into account. *European Journal of Pain, 11*(2), 153–163.
- Quartana, P. J., Campbell, C. M., & Edwards, R. R. (2014). Pain catastrophizing: A critical review. *Expert Review of Neurotherapeutics, 9*(5), 745–758. <https://doi.org/10.1586/ern.09.34>
- Schat, A. C. H., Kelloway, E. K., & Desmarais, S. (2005). The Physical Health Questionnaire (PHQ): Construct validation of a self-report scale of somatic symptoms. *Journal of Occupational Health Psychology, 10*(4), 363–381.
- Sullivan, M. J. L., Bishop, S. R., & Pivik, J. (1995). The Pain Catastrophizing Scale: Development and validation. *Psychological Assessment, 7*(4), 524–532.
- Tse, M. M. Y., Vong, S. K. S., & Tang, S. K. (2013). Motivational interviewing and exercise programme for community-dwelling older persons with chronic pain: A randomized controlled study. *Journal of Clinical Nursing, 22*(13–14), 1843–1856. <https://doi.org/10.1111/jocn.12194>
- Veehof, M. M., Oskam, M. J., Schreurs, K. M. G., & Bohlmeijer, E. T. (2011). Acceptance-based interventions for the treatment of chronic pain: A systematic review and meta-analysis. *Pain, 152*(3), 533–542. <https://doi.org/10.1016/j.pain.2010.11.002>
- World Medical Association. (2013). Declaration of Helsinki: Ethical principles for medical research involving human subjects. *JAMA, 310*(20), 2191–2194.