

# Chronic Pain and its relationship with psychological well-being: The protective role of perceived emotional intelligence

## *Dolor crónico y su relación con el bienestar psicológico: El rol protector de la inteligencia emocional percibida*

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### ABSTRACT

Chronic pain encompasses any condition or pathology that includes suffering from pain for a period of no less than three months that affects personal, work and family life. Psychological well-being is one of the most affected aspects in people suffering from chronic pain and the development of good emotional intelligence may be a protective factor for this well-being. The aim of this study was to test whether there are differences in Psychological Well-being and Perceived Emotional Intelligence between university students with chronic pain and those without pathologies, and to analyse whether Perceived Emotional Intelligence can explain the variability in the psychological well-being of students with chronic pain. A total of 101 people participated in the study (mean age = 23 years; SD = 4.6), 53 with chronic pain and 48 without previous pathologies. A descriptive-correlational study was conducted in which participants had to complete a survey on a voluntary basis. The results showed differences in Self-acceptance and Purpose in life of psychological well-being and in Emotional Repair of Perceived Emotional Intelligence. In addition, a positive linear relationship was found between Emotional Repair and Self-Acceptance, Purpose in Life and Environmental Mastery scores in participants with chronic pain. The present study highlights the importance of emotional intelligence

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training in people with chronic pain for the development of psychological well-being.

**Keywords:** Chronic pain, Perceived Emotional Intelligence, Psychological Well-Being, Purpose in life, Self-acceptance.

## RESUMEN

El dolor crónico engloba a cualquier afección o patología que incluya el padecimiento de dolor por un tiempo no menor a tres meses que afecte en el ámbito personal, laboral y familiar. El bienestar psicológico es uno de los aspectos más afectados en las personas que padecen dolor crónico, y el desarrollo de una buena inteligencia emocional puede ser un factor protector de este bienestar. El presente estudio tiene por objetivo comprobar si existen diferencias en el bienestar psicológico y la inteligencia emocional percibida entre estudiantes universitarios con dolor crónico y sin patologías, así como analizar si la inteligencia emocional percibida puede explicar la variabilidad en el bienestar psicológico de los estudiantes con dolor crónico. Participaron 101 personas en el estudio (edad media = 23 años; DE = 4,6), 53 con dolor crónico y 48 sin patologías previas. Se realizó un estudio descriptivo-correlacional en el que los participantes tuvieron que completar una encuesta de forma voluntaria. Los resultados mostraron diferencias en la autoaceptación y el propósito en la vida del bienestar psicológico y en la reparación emocional de la inteligencia emocional percibida. Además, se encontró una relación lineal positiva entre reparación emocional y las puntuaciones autoaceptación, el propósito en la vida y el dominio del entorno en los participantes con dolor crónico. El presente estudio pone de manifiesto la importancia del entrenamiento de la inteligencia emocional en las personas con dolor crónico para el desarrollo del bienestar psicológico.

**Palabras clave:** Dolor crónico, inteligencia emocional, bienestar psicológico percibida, propósito en la vida, autoaceptación.

## INTRODUCTION

Pain is a phenomenon of significant clinical importance due to its multidimensional nature, affecting physical, psychological, and emotional well-being. Chronic pain is characterized by its duration, varying intensities, and impacts on an individual's health, personal life, and work. This expanded perspective on chronic pain considers not only its duration but also its intensity, the affected domains of the person experiencing it, and the complexity of proposing palliative treatment (Cohen *et al.*, 2021; Raffaelli *et al.*, 2021). The World Health Organization and the European Pain Federation also support this view, anticipating a revision of the term in the upcoming International Classification of Diseases (World Health Organization, 2020).

Chronic pain has a high comorbidity with various psychological disorders (Tunks *et al.*, 2008), particularly affective disorders (Chen *et al.*, 2022; Gormsen *et al.*, 2010). It also impacts different aspects related to quality of life, including independence, self-efficacy, and psychological well-being (Husky *et al.*, 2018; Yong *et al.*, 2022). Regarding psychological well-being, McNaughton *et al.* (2018) identified four distinct groups of chronic pain patients based on their level of psychological well-being: psychologically healthy, with mild psychological distress, with high and medium psychological distress, the latter experiencing the greatest intensity of pain and disability, regardless of whether the etiology of the preceding pain was medically explained or unexplained. Furthermore, it has been found that preserving and promoting psychological well-being leads to a reduction in pain intensity and the risk of consequent psychological health issues (Furrer *et al.*, 2019; Zanini *et al.*, 2018). Therefore, in these cases, it is important to consider potential protective factors that prevent the development of psychopathologies and promote positive coping (Liesto *et al.*, 2020), which can also be key in adherence to pain treatment (Boselie & Peters, 2023).

Emotional intelligence has emerged as one of these potential protective factors to mitigate the impact of chronic pain on well-being (Shaygan & Karami, 2020). This ability can be defined as the capacity to understand, perceive, and manage emotions (Caruso *et al.*, 2015). A negative relationship exists between the capacity to regulate emotions and the experience associated with pain (Frumkin *et al.*, 2020), indicating that pain influences emotional state and vice versa. The link between the development of emotional intelligence and psychological well-being has also been established (Callea *et al.*, 2019; Cejudo *et al.*, 2018). Sanchez-Alvarez *et al.* (2015) found a high Perceived Emotional Intelligence is associated with more positive experiences and fewer negative experiences, leading to greater life satisfaction in adolescents. Recent studies (Malinauskas & Malinauskienė, 2020; Urquijo *et al.*, 2016) suggested that Emotional Intelligence correlates positively with perceived social support and well-being in graduate students, while perceived stress does not mediate this relationship. Ruiz-Aranda *et al.* (2011) also proved that developing high Emotional Intelligence reduces the negative effects of pain as well as the intensity of pain. These findings have been replicated in more recent studies (Doherty *et al.*, 2017; Parmelee, *et al.*, 2018). However, not many studies have delved into the role of emotional intelligence in the psychological well-being of individuals with chronic pain (Anagnostopoulos *et al.*, 2022; Zeidner *et al.*, 2012). Therefore, some studies have emphasised the need to deepen this relationship so that the evidence can have implications for a more comprehensive approach to the treatment of people with chronic pain by health professionals (Anagnostopoulos *et al.*, 2022; Parmelee *et al.*, 2018).

### **Research hypothesis**

Considering the literature, the present study proposes the following hypotheses:

H<sub>1</sub>. Participants with chronic pain will score lower in the dimensions of psychological well-being and perceived emotional intelligence than participants without pain.

H<sub>2</sub>. The dimensions of psychological well-being will have a positive linear relationship with the dimensions of perceived emotional intelligence among participants with chronic pain.

### **Objectives**

The main objective of the study was to analyse the effect of perceived emotional intelligence variables on the psychological well-being of university students with chronic pain.

For this purpose, two specific objectives were proposed:

- To explore if there are differences between participants with chronic pain and those without pain in their psychological well-being and perceived emotional intelligence.
- To analyze whether scores of perceived emotional intelligence dimensions predict/explain the psychological well-being dimensions of chronic pain participants.

### **Sample**

Responses were collected from a total of 384 university students, who were selected through a non-probabilistic snowball sampling method. Out of the total participants, 101 were selected for the study. These students were enrolled in the second and third year of the Psychology Degree program. There were 53 participants who met the criteria for chronic pain (at least 3 months of constant pain) and 48 without any type of pathology and who were not taking medication at the time the responses were collected. The average age was 23 years (SD = 4.6). All participants resided in the province of Cádiz at the time of completing the questionnaire.

### **Data collection**

An *ad hoc* questionnaire was sent to participants who agreed to participate voluntarily and accepted the conditions of informed consent. The questionnaire included:

- Demographic and clinical items. Age along with the history of other pathologies or if they were taking any medication, which were used as exclusion criteria for the control group.
- Brief version of the Psychological Well-Being Scale, by Carol Ryff adapted to Spanish (Díaz *et al.*, 2006). This scale assesses the subjective well-being of individuals in

relation to their context, interpersonal relationships, and self. It consists of 39 items scored on a Likert scale ranging from 1 to 6 (where 1 = strong disagreement and 6 = strong agreement). In the current study, the reliability of this scale was confirmed with a Cronbach's alpha of 0.902. It is composed of 6 dimensions:

- Self-Acceptance: attitude towards themselves. In the current study, this dimension achieved a reliability with a Cronbach's alpha of 0.763.
- Positive Relations: the capacity to create and maintain affectionate relationships with others and to care for their well-being. In this study, this dimension achieved a reliability with a Cronbach's alpha of 0.728.
- Autonomy: independence and determination in regulating behavior through one's own evaluative criteria. In the current study, this dimension achieved a reliability with a Cronbach's alpha of 0.864.
- Environmental Mastery: the sensation of control and competence over one's own context. In the present study, this dimension achieved a reliability with a Cronbach's alpha of 0.934.
- Personal Growth: continuous development through openness to new experiences and the capacity to perceive such development within oneself. In the current study, this dimension achieved a reliability with a Cronbach's alpha of 0.776.
- Purpose in Life: the ability to organize and pursue important life goals. In the current study, this dimension achieved a reliability with a Cronbach's alpha of 0.855.
- Trait Meta-Mood Scale 24 (TMMS-24) for Perceived Emotional Intelligence, based on the Trait Meta-Mood Scale (TMMS) by Salovey and Mayer, adapted to Spanish (Górriz *et al.*, 2021). This scale assesses the meta-knowledge of emotional states through 48 items. TMMS-24 contains three key dimensions of EI, each with 8 items:
  - Emotional Attention: the capacity to observe and consider one's feelings and moods. In the present study, this dimension achieved a reliability with a Cronbach's alpha of 0.903.
  - Emotional Clarity: the ability to understand one's own emotional states. In the present study, this dimension achieved a reliability with a Cronbach's alpha of 0.763.
  - Emotional Repair: refers to individuals' beliefs about their ability to regulate their feelings. In the present study, this dimension achieved a reliability with a Cronbach's alpha of 0.877.

- **Chronic Pain Scale:** A scale that assesses pain in three main areas: the number of days pain was experienced in the last six months, the intensity of the pain, and the degree of disability caused by the pain. For this study, only the first two sections of this scale were considered.

### ***Procedure***

The set of scales were sent to the participants along with an informed consent form via a link in an email. Responses were collected anonymously on the SurveyMonkey platform. Participants who responded to the questionnaire but did not accept the informed consent or did not meet the inclusion criterion of experiencing chronic pain (90-180 days of pain in the last six months) were excluded from the sample (Chronic pain group). The history of other pathologies and the medication were used as exclusion criteria for the control group.

The study was conducted in accordance with the Helsinki Declaration (2013, Seventh Revision, 64th Meeting, Fortaleza), current legislation on health research, and the Organic Law 3/2018, of December 5, on Personal Data Protection and Guarantee of Digital Rights in Spain.

### ***Data Analysis***

The normality of the quantitative variables was checked using the Kolmogorov-Smirnov test (Lilliefors, 1967). Descriptive statistical analyses were performed to summarize the demographic data. The non-parametric Mann-Whitney U test (McKnight & Najab, 2010) was used to assess the differences between the scores of the variables of psychological well-being and perceived emotional intelligence according to the groups. Additionally, a multiple linear regression model (Uyanık & Güler, 2013) was employed to examine whether the variables of perceived emotional intelligence explained/predicted the scores in the dimensions of psychological well-being in participants with chronic pain.

Data analysis was conducted using IBM Statistical Package for the Social Sciences (SPSS) 29 version. A significance level of 0.05 was used for all tests.

## **FINDINGS**

### ***Descriptives***

In Table 1, the descriptive statistics for age and the dimensions of psychological well-being and perceived emotional intelligence of participants with chronic pain and control group participants are showed.

**Table 1.** Descriptive Statistics of Age and Scores in the Dimensions of Psychological Well-Being and Perceived Emotional Intelligence by Group

	Group									
	Control					Chronic Pain				
	<i>m</i>	<i>mdn</i>	<i>sd</i>	<i>max</i>	<i>min</i>	<i>m</i>	<i>mdn</i>	<i>sd</i>	<i>max</i>	<i>min</i>
Age	23	22	3	32	20	24	22	6	49	21
Self-Acceptance	4.52	4.67	0.87	5.83	2.17	4.02	4.17	1.07	5.83	1.50
Positive Relations	4.66	4.83	0.94	6.00	3.00	4.46	4.83	1.21	6.00	1.00
Autonomy	4.12	4.13	0.84	6.00	2.25	4.06	4.13	0.95	5.75	1.50
Enviromental Mastery	4.23	4.25	0.83	5.83	2.67	4.16	4.33	0.76	5.83	2.67
Personal Growth	4.71	4.71	0.66	6.00	3.57	4.57	4.71	0.78	6.00	2.43
Purpose in Life	4.76	4.92	0.83	6.00	2.67	4.36	4.33	1.01	6.00	2.17
Emotional Attention	3.29	3.38	0.74	5.00	1.63	3.48	3.63	0.88	5.00	1.75
Emotional Clarity	3.44	3.44	0.82	5.00	1.88	3.44	3.50	0.82	5.00	1.63
Emotional Repair	3.85	4.00	0.78	5.25	2.00	3.43	3.50	0.77	4.88	1.75

\*Note. *m* = mean; *mdn* = median; *sd* = standard deviation; *max* = maximum; *min* = minimum.

**H<sub>1</sub>. Participants with chronic pain will score lower in the dimensions of psychological well-being and perceived emotional intelligence than participants without pain.**

Upon examining whether there were significant differences between participants suffering from chronic pain and those who did not (Table 2), it was found that participants with chronic pain had significantly lower scores in self-acceptance ( $U = 913.500$ ;  $p = 0.015$ ), purpose in life ( $U = 966.500$ ;  $p = 0.037$ ), and emotional repair ( $U = 889.500$ ;  $p = 0.009$ ).

**Table 2.** Comparisons of Mean Rank Scores of the Dimensions of Psychological Well-Being and Perceived Emotional Intelligence by Group

	<b>Group</b>	<b>Mean Rank</b>	<b>Sum of Ranks</b>	<i>U</i>	<i>p</i>
Self-Acceptance	CN	58.47	2806.50	913.500	0.015
	CP	44.24	2344.50		
Positive Relations	CN	52.32	2511.50	1208.500	0.665
	CP	49.80	2639.50		
Autonomy	CN	51.00	2448.00	1272.000	1
	CP	51.00	2703.00		
Enviromental Mastery	CN	51.81	2487.00	1233.000	0.79
	CP	50.26	2664.00		
Personal Growth	CN	52.45	2517.50	1202.500	0.636
	CP	49.69	2633.50		
Purpose in Life	CN	57.36	2753.50	966.500	0.037
	CP	45.24	2397.50		
Emotional Attention	CN	46.43	2228.50	1052.500	0.135
	CP	55.14	2922.50		
Emotional Clarity	CN	51.05	2450.50	1269.500	0.986
	CP	50.95	2700.50		
Emotional Repair	CN	58.97	2830.50	889.500	0.009
	CP	43.78	2320.50		

\*Note. CN = Control; CP = Chronic Pain; U = Mann-Whitney U.



**H<sub>2</sub>. The dimensions of psychological well-being will have a positive linear relationship with the dimensions of perceived emotional intelligence among participants with chronic pain.**

The dimensions of psychological well-being, namely autonomy, personal growth, and purpose in life, were statistically and positively correlated with scores in emotional clarity, while self-acceptance, environmental mastery, and purpose in life were positively and significantly related to emotional repair (Table 3). When these variables of perceived emotional intelligence were included in linear regression models, the models significantly explained the dependent variables of psychological well-being (Table 4).

**Table 3.** Correlations between the dimensions of Psychological Well-Being and Perceived Emotional Intelligence

		Self-Acceptance	Positive Relations	Autonomy	Enviromental Mastery	Personal Growth	Purpose in Life
Emotional Attention	<i>Rbo</i>	-0.128	-0.158	-0.207	-0.205	0.064	-0.050
	p	0.359	0.257	0.138	0.141	0.651	0.724
Emotional Clarity	<i>Rbo</i>	0.170	0.026	0.365**	0.250	0.336*	0.314*
	p	0.225	0.853	0.007	0.071	0.014	0.022
Emotional Repair	<i>Rbo</i>	0.406**	0.092	0.112	0.441**	0.240	0.639**
	p	0.003	0.511	0.424	<0.001	0.083	<0.001

\*\* . The correlation is significant at the 0.01 level.

\* . The correlation is significant at the 0.05 level (two-tailed).

**Table 4.** Regression Models of Psychological Well-Being Dimensions based on Perceived Emotional Intelligence dimensions

Model	<i>R</i>	<i>R</i> <sup>2</sup>	Adjusted <i>R</i> <sup>2</sup>	Std. Error of the Estimate	<i>F</i>	<i>p</i>
Autonomy <sup>a</sup>	0.310	0.096	0.079	0.90786	5.441	0.024
Personal Growth <sup>a</sup>	0.406	0.165	0.148	0.71948	10.067	0.003
Purpose in Life <sup>a</sup>	0.323	0.104	0.087	0.96339	5.928	0.018
Self-Acceptance <sup>b</sup>	0.420	0.177	0.160	0.98437	10.936	0.002
Enviromantal Mastery <sup>b</sup>	0.415	0.172	0.156	0.69645	10.617	0.002
Purpose in Life <sup>b</sup>	0.624	0.390	0.378	0.79509	32.579	0.001

\**Note.* a. Predictor = Emotional Clarity; b. Predictor = Emotional Repair.

## DISCUSSION

Chronic pain significantly affects the quality of life and mental health of those who suffer from it (Wettstein *et al.*, 2019; Zis *et al.*, 2019). The present study supports the findings in the literature, with individuals experiencing chronic pain scoring lower in self-acceptance, purpose in life, and emotional repair, as anticipated in the first hypothesis. These results align with Trompetter *et al.*, (2016), who found that individuals with chronic pain exhibited low levels of mental resilience resources such as self-acceptance, purpose in life, and environmental mastery. Studies have also explored the bidirectional relationship between emotional repair and chronic pain, wherein they mutually affect each other, resulting in more pain and, in turn, a reduced capacity to manage negative emotions (Russell & Park, 2018; Koechlin *et al.*, 2018). Poor management of these negative emotions has also been shown to be related to the misuse of prescribed opioids for pain relief (Aaron *et al.*, 2020; Lutz *et al.*, 2018), which further damages the health of individuals with chronic pain in the long term.

Regarding the second hypothesis, a significant positive relationship was found between emotional clarity and autonomy, personal growth, and purpose in life. This relationship was supported in the linear regression analysis with emotional clarity as a predictor. The ability to understand one's own emotional states has proven to be a fundamental protective factor for other populations with chronic conditions such as breast cancer survivors (Guil *et al.*, 2022) and psychiatric patients (Wang *et al.*, 2016). For individuals with chronic pain, this ability helps to prevent situations that could harm their mental health (Tsur *et al.*, 2016). Similarly, in the present study, emotional repair was shown to be a good predictor of self-acceptance, environmental mastery, and purpose in life in individuals with chronic pain.

Therefore, it is a key variable for recovery and palliative treatment of pain, as it allows for acceptance of the patient's situation, increases their sense of control, and more effectively orients their future goals (Amaro-Díaz *et al.*, 2022; Lumley *et al.*, 2021). Additionally, as mentioned earlier, the capacity to regulate emotions facilitates earlier recovery from pain (Zeinali & Pourhosein, 2016).

These results can aid in understanding how to design intervention strategies for the improvement of individuals with chronic pain. However, the current study also has limitations, such as the sample size and not considering relevant medical variables, which needs further exploration of these aspects before designing health promotion programs for this population. Future studies should consider larger samples and longitudinal research designs to facilitate extrapolation of the results to more specific populations, explore the role of emotional repair and emotional clarity in other variables related to the quality of life of people with chronic pain and explore the relevance that purpose in life may have in chronic pain patients in order to design intervention strategies to promote it.

## CONCLUSIONS

The present study provides relevant evidence about the state of psychological and emotional well-being in individuals with chronic pain. As assumed in the first hypothesis, participants with chronic pain have worse levels of well-being, self-acceptance, and purpose in life, compared to those without pain. Emotional clarity and emotional repair can partially explain the low levels of psychological well-being in individuals with chronic pain, as expected in the second hypothesis. Furthermore, the results of the study can be used as a reference by health professionals to plan and develop psychotherapeutic interventions for people with chronic pain to improve their psychological well-being by training their ability to regulate their emotions and identify their emotional states.

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