

ORIGINAL RESEARCH

Association Between Pain Severity, Pain Beliefs, Pain Coping and Attitudes Towards Complementary and Alternative Treatments among Physical Therapy Patients

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Abstract

Objective: The study aimed to determine the correlation between pain severity, pain beliefs, pain coping, and attitudes toward complementary and alternative treatments among physical therapy patients.

Material-Method: This cross-sectional and analytical was conducted in a physical therapy and rehabilitation hospital in north-eastern Türkiye. The sample consisted of 150 physical therapy patients. Data were collected using Demographic Information Form, Pain Beliefs Questionnaire, Pain Coping Questionnaire, and Attitudes towards Complementary and Alternative Medicine Questionnaire. Spearman's Correlation Analysis and Multiple Linear Regression Analysis were used in data analysis.

Results: The study revealed that the patients had negative attitudes towards complementary (13.64 ± 4.00) and alternative medicine use (13.18 ± 4.14). The scores were moderate for the patients' psychological (18.62 ± 3.69) and organic belief (33.68 ± 5.17). A significant correlation was determined between patients' attitudes towards complementary medical treatment and conventional medical treatment for pain (p=0.020). The patients had moderate pain intensity (5.70±2.44), and there was a significant correlation between pain intensity and attitudes towards alternative medicine (p=0.012).

Conclusion: Physical therapy patients' attitudes towards complementary and alternative medicine are associated with pain coping and severity. The patients should be educated to cope with pain and manage it by health professionals.

Keywords: Pain Severity, Pain Beliefs, Pain-Coping, Complementary and Alternative Medicine

INTRODUCTION

Pain is seen in most musculoskeletal disorders such as osteoarthritis patients and chronic low back pain admitted to physical therapy clinics.^{1,2} Pain can be experienced in physical pain resulting from tissue damage; however, it can also be a psychological experience originating from psychological factors.^{3,4} Pain beliefs include a person's perception of pain severity, pain adaptation, attitude towards pain, influence on pain functionality, and coping mechanisms.^{5,6} In other words, pain beliefs determine how a person reduces, prevents, or copes with pain. They include one's subjective beliefs about the efficiency of such behaviour and one's own capability to obtain pain relief.⁵ It is known that organic and psychological pain beliefs are closely associated with disability and dissatisfaction.⁷ Dissatisfaction with conventional treatments leads patients receiving physical therapy to seek complementary and alternative medicine (CAM) methods to cope with

pain. These methods are herbal therapy, balneotherapy, cupping, and massage manipulation.⁸ Patients receiving physical therapy often suffer from pain and experience physical and psychological problems. The intensity, duration, or location of pain have a decisive influence on a patient's physical performance, diminishing physical activity and causing disability.⁹ The effects of chronic pain on psychophysical health were distress, loneliness, lost identity, and low quality of life.¹⁰ Many people with chronic pain reported experiencing psychological problems such as depression, anxiety, somatization, anger/hostility, low self-esteem, and low self-efficacy.¹¹ Because physical and psychological outcomes of pain such as disability, anxiety, and depression were associated with organic and psychological pain beliefs, the pain beliefs of patients should be determined in the treatment of pain.⁷ Relevant studies have shown a correlation between

patients' pain beliefs and coping strategies. A study conducted with elderly patients suffering pain revealed that patients believing they had control over the pain tried to cope with it themselves. In contrast, the patients who thought the nurses had control over the pain tended to seek medical help.¹² A study investigating the correlation between pain beliefs and coping strategies demonstrated that those who believed the pain had an organic cause did not cope effectively and tended to feel hopeless.¹³ Another study with fibromyalgia patients reported that patients who used passive coping strategies were less likely to control pain than those who used other techniques.¹⁴ One study evaluating the attitudes and beliefs about pain management noted that the patients who believed that stressors caused the pain also believed that exercise influenced the pain.¹⁵ As mentioned earlier, it is essential to determine patients' beliefs regarding their ability to control pain effectively. The research indicates that patients have inadequate knowledge about pain, its causes, and how to manage it.¹⁶⁻¹⁷ Other report revealed that 49.1% of the patients hospitalized in the medical and surgical clinics used nonpharmacological methods for pain.¹⁸ Of them, 77.5% reported nonpharmacological practices were effective. In another study, perceived pain control, severity, and duration were persistent correlates of complementary and alternative medicine usage.¹⁹ These studies have determined the various CAM therapies used to reduce pain and correlate CAM use.^{8,18-19} Pain characteristics associated with CAM use should be determined because of physical and psychosocial health outcomes. Therefore, this study aimed to determine the correlation between pain severity, pain beliefs, pain coping, and attitudes toward complementary and alternative treatments in patients at a physical therapy and rehabilitation hospital in north-eastern Türkiye.

MATERIALS AND METHODS

Design

This cross-sectional and analytical study aimed to investigate the attitudes towards CAM of patients at a physical therapy and rehabilitation hospital in north-eastern Türkiye and the correlation between the use of CAM, pain severity, pain beliefs, and pain coping strategies.

Study Population and Sample

The study consisted of 1100 patients hospitalized at a physical therapy and rehabilitation hospital for one year. The G*Power analysis was used to determine the study sample of 150 volunteers. The study sample was calculated with an 80% response rate; the sample

size was confined within a 90% confidence interval, and the significance level was 5%. The purposive sampling method was used. The inclusion criteria required volunteers to be literate, between 18-65, to have pain, give oral and written consent to participate in the study, fill in the questionnaire and scale forms completely, and receive inpatient physical therapy. The exclusion criteria were any mental or physical illness affecting cognition and speech.

Data collection tools

The Demographic Information Form, Pain Beliefs Questionnaire, Pain Coping Questionnaire, and Attitudes towards Complementary and Alternative Medicine Questionnaire collected the study data.

The researchers prepared a Demographic Information Form. It included information regarding patients' age, gender, marital status, educational status, income status, place of residence, physical therapy history, number of previous physical therapy sessions, the reason for physical therapy, pain severity, and questions about physical diseases.¹²⁻¹⁷

Pain Beliefs Questionnaire (PBQ) evaluates the psychological and organic causes and consequences of pain.^{20,21} The total score was not obtained from the 6-point Likert scale from "6=always" to "1=never", consisting of 12 items. The organic and psychological pain beliefs scores were calculated. There are no cut-off values for the scores, and higher scores obtained from the subscale indicate high levels of pain belief. The Cronbach alpha coefficient was 0.71 for the Psychological Beliefs Subscale and 0.64 for the Organic Beliefs Subscale.²¹ In this study, the Cronbach alpha coefficient for the Psychological Beliefs Subscale was 0.63 and 0.54 for the Organic Beliefs Subscale.

Pain Coping Questionnaire (PCQ) consists of four subscales and assesses the organic or psychogenic pain-coping strategies of patients with chronic pain.^{22,23} These subscales are "Self-efficacy," "Helplessness," "Cognitive Interventions," and "Medical Treatment Seeking." The self-report scale consists of 29 items rated on a 4-point Likert scale from "0=never" to "3=frequently". The highest score for the Self-Efficacy Subscale was 36, the highest score for the Helplessness Subscale and Cognitive Interventions Subscale was 24, and the highest for the Medical Treatment Seeking Subscale was 27, while the lowest score was 0 for all the subscales. The Cronbach Alpha coefficient for the internal consistency reliability in the original study was 0.75.²³ It was 0.71 in this study.

Scale for Attitudes towards Complementary and Alternative Medicine (SACAM) consists of 8 items

rated as 1= I agree entirely, 2= I agree, 3= I don't know, 4= I disagree, and 5= I disagree entirely.²⁴ Four items assess patients' attitudes towards complementary medicine, and four evaluate their attitudes towards alternative medicine. The Cronbach Alpha coefficient for internal consistency was 0.85; the Complementary Medicine Subscale was 0.77, and the Alternative Medicine Subscale was 0.76.²⁴ The lowest score was eight, and the highest score was 40. Higher scores indicate positive attitudes towards complementary and alternative medicine. In this study, the Cronbach Alpha coefficient was 0.88 for the Complementary Medicine Sub-Scale and 0.81 for the Alternative Medicine Subscale.

Collection of data

The data were collected during face-to-face patient interviews between December 1, 2018, and February 28, 2019. Before filling out questionnaires and scales, the researcher introduced herself, gave information about the purpose and duration of the study, stated that the names would be kept confidential, and the data would be used for research purposes only. Verbal and written consent was obtained from the patients. Patients needed approximately 25-30 minutes to complete the data collection forms.

Ethical considerations

Before the study, written consent was obtained from the Provincial Health Directorate and Giresun University Clinical Research Ethics Committee (dated October 17, 2018, and numbered 04/10). All stages of the study followed the principles of the Helsinki Declaration.

Data analysis

Data were analyzed using the SPSS (Statistical Package for Social Sciences) version 22.0. The Kolmogorov - Smirnov (KS) test was used to evaluate data conformity to the normal distribution. The data were not normally distributed ($p < 0.05$). Spearman's Correlation Analysis determined the correlation between descriptive statistics such as number, percentage, arithmetic mean and standard deviation, pain severity, pain beliefs, pain coping, and complementary and alternative treatment use.²⁵ The Multiple Linear Regression Analysis was used to evaluate multivariate correlations between SACAM, PBQ, PCQ, and pain severity. The level of significance was accepted as $p < 0.05$.

RESULTS

Demographic, pain, and clinical characteristics of patients (Table 1)

More than half of the patients (50.7%) were 60 years and over; 56.7% were female, and 76.7% were

married. In addition, 72% of participants reported that income equals expenses; 66% were primary school graduates, and 42.7% came from the town. For the first time, patients undergoing physical therapy comprised 49.3% of the group; 28.7% of the patients had hand/arm pain; 51.3% had knee/leg pain; 13.3% had neck pain; 16% had back pain and 28% had lumbar pain. Fifty-six percent (56%) of patients had hypertension; 23.3% had diabetes mellitus; 16.7% had chronic obstructive pulmonary disease; 24% had heart disease; 34.7% had rheumatism; 22% had a neurological illness; 14.7% had a psychological condition, and 51.3% had a sleep disorder.

The mean scores for SACAM, PBQ, PCQ, and pain severity (Table 2)

The evaluation of the mean scores for SACAM revealed that the mean alternative medicine score was 13.18 ± 4.14 , and the mean complementary medicine score was 13.64 ± 4.00 . When the mean scores for PBQ were evaluated, the mean for the Organic Beliefs Subscale was 33.68 ± 5.17 , and the Psychological Beliefs Subscale score was 18.62 ± 3.69 . The mean score for the PCQ was 19.16 ± 5.91 on the Self-Efficacy Subscale, 12.14 ± 3.99 for the Helplessness Subscale, 12.62 ± 3.84 for Cognitive Intervention Subscale, and 11.97 ± 4.25 on the Medical Treatment Seeking Subscale. The mean score for Pain Severity of the patients was 5.70 ± 2.44 .

Bivariate and multivariate correlations between SACAM, PBQ PCQ and pain severity (Tables 3 and 4)

Table 4 reveals a weak positive correlation between the Self-Efficacy Subscale of the PCQ and the Psychological Beliefs Subscale of PBQ ($r=0.291$, $p=0.000$); the Helplessness Subscale of the PCQ and the Organic Beliefs Subscale of PBQ ($r=0.201$, $p=0.014$); the Cognitive Strategies of PCQ and the Psychological Beliefs Subscale of PBQ ($r=0.229$, $p=0.005$). In addition, there was a weak positive correlation between Pain Severity and the Organic Beliefs Subscale of the PBQ ($r=0.191$, $p=0.019$) and the Helplessness Subscale of PCQ ($r = 0.191$, $p = 0.019$). There was no significant correlation between the mean scores on the SACAM and the mean scores on the PBQ, PCQ, and Pain severity ($p > 0.05$). The Multiple Linear Regression Analysis revealed that the most important predictor of patients' use of alternative medicine was pain severity ($B = -0.245$, $p = 0.012$). The most important predictor of the use of complementary medicine was treatment-seeking ($B = -0.230$, $p = 0.020$).

Table 1. Demographic, Clinical and Pain Characteristics of the Patients (n=150)

		n	%
Age	20-39	14	9.3
	40-59	60	40.0
	60- ↑	76	50.7
Gender	Female	85	56.7
	Male	65	43.3
Marital status	Married	115	76.7
	Single	35	23.3
Income status	Income is equal to expenses	108	72.0
	Income is less than expenses	38	25.3
	Income is more than expenses	4	2.7
Educational status	Primary school	99	66.0
	Secondary school	23	15.3
	High school	17	11.3
	University	11	7.3
Place of residence	Village	45	30.0
	Town	64	42.7
	City	41	27.3
Undergoing physical therapy for the first time	Yes	74	49.3
	No	76	50.7
Pain locations*	Hand/arm pain	43	28.7
	Knee/leg pain	77	51.3
	Neck pain	20	13.3
	Back pain	24	16.0
	Lumbar pain	42	28.0
History of chronic disease*	Hypertension	84	56.0
	Diabetes Mellitus	35	23.3
	Chronic obstructive pulmonary disease	25	16.7
	Heart disease	36	24.0
	Sleep disorder	77	51.3
	Rheumatism	52	34.7
	Neurological disease	33	22.0
Psychological disease	22	14.7	

*Patients mark multiple options.

Table 2. The Mean Scores for SACAM, PBQ, PCQ, and Pain Severity

	X±SD	Min	Max
Scale for Attitudes towards Complementary and Alternative Medicine			
Alternative medicine	13.18±4.14	4.00	20.00
Complementary medicine	13.64±4.00	4.00	20.00
Pain Beliefs Questionnaire			
Organic beliefs	33.68±5.17	21.00	48.00
Psychological beliefs	18.62±3.69	4.00	24.25
Pain Coping Questionnaire			
Self-efficacy	19.16±5.91	6.00	32.00
Helplessness	12.14±3.99	1.00	21.00
Cognitive intervention	12.62±3.84	4.00	21.00
Medical treatment-seeking	11.97±4.25	1.00	24.00
Pain Severity	5.70±2.44	0.00	10.00

Table 3. Bivariate Correlations Between SACAM, PBQ PCQ, and Pain Severity

		AM	CM	OB	PB	SE	H	CI	MTS	PS
Alternative medicine (AM)	r	1.000								
	p	.								
Complementary medicine (CM)	r	0.662	1.000							
	p	0.000	.							
Organic beliefs (OB)	r	0.001	0.141	1.000						
	p	0.995	0.085	.						
Psychological beliefs (PB)	r	0.089	0.143	0.351	1.000					
	p	0.281	0.081	0.000	.					
Self-efficacy (SE)	r	0.044	0.045	0.005	0.291	1.000				
	p	0.590	0.583	0.953	0.000	.				
Helplessness (H)	r	-0.023	0.054	0.201	0.075	0.066	1.000			
	p	0.780	0.515	0.014	0.362	0.425	.			
Cognitive intervention (CI)	r	0.092	0.017	0.019	0.229	0.705	0.330	1.000		
	p	0.265	0.833	0.821	0.005	0.000	0.000	.		
Medical treatment-seeking (MTS)	r	0.005	-0.122	0.054	0.062	0.122	0.543	0.403	1.000	
	p	0.949	0.137	0.513	0.454	0.136	0.000	0.000	.	
Pain severity (PS)	r	-0.134	-0.063	0.196	0.078	0.029	0.191	0.048	0.045	1.000
	p	0.102	0.445	0.016	0.344	0.721	0.019	0.560	0.581	.

Table 4. Multivariate Correlations between SACAM, PBQ, PCQ, and Pain Severity

Scale	Alternative medicine			Complementary medicine		
	B	S.E (B)	p value	B	S.E (B)	p value
Organic beliefs	-0.003	0.049	0.944	0.072	0.070	0.311
Psychological beliefs	0.117	0.070	0.100	0.115	0.100	0.252
Self-efficacy	-0.024	0.061	0.693	0.007	0.086	0.938
Helplessness	0.047	0.073	0.521	0.128	0.103	0.217
Cognitive intervention	-0.017	0.101	0.865	-0.010	0.144	0.944
Medical treatment-seeking	-0.108	0.069	0.118	-0.230	0.098	0.020
Pain severity	-0.245	0.096	0.012	-0.229	0.137	0.096

DISCUSSION

This study aimed to determine the correlation between the use of CAM, pain severity, pain beliefs, and pain coping strategies. The present study determined that patients receiving physical therapy had negative attitudes towards both alternative and complementary medicine. Other report defined that using CAM therapies such as massage with essential oils, balneotherapy, phytotherapy, cupping, and acupuncture is frequent in patients with knee osteoarthritis.²⁶ The CAM use was high among rheumatoid arthritis patients because of the lack of benefit from anti-rheumatoid drugs.²⁷ Still, patients who were dissatisfied with the results of these methods and who also had a negative perception of pain tended to use CAM less frequently.²⁸ Another study evaluating the factors affecting CAM use in patients with chronic disease revealed that it was more common among people with a strong commitment to traditional health beliefs, such as herbal treatment methods.²⁹ The negative attitudes

obtained in this study may be related to the inclusion of patients in the present study who were older than 60 years old and who had low educational levels. A negative attitude towards the use of CAM may also be associated with patients' knowledge, awareness of taste use is not at a desired level and patients' higher medical expectations. The negative attitudes to CAM use may be related to moderate pain severity of patients. Another reason for the patients' negative attitudes could be the lack of benefit from CAM because of chronic diseases and extended periods of illness. Since CAM use can contribute to the improvement of the disease symptoms, the slowing of disease progression, and the development of strategies to modify the disease, it is essential to carry out new studies to determine the factors affecting patients' negative attitudes towards CAM use.³⁰ Because CAM use may contribute to an improved quality of life by reducing pain intensity, sleep problems and improving patients' ability to carry out their usual daily activities.³¹

The present study found that patients' psychological and organic belief scores were moderate, which means their belief scores about the source and results of the pain were middle. However, study results also found no correlation between the patients' pain beliefs and attitudes towards CAM. Similarly, other report with patients in the internal and surgical clinics revealed no significant difference between the organic and psychological pain beliefs of the patients who used and did not use non-drug treatment methods for pain relief.¹⁸ A study on patients with shoulder pain noted that patients felt uneasy and unsure when they exaggerated their pain levels. Patients perceived this as unfavorable and avoided physical activity or situations which could exacerbate the pain. This dynamic resulted in low self-efficacy and recovery expectations.³² It can, however, provide a new perspective on how pain beliefs influence the feelings of ineffectiveness in patients who use and do not use CAM. Because of negative beliefs about their disease, treating and controlling the symptoms may lead patients to different treatment methods.³³ In this study, the lack of a correlation between the attitudes towards CAM and pain beliefs may be due to patients' general belief that the pain has organic causes and that they are all receiving physical therapy for pain.

The present study revealed a significant correlation between pain beliefs and pain coping. This finding is like other studies. Other report defined that patients believing they had control over the pain tried to cope with it themselves, while the patients who thought the nurses had control over the pain tended to seek medical help.¹² A study investigating the correlation between pain beliefs and coping strategies demonstrated that patients with organic pain beliefs did not cope with pain and felt more helpless.¹³ Another study with fibromyalgia patients reported that passive coping strategies felt low pain control.¹⁴ Pain beliefs of patients receiving physical therapy can be related to their coping strategies with pain.

When coping strategies were determined, self-efficacy strategies, helplessness, and medical treatment-seeking behaviors had moderate levels. A significant correlation was determined between patients' attitudes towards complementary medical treatment and treatment-seeking behavior for pain. This finding can be attributed to patients' beliefs which consider alternative and complementary medicine as part of overall medical treatment strategies. For example, a study with patients suffering chronic pain who chose CAM revealed that as their perception of pain management improved,

they were more likely to use CAM.¹⁹ It is attributed to using complementary medicine approaches as part of patients with chronic pain problems.³⁴ At this point, the patient's perception of self-efficacy for pain control also plays an important role. In addition, patients with low self-efficacy and perceptions of inadequacy regarding pain management may resort to complementary and alternative treatment methods.³⁵ Individuals who feel ineffective in the control of pain may seek medical treatment, and as a result, they may resort to complementary and alternative treatment methods.

This study revealed that the patients had moderate pain intensity, and there was a significant correlation between pain intensity and attitudes towards alternative medicine. Similarly, a study that included patients with chronic pain demonstrated that the patients applied to acupuncture treatment more frequently.³⁴ Another study revealed that pain intensity was a significant predictor for CAM use among cancer patients with chronic pain.³⁶ Complementary treatments reduce pain and improve the patients' functionality.³⁷ The present study highlights that the patients with chronic and severe pain use CAM therapies because of a lack of benefit from conventional treatment.

Study limitations

This study has some limitations. The findings of this study cannot be generalized for all patients undergoing physical therapy. The attitudes of patients towards CAM were evaluated through a self-report scale. Therefore, the evaluation of patients' perceptions, information levels, and CAM methods is limited. Another limitation is that the duration of chronic pain and using analgesic drugs in patients were not evaluated. But these variables are essential criteria that can affect the severity of pain. Finally, this study did not assess the length of patients' hospital stay. But the length of hospital stay could be helpful to see the severity of pain and its effect on complementary and alternative treatment.

CONCLUSION

In conclusion, the study revealed that the patients had negative attitudes towards CAM use. There was a significant correlation between patients' attitudes towards complementary medicine and medical treatment seeking. There was also a significant correlation between their attitudes towards alternative medicine and pain severity. However, the study showed no correlation between patients' pain beliefs and attitudes towards CAM. These results indicate that a more extensive study should be conducted to determine the other factors that

influence patients' negative attitudes towards using CAM for pain management.

Furthermore, additional studies are needed to determine how pain beliefs affect the feelings of inefficacy in patients who use and do not use CAM. The patients should be educated to cope with pain and manage it by health professionals. To obtain more information on this topic, it would be helpful to evaluate patients' perception of CAM use, their level of knowledge, and the methods they prefer to use. The relationship between the duration of chronic pain, attitudes toward CAM, and CAM use should be

defined. Finally, this study should be conducted with outpatients, and the use of complementary and alternative treatment between inpatients and outpatients should be compared.

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