

# *Psychotherapy and chronic pain management: a quantitative study evaluating the contribution of psychotherapy to quality of life and treatment compliance in chronic disease patients*

## BACKGROUND

The psychology of pain is an important field of study that focuses on understanding the psychological factors associated with pain and developing effective approaches to its management. Pain is a complex sensation that affects a person's physical and mental well-being, and psychological factors can have a significant impact on the perception, response and coping with pain. This research study examines the contribution of psychotherapy in managing chronic pain and improving quality of life and treatment adherence.

## PARTICIPANTS AND PROCEDURE

The sample consisted of 87 participants who completed the McGill Pain Assessment Questionnaire, SF-36 Quality of Life questionnaire, and the Morisky Medication Adherence Scale (MMAS-8) questionnaire. Two groups were created: one group received psychotherapy to manage pain and illness, while the other group either did not receive psychotherapy or had no contact with this therapeutic method.

## RESULTS

The results showed that patients who received psychotherapy had higher scores in the dimensions of mental health,

vitality, general health, physical pain, physical functioning, and social functioning compared to patients who did not receive psychotherapy. Statistical analysis confirmed significant differences between the two groups. Additionally, psychotherapy was associated with higher treatment adherence, as indicated by the mean scores of patients receiving psychotherapy compared to those who did not.

## CONCLUSIONS

This suggests that psychotherapy can contribute to increased treatment adherence. The results clearly show that patients who received psychotherapy have significantly higher levels of mental health, vitality, general health and functioning compared to patients who did not receive psychotherapy.

## KEY WORDS

psychotherapy; chronic pain; chronic illness; quality of life; treatment compliance; pain assessment; biopsychosocial model

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## BACKGROUND

### CHRONIC PAIN AND CHRONIC DISEASES

According to data from the World Health Organization, chronic pain is an important public health problem worldwide (WHO, 2020). In the United States of America 20% of adults suffer from chronic pain (Gallup, 2017), while in Europe the figure is 20-30% and it is highly associated with other chronic diseases such as cardiovascular disease, diabetes and neurological diseases (WHO, 2020). Other conditions associated with chronic pain are osteoarthritis, back pain and headache, which are more frequent causes of visits to doctors and hospitals than other conditions (Treede et al., 2019). The International Association for the Study of Pain (IASP) defines pain as “an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage” (Raja et al., 2020). This is the revision made in 2020 to the definition of pain that had prevailed since 1979, during which time there was a conflict in scientific circles about its accuracy. In the new definition, notes have been added stating that pain is always a personal experience that is affected to varying degrees by biological, psychological and social factors. Pain and morbid sensory stimulation are different phenomena. Pain cannot be derived solely from the activity of sensory neurons. Through their life experiences, people learn the meaning of pain. A person’s report of a pain experience should be respected. Although pain usually has an adaptive role, it can have negative effects on functioning and social and psychological well-being. Verbal description is only one of many ways of expression of pain; inability to communicate does not preclude the possibility that a human or non-human animal experiences pain (Raja et al., 2020). Also, in the paper by Raja et al. (2020), the etymology of the word is mentioned: the English ‘pain’ derives from the Latin ‘poena’, which comes from the Goddess of Punishment in ancient Greece and is synonymous with the word ‘pain’. Scientific theories of pain begin with Descartes in 1644 with the development of the ‘specialization theory’. According to this theory pain is different from other sensations, it has its own place in the brain, its own receptors in the periphery and its own pathway in the nervous system. Over the years science has made leaps and bounds especially in pharmacology; aspirin and other pain relievers have been discovered. Another theory was introduced by Melzack and Wall (1965), the ‘gate control theory’, which marks the beginning of a new era in the treatment of chronic pain. This theory agrees with Descartes that there is a specific neural pathway, but with many different synapses that inform the brain about pain that allow it to affect and change the intensity and duration; it is the most accepted theory

by most scientists (Melzack & Wall, 1965). After respiration, pulse, temperature and blood pressure, pain is considered the fifth vital sign, whereas in very few places in the world is it assessed the same as the other four vital signs (Morone & Weiner, 2013).

### PSYCHOLOGY OF PAIN

The psychology of pain is an important field of study that focuses on understanding the psychological factors associated with pain and developing effective approaches to its management. Pain is a complex sensation that affects a person’s physical and mental well-being, and psychological factors can have a significant impact on the perception, response and coping with pain (Gatchel et al., 2007). Stress acts as a dysregulation factor that affects the physical and mental well-being of the individual (Adam et al., 2017). Research has shown that stress is an important factor in the ineffective treatment of pain and its occurrence (Adam et al., 2017). Symptoms of anxiety include emotional and physical symptoms. Emotional symptoms include discomfort, irritability, worry, overexertion, sadness, and nervousness, while physical symptoms include pathological restlessness, tremors, nausea, sore throat or stomach, headache, dizziness and urinary frequency (Jensen et al., 1991). The relationship between stress and pain is considered critical in detecting the causes of chronic pain. The biopsychosocial approach, which combines psychosocial factors and the neuroscience of pain, has been shown to be the most effective approach to pain management. This approach focuses on the interaction between illness and disease, considering it as a set of biological, social and psychological factors (Gatchel, 2015). The importance of this model in dealing with pain has led to effective psychological approaches to its management.

### PSYCHOTHERAPEUTIC APPROACHES

Research has shown that cognitive behavioral therapy (CBT) is effective in managing chronic pain, improving quality of life (Jensen & Turk, 2014). CBT focuses on addressing the negative thoughts and feelings associated with pain, as well as developing new pain management strategies (Eccleston et al., 2012). Specifically, patients learn to recognize and change negative thoughts and behaviors that affect pain and replace them with positive thoughts and through relaxation exercises, breathing, proper nutrition and sleep to develop management strategies (Eccleston et al., 2012). Factors that influence and play an important role in the compliance and success of CBT for the management of chronic pain or disease according to Vlaeyen et al. (2002) include the duration of pain,

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as it is effective in individual medium-long-term pain instead of individual long-term pain, the expectations of the individual but also his beliefs, the social support he receives from his environment, such as family, friends, colleagues and the state or the health system, the cooperation with the therapist and finally possible coexisting conditions such as mental problems or other diseases. In addition to CBT, another effective approach according to research is psychodynamic therapy. Psychodynamics differs methodologically from CBT; it focuses on examining the stratification of the patient, his experiences in relation to the symptom and his relationship with other people and his environment. This is particularly helpful for patients as psychological factors associated with pain may be linked to past experiences and behaviors. It can help develop new pain management strategies and teach the patient to react to the experience in a more positive way. It encourages change in habits and attitudes related to pain and enhances self-confidence and self-esteem but may require more time and may not be suitable for some patients (Lumley et al., 2012). Another method that has been used and has been shown to be effective is hypnotherapy in combination with psychotherapy. It is based on strengthening the patient's consciousness during sleep and can be used in various ways. Initially it can be used to improve the quality of sleep, as a lack of it can worsen pain and related symptoms, while restoring a healthy sleep rhythm can help reduce pain. In addition, it can be used to improve pain management during the night using various techniques, such as imagining a peaceful landscape or thinking about positive images during the night (Tang & Sanborn, 2014).

#### QUALITY OF LIFE

According to the WHO (1946), health-related quality of life describes the effects that the disease and the treatment have on the patient's life. For people in the health field, the assessment of quality of life is an important tool for monitoring and evaluating the course of the disease. It includes how health affects different aspects of life, such as physical and mental well-being, functioning, relationships, social activities and personal performance. Studies examining the effect of psychotherapy on quality of life have been carried out in Greece and show a positive correlation between the two (Sklavounou-Sotiriou & Martinis, 2018). In this work, the SF-36 questionnaire was used to measure the patients' quality of life.

#### COMPLIANCE WITH MEDICATION

Compliance with medication is of vital importance in the health field, as non-compliance can have nega-

tive effects on the effectiveness of treatment, disease progression and the patient's quality of life (Haynes et al., 2008; Belsi et al., 2022; Theofilou, 2022; Theofilou et al., 2022). When patients closely follow their medication instructions, comply with the correct dosage and schedule, and advise on dietary or other adjustments, an optimal treatment response and improvement in their quality of life can be achieved (Cramer et al., 2008). Research that has been carried out shows that the combination of medication and psychotherapy effectively helps in the management of chronic pain. According to the WHO, patient compliance in therapeutic treatment is defined as the extent to which the patient's behavior is consistent with the respective medical recommendations (Dobels et al., 2005). In particular, medication compliance is inextricably linked to taking the right medication, at the right time, in the required dose and for the period of time recommended by the attending physician (Psillaki & Theofilou, 2023; Theofilou, 2023a,b,c,d).

#### PURPOSE AND HYPOTHESES

The purpose of the present research is to evaluate the contribution of psychotherapy to the quality of life and compliance in the therapeutic treatment of patients with chronic pain and chronic sufferers. More specifically, the research aims to investigate whether psychotherapy can improve patients' quality of life and contribute to their compliance with treatment, focusing on chronic pain management. Based on previous research studies, the following hypotheses were made: first, the complementary use of psychotherapy in the treatment of chronic pain relief will be associated with improved patients' quality of life; and secondly, psychotherapy will contribute to patients' compliance with their treatment, helping them cope with chronic pain and comply with medical instructions and medication.

#### PARTICIPANTS AND PROCEDURE

##### RESEARCH DESIGN

A quantitative study was carried out by administering closed questionnaires. Participants were randomly selected, and data were collected through questionnaires distributed electronically over the Internet during three months. The independent variable was psychotherapy and dependent variables were quality of life, medication and pain assessment. This design allows the evaluation of the data in an objective way and the comparative analysis of results between the participants. The use of online questionnaires allows easier and faster data collection from a large number of participants.

## PARTICIPANTS

To carry out the study, data were collected from a convenience sample consisting of adult residents of the Greek area, ages 18 to 70. Inclusion criteria were age, being residents of the Greek area and having chronic pain or chronic illness. Exclusion criteria were non-chronic pain and age < 18 years. In total, the sample included 87 people, of whom 29 were men and 58 were women. Data collection was carried out through the online administration of questionnaires. Specifically, participants completed the McGill questionnaires to assess pain, the SF-36 to assess quality of life, and the MMAS-8 to assess treatment adherence.

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## TOOLS AND MATERIALS

First, participant demographics were collected. Sex, age, marital status, education, economic status and questions about whether there is a chronic disease and, if so, which disease, whether there is chronic pain, whether he has participated in any psychotherapeutic intervention with a Yes or No answer (this helped to divide the sample), if those who participated were aware of the intervention and if they felt that they were helped.

Then they completed the McGill Pain Assessment Questionnaire (MPQ), which is reliable with an index of  $\alpha = .96$  and valid, adapted to Greek by Mystakidou et al. (2020), through the multidimensional assessment of pain providing quantified dimensions of clinical pain, which can be used for statistical purposes.

Then the SF-36 health survey questionnaire was completed; the validation and norming of this tool in Greek was conducted by Pappa et al. (2005) and the reliability and validity index values from studies that have been done are high. The  $\alpha$  coefficient, per scale of the SF-36, ranged from .76 to .93, satisfying the criterion of .70 for individual comparisons. The key feature of the SF-36 health survey is the simultaneous measurement and assessment of both physical and psychosocial health with a grid of 36 questions, which, with the help of an algorithm, are summarized in eight scales: (a) physical function (PF), (b) role physical (RP), (c) bodily pain (BP), (d) general health (GH), (e) vitality (VT), (g) social functioning (SF), (h) role emotional (RE), and (i) mental health (MH). The total score of the questionnaire is given values 0-100, with higher values indicating better quality of life.

Finally, the last questionnaire that the participants were asked to answer was for medication compliance (the Morisky Medication Adherence Scale, MMAS-8), which includes 8 questions with a Cronbach's reliability index of  $\alpha = .75$  (Plakas et al., 2016). When the score is 0 then the patient had high compliance with medication, when the score is 1-2 he had moderate

compliance, while when the score is 3-4 he had low compliance.

## PROCEDURE AND ETHICAL ISSUES

In the context of this research, participants were fully and accurately informed about the process, research objectives, duration, required procedures and the anonymity of their data. They were also given the opportunity to ask questions and clarify any concerns they had before the study began. All procedures followed comply with ethical norms and international guidelines for performing research studies with human subjects. The study was approved by the University Ethics Committee (approval number TER2023275) and all necessary procedural and ethical conditions were fully observed. All information collected from participants are kept confidential and used exclusively for the needs of the research study. All data were analyzed and interpreted while respecting participant anonymity and confidentiality. Also, the participants had the possibility to withdraw from the study at any time, without any negative consequence or additional burden. In addition, all information collected and all results are presented aggregated and anonymous, ensuring confidentiality and protection of participants' privacy.

## STATISTICAL ANALYSIS

The statistical analysis and the presentation of the results were performed with the software program Jamovi 2.3.21. Reliability was tested with Cronbach's  $\alpha$  index for the three questionnaires, normal distribution of the sample with the Shapiro-Wilk test and the non-parametric Mann-Whitney  $U$  test was used where the criteria for normal distribution were not met and the independent samples  $t$ -test was used to analyze the data where there was normal distribution. Specifically for the SF-36 questionnaire in the 6 sections (mental health, vitality, general health, physical pain, physical functioning, social functioning) the independent samples  $t$ -test was used and for the remaining two (physical role, emotional role) the Mann-Whitney  $U$  test was used. For the rest of the MPQ and MMAS-8 questionnaires, the Mann-Whitney  $U$  test was also used.

## RESULTS

Based on the results of the reliability analyses of the questionnaires used in the study, the MMAS-8 questionnaire was measured with the Cronbach's  $\alpha$  estimated at .79. This indicates that the questions of the scale show a satisfactory level of reliability. For

the SF-36 questionnaire, the Cronbach's  $\alpha$  reliability index was calculated at .96. This indicates that the questions of the SF-36 scale show a high level of reliability. Finally, for the McGill Pain Assessment Questionnaire, the Cronbach's  $\alpha$  reliability index was calculated at .92. This indicates that the McGill scale questions show reliable measurement of pain perception.

The demographics of the sample were 39.1% married and 31% single, 49% in moderate economic status, 28.7% graduates of a higher university education and the same percentage graduates of a single or technical vocational high school. When asked what was the disease, the most common responses were multiple sclerosis, rheumatoid arthritis, diabetes mellitus, arthritis, depression, sciatica, myasthenia, cancer, cervical, gout, migraines/headache, lupus and 3 people did not want to answer. People who had chronic pain represented 59.3%, according to their answer to the question whether they had chronic pain. In the optional question which psychotherapeutic intervention they had participated in, they mainly answered "systemic therapy", followed by CBT, psychoanalysis, existential, person-centered and psychodrama.

To examine the first hypothesis that the complementary use of psychotherapy in the treatment of chronic pain and chronic diseases will be associated with an improvement in patients' quality of life, the SF-36 questionnaire was used to measure quality of life. This questionnaire includes eight sections –

mental health, general health, vitality, physical pain, physical role, physical functioning, emotional role and social functioning. First, a normality check was performed for the quality-of-life variables with the Shapiro-Wilk method.

The results (see Table 1) showed that in six of the eight variables (mental health, vitality, general health, physical pain, physical functioning, social functioning), normality was present ( $p < .05$ ).

It was chosen for the two variables that do not have a normal distribution to use the non-paramet-

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**Table 1**

*Normality test (Shapiro-Wilk)*

Variables	W	p
Mental health	0.98	.306
Vitality	0.98	.459
General health	0.98	.327
Physical pain	0.97	.140
Body role	0.88	< .001
Physical functioning	0.98	.171
Social functioning	0.97	.068
Emotional role	0.90	< .001

*Note.* A low  $p$ -value suggests a violation of the assumption of normality.

**Table 2**

*Descriptives*

Variables	Psychotherapy	Social functioning (SF-36)	Physical functioning (SF-36)	Physical pain (SF-36)	General health (SF-36)	Vitality (SF-36)	Mental health (SF-36)
<i>N</i>	No	29	29	29	29	29	29
	Yes	43	43	43	43	43	43
Missing	No	0	0	0	0	0	0
	Yes	0	0	0	0	0	0
Mean	No	75.00	444.80	81.90	144.80	135.90	197.20
	Yes	109.00	649.00	116.00	250.00	194.00	270.00
Median	No	75	400	75	150	120	200
	Yes	100	700	100	250	200	260
<i>SD</i>	No	47.70	277.00	55.10	81.70	73.60	87.00
	Yes	54.60	304.00	54.00	113.00	88.90	115.00
Minimum	No	0	0	0	0	0	0
	Yes	0	0	0	0	0	0
Maximum	No	175	1000	200	350	280	380
	Yes	200	1000	200	475	360	500

ric Mann-Whitney *U* test and for the remaining six variables that meet the normality criteria to use the independent samples *t*-test. For the six variables – mental health, vitality, general health, physical pain, physical functioning, social functioning – the scores showed in the first group (Yes) higher scores, with averages, in mental health  $M = 270$ , vitality  $M = 194$ , general health  $M = 250$ , physical pain  $M = 116$ ,

**Table 3**

*Homogeneity of variances test (Levene's)*

Variables	<i>F</i>	<i>df</i>	<i>df</i> <sup>2</sup>	<i>p</i>
Mental health	2.52	1	70	.117
Vitality	1.35	1	70	.248
General health	3.32	1	70	.073
Physical pain	0.00	1	70	.949
Physical functioning	0.55	1	70	.462
Social functioning	1.40	1	70	.240

Note. A low *p*-value suggests a violation of the assumption of equal variances.

**Table 4**

*Independent samples t-test*

Variables		Statistic	<i>df</i>	<i>p</i>
Mental health (SF-36)	Student's <i>t</i>	0.83	84	.794
Vitality (SF-36)	Student's <i>t</i>	1.46	84	.926
General health (SF-36)	Student's <i>t</i>	1.74	84	.957
Physical functioning (SF-36)	Student's <i>t</i>	1.49	84	.930
Social functioning (SF-36)	Student's <i>t</i>	0.79	84	.783
Physical pain (SF-36)	Student's <i>t</i>	1.53	84	.935

Note.  $H_a \mu_{No} < \mu_{Yes}$

**Table 5**

*Independent samples t-test*

Variables		Statistic	<i>p</i>
Emotional role	Mann-Whitney <i>U</i>	405	.004
Body role	Mann-Whitney <i>U</i>	416	.007

physical functioning  $M = 649$  and social functioning  $M = 109$ , while the lowest mean scores (No) were mental health  $M = 197.20$ , vitality  $M = 135.90$ , general health  $M = 144.80$ , physical pain  $M = 81.90$ , physical functioning  $M = 444.80$  and social functioning  $M = 75.00$  (see Table 2).

Levene's criterion for equality of variances is not violated since  $p > .05$  in all six variables (mental health  $p = .117$ , vitality  $p = .248$ , general health  $p = .073$ , physical pain  $p = .949$ , physical functioning  $p = .462$ , social functioning  $p = .240$ ) (see Table 3).

The independent samples *t*-test investigates whether there are statistically significant differences between Yes and No (independent categorical variable with two levels) regarding their performance in the six sections of the SF-36 questionnaire (quantitative/continuous dependent variable); it showed that there is a statistically significant difference between the 2 groups, with the group that has done psychotherapy (Yes) scoring higher in mental health ( $M = 270$ ,  $SD = 115$ ), vitality ( $M = 194$ ,  $SD = 88.90$ ), general health ( $M = 250$ ,  $SD = 113$ ), physical pain ( $M = 116$ ,  $SD = 54$ ), physical functioning ( $M = 649$ ,  $SD = 304$ ) and social functioning ( $M = 109$ ,  $SD = 54.60$ ), while the average lowest scores (No) were mental health ( $M = 197.20$ ,  $SD = 87$ ), vitality ( $M = 135.90$ ,  $SD = 73.60$ ), general health ( $M = 144.80$ ,  $SD = 81.70$ ), physical pain ( $M = 81.90$ ,  $SD = 55.10$ ), physical functioning ( $M = 444.80$ ,  $SD = 277$ ) and social functioning ( $M = 75.00$ ,  $SD = 47.70$ ). Specifically, mental health  $t(70) = -2.91$ ,  $p = .002$ , vitality  $t(70) = -2.93$ ,  $p = .002$ , general health  $t(70) = -4.30$ ,  $p < .001$ , physical pain  $t(70) = -2.58$ ,  $p = .006$ , physical functioning  $t(70) = -2.89$ ,  $p = .003$ , social functioning  $t(70) = -2.75$ ,  $p = .004$  (see Table 4).

The non-parametric Mann-Whitney *U* test was used for the remaining two sections of the SF-36 questionnaire that did not meet the criteria for *t*-test, physical role and emotional role. The results showed a statistically significant difference in both sections between the Yes and No groups (see Table 5).

We noted that Yes has higher scores, i.e., physical role  $M = 202$ ,  $SD = 163$  and emotional role  $M = 158$ ,  $SD = 120$  than those of No,  $M = 110$ ,  $SD = 154$  and  $M = 82.80$ ,  $SD = 114$ . The differences are statistically significant in the emotional role with  $U = 405$ ,  $p = .004$  and in the physical role  $U = 416$ ,  $p = .007$ , which means that the Yes and No groups have statistically significant differences between them.

For the second hypothesis that psychotherapy will contribute to patients' compliance with their treatment, helping them to cope with chronic pain and chronic illness, to comply with medical instructions and medication, from the MMAS-8 questionnaire, a normality test was performed for the variable compliance score (the questionnaire scores) by the Shapiro-Wilk method. The result showed that the regularity did not arise ( $W = 0.93$ ,  $p < .001$ ), indicat-

ing a possible violation of the assumption of normal distribution for the variable compliance score (see Table 6).

Then, the Mann-Whitney *U* test was performed to compare the two groups (No and Yes) with respect to the variable compliance score. The group scores showed a higher score for Yes with  $M = 5.05$ ,  $SD = 1.86$  versus No with  $M = 4.41$ ,  $SD = 1.68$  (see Table 7). The result showed that there is a statistically significant difference between the groups ( $U = 469$ ,  $p = .047$ ) (see Table 8). This suggests that patients who received psychotherapy (Yes) have a higher mean score on treatment compliance (compliance score) compared to patients who did not receive psychotherapy (No).

Based on these results, there is evidence that psychotherapy contributes to patients' compliance with their treatment and their compliance with medical instructions and medication. In the scores of the McGill Pain Assessment Questionnaire, it appears that the psychotherapy group (Yes,  $n = 43$ ) has a lower pain score with a mean of 13.79 and in the neck pain questions (McGill-EPP1) and the intensity of present pain (McGill-EPP2) with  $M = 4.35$  and  $M = 1.53$  respectively, than the group that has not received psychotherapy (No,  $n = 29$ ), showing greater pain with  $M = 19.52$  on the pain assessment (McGill),  $M = 5.07$  in McGill-EPP1 (intensity of present pain – neck) and  $M = 2.07$  in McGill-EPP2 (present pain intensity) (see Table 9).

The results of the Shapiro-Wilk tests (see Table 10) to test the normality of the data show that there is a violation of the assumption of normality for the pain score ( $p = .023$ ), the McGill-EPP1 subscale (intensity of present pain – neck) ( $p = .011$ ) and the McGill-EPP2 subscale (present pain intensity) ( $p = .064$ ).

For this reason, the Mann-Whitney *U* test, a non-parametric test for independent samples, was used. The results (see Table 11) show that there is a statistically significant difference between the two groups for pain ( $p = .017$ ), while there is no statistically significant difference for the subscales McGill-EPP1 (intensity of present pain – neck) ( $p = .081$ ) and McGill-EPP2 (intensity of present pain) ( $p = .035$ ).

**Table 9**

*Group descriptives*

	Group	<i>N</i>	Mean	Median	<i>SD</i>	<i>SE</i>
McGill – neck pain questions	No	29	5.07	6.00	2.91	0.54
	Yes	43	4.35	5.00	2.62	0.40
McGill – intensity of present pain	No	29	2.07	2.00	1.33	0.25
	Yes	43	1.53	1.00	1.10	0.17
Pain assessment (McGill)	No	29	19.52	23.00	11.20	2.08
	Yes	43	13.79	12.00	13.01	1.98

**Table 6**

*Normality test (Shapiro-Wilk)*

Variable	<i>W</i>	<i>p</i>
Compliance score	0.93	<.001

*Note.* A low *p*-value suggests a violation of the assumption of normality.

**Table 7**

*Descriptives*

	Psychotherapy	Compliance score
<i>N</i>	No	29
	Yes	42
Missing	No	0
	Yes	1
Mean	No	4.41
	Yes	5.05
Median	No	4.00
	Yes	6.00
<i>SD</i>	No	1.68
	Yes	1.86
Minimum	No	1
	Yes	1
Maximum	No	7
	Yes	8

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**Table 8**

*Independent samples t-test*

Variables		Statistic	<i>p</i>
Compliance score	Mann-Whitney <i>U</i>	469	.047

*Note.*  $H_a: \mu_{No} < \mu_{Yes}$

**Table 10**

*Normality test (Shapiro-Wilk)*

Variable	W	p
McGill – neck pain questions	0.95	.011
McGill – intensity of present pain	0.97	.064
Pain assessment (McGill)	0.96	.023

*Note.* A low *p*-value suggests a violation of the assumption of normality.

**Table 11**

*Independent samples t-test*

Variables		Statistic	p
McGill – neck pain questions	Mann-Whitney <i>U</i>	503	.081
McGill – intensity of present pain	Mann-Whitney <i>U</i>	470	.035
Pain assessment (McGill)	Mann-Whitney <i>U</i>	439	.017

*Note.*  $H_a \mu_{No} > \mu_{Yes}$

The results indicate that there is a statistically significant difference in pain between the two groups, thus supporting the hypothesis that people who have had psychotherapy have lower pain scores than people who have not.

## DISCUSSION

According to the results of the research, it is found that the initial hypotheses are verified, as shown by other research in the past that has dealt with whether and how psychotherapy has the potential to be effective in matters of chronic pain and chronic illness (Jensen & Turk, 2014). On the one hand, psychotherapy provides a safe and supportive environment where patients can explore the emotional and psychological aspects of the pain they experience (Moss, 2020). On the other hand, it provides tools and techniques to deal with it, such as psychoanalytic therapy, cognitive-behavioral therapy and hypnotherapy.

The findings of the present study are consistent with the results of previous research that has examined the effectiveness of psychotherapy in the management of chronic pain. For example, a study by Burns et al. (2020) examined the utility of cognitive behavioral therapy in patients with chronic pain. The results showed that patients receiving the treatment had a reduction in pain and an improvement in their quality of life. However, despite the existing empiri-

cal support, it is important to consider other factors when choosing psychotherapy as an adjunctive treatment for chronic pain. Several studies suggest that psychotherapy is more effective in combination with other interventions, such as pharmacotherapy and physical therapy (Cohen et al., 2021). Further research and studies are needed to understand the exact mechanisms of action of psychotherapy in management and to ascertain its effectiveness in different population groups.

The results clearly show that patients who received psychotherapy have significantly higher levels of mental health, vitality, general health and functioning compared to patients who did not receive psychotherapy. In addition, the former show lower levels of physical pain and higher social functioning. All of these differences are statistically significant and reinforce the idea that psychotherapy contributes to the well-being of people with chronic pain. A particularly interesting finding is the increased compliance with treatment shown by patients receiving psychotherapy. This can be attributed to the strengthening of self-awareness and self-recognition resulting from the therapeutic process (Hsu, 2010). Discovering new paths of inner growth and seeking self-knowledge are critical aspects of psychotherapy that contribute to therapeutic outcomes.

The current study presents some limitations. The participation of a small number of patients is its great disadvantage. Moreover, future studies should consider comparing different types of psychotherapy affecting quality of life and treatment compliance among chronic disease patients so as to investigate whether there are potential differences.

## DISCLOSURE

The authors declare no conflict of interest.

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