



## Acceptance of illness, beliefs about pain control and coping strategies among patients scheduled for surgery for osteoarthritis of the spine

*Stopień akceptacji choroby, przekonania na temat kontroli bólu  
oraz strategie radzenia sobie z bólem wśród pacjentów zakwalifikowanych  
do zabiegu z powodu choroby zwyrodnieniowej kręgosłupa\**

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### ABSTRACT

**Objective.** Degenerative diseases of the spine are a serious medical, psychological and social problem. The main symptom of spinal degeneration is pain, which affects the level of acceptance of the disease, the level of pain control and strategies for coping with pain. The aim of this study was to assess the degree of acceptance of the disease, as well as of beliefs about pain control and coping strategies among patients scheduled for elective surgery because of degenerative diseases of the spine.

**Method.** The study was conducted on 60 patients of the Pomeranian Neurosurgery Trauma Center in Gdansk. The study used the following scales: Acceptance of Illness Scale (AIS), The Beliefs about Pain Control Questionnaire (BPCQ), The Pain Strategies Questionnaire (CSQ).

**Results and conclusions.** Most of the subjects presented an average acceptance of the disease. The largest group of patients believed that the pain they felt was mainly influenced by medical personnel. Among the respondents, the most common strategy for dealing with their pain was praying and hoping, and a declaration that they were coping. The study showed no significant relationship between the level of acceptance of the disease and the locus of control of pain and strategies for coping with it. It also revealed very few links between strategies of coping with pain and demographic variables.

### STRESZCZENIE

**Cel.** Choroby zwyrodnieniowe kręgosłupa (spondyloartroza) są poważnym problemem medycznym, psychologicznym i społecznym. Podstawowym objawem zwyrodnienia kręgosłupa jest ból, który wpływa na poziom akceptacji choroby oraz poziom kontroli bólu i strategie radzenia sobie z bólem. Celem badania było rozpoznanie oceny stopnia akceptacji choroby, oceny przekonań na temat kontroli bólu oraz strategii radzenia sobie z bólem wśród pacjentów zakwalifikowanych do planowego zabiegu z powodu chorób zwyrodnieniowych kręgosłupa.

**Metoda.** Badaniem objęto 60 pacjentów Oddziału Neurochirurgii Pomorskiego Centrum Traumatologii w Gdańsku. W badaniu wykorzystano następujące skale: „Skala akceptacji choroby” (AIS), „Kwestionariusz przekonań na temat kontroli bólu” (BPCQ), „Kwestionariusz strategii radzenia sobie z bólem” (CSQ).

**Wyniki.** Najwięcej osób badanych ujawniało przeciętną akceptację choroby. Najliczniejsza grupa badanych pacjentów uważa, że na odczuwany przez nich ból wpływ ma przede wszystkim personel medyczny. Strategiami radzenia sobie z bólem stosowanymi przez badanych najczęściej były modlitwa i pokładanie nadziei, a także deklaracje radzenia sobie. Badanie nie wykazało istotnego związku pomiędzy poziomem akceptacji choroby a umiejscowieniem kontroli bólu i strategiami radzenia sobie z bólem. Badanie ujawniło nieliczne powiązania pomiędzy strategiami radzenia sobie z bólem a cechami demograficznymi.

**Wnioski.** Sposób reagowania na ból ma subiektywne konsekwencje, np. decyduje o podjęciu lub odwołaniu leczenia, o poddaniu się zabiegom czy rehabilitacji. Dlatego ważne są dalsze badania subiektywnych odczuć pacjentów.

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**Key words:** pain / acceptance of illness / pain control / coping with pain / spondyloarthritis

**Słowa kluczowe:** ból / akceptacja choroby / kontrola bólu / radzenie sobie z bólem / choroba zwyrodnieniowa kręgosłupa

Spinal pains are one of the frequent reasons why people visit their doctors. It is estimated that about 70% of people over 30 experience back pain at least once. Spondylosis is a complex disease involving the whole spinal movement (discovertebral unit and disco-somatic unit), which consists of intervertebral discs, vertebral bodies, facet joints, yellow ligaments and longitudinal ligaments. Degenerative changes usually start with the intervertebral discs, then gradually move to the adjacent endplates and parts of the vertebral body and finally involve other structures of the motion segments. Typical degenerative changes in the joints are: bold shape of the joints, friction or crackles in the moving joints, limited range of motion in the joints, pain in the joints under stress, lack of stiffness of the joints and muscle atrophy. Changes in the lumbar region are most common at L4-L5 and L5-S1.

Osteoarthritis of the spine is a serious medical, psychological and social problem, which is why one of the strategic goals (Goal 5) of the Polish National Health Programme for 2007-2015 is “reducing premature morbidity and negative effects of chronic diseases of the osteoarticular system”, including spondyloarthritis.

Somatically ill patients experience many negative emotions, difficulties and limitations caused by the disease, which affects their way of living, threatens the fundamental values of life and life itself, prevents them from playing social roles and compromises their conception of the world and their own identity. It disrupts a balance between the tasks carried out before getting ill and what is possible after [1, 2].

Interpretations of illness vary among patients: sometimes it is seen as a serious obstacle, making it difficult or impossible to realize important, scheduled tasks and sometimes it is only seen as an undefinable “loss”, discomfort or nuisance. Patient’s attitude towards illness dictates the attitude towards its treatment. In this context it is very important to adapt to the new life, health and social situation, the “acceptance” of one’s situation being one of the key ingredients of this process. Interpreted in this way, acceptance is an indicator of patient’s functioning in illness. The higher the level of acceptance the better adjustment and lower intensity of negative emotions [3, 4]. Patients who accept their illness are more optimistic, full of hope and trust in their doctors and

treatment methods. They also actively participate in the therapy [5].

According to the International Organization for the Study of Pain, pain is “an unpleasant sensory and emotional experience, associated with the actual or potential tissue damage, or described as such damage”. The Great Dictionary of Medicine, on the other hand, defines pain as physical suffering which is the result of the irritation of nerve endings or negative emotional state of high intensity”. Both definitions attract our attention to the influence of other, non-physical factors being an essential element of the perception of the phenomenon of pain. Among the psychological factors are the beliefs on pain control and the skill of using the techniques aimed at reducing the perception of pain [6].

The locus of control is related with the feeling of agency and having control over one’s life and surroundings, and it can be external or internal. People who experience the locus of control externally tend to surrender to external influences and pressures, they are convinced that they have no influence on situations and events, feel helpless, experience lowered mood and feel worse [6]. They tend to treat their illness as the case of unhappy event. Such perception of pain makes them passive, and the attitude has a negative impact on effective pain control and, consequently, it increases the intensity of perceived mental discomfort. People with the internal locus of control believe that their life is in their hands, as they take responsibility for their actions and decisions. Such belief affects the levels of stress related with pain and increases pain tolerance. Such patients tend to cope better with pain and cooperate better with medical staff [6].

The development of medical and psychological knowledge of pain increases the number of pain controlling techniques available, among them pharmacological, sensory modulation and psychological interventions. The most popular form of pain relief is pharmacotherapy, although, in some cases, pain killers not only fail to bring the expected effect but considerably lower the patient’s functioning [7]. This is when sensory modulation comes to play, e.g. blocking the pain stimulus pathways to the brain, physical therapy, stimulation of trigger points, etc. Among effective psychological methods there are relaxation, biofeedback or cognitive-behavioural therapy.

## OBJECTIVE

The aim of the study was to assess the level of acceptance of illness as well as beliefs on pain control and strategies of coping with pain among the patients scheduled for surgery for osteoarthritis of the spine awaiting the surgery in the neurosurgery ward. The following research questions were posed (1) What is the subjective level of the acceptance of illness by the patients? (2) What are the patients' individual beliefs on pain control? (3) What are the most frequently used pain coping strategies? (4) To what degree the acceptance of illness influences pain control and pain coping strategies? (5) Do the demographic variables (sex, age, education) have an impact on the level of the acceptance of illness and the pain?

## THE GROUP EXAMINED

The study was conducted in 2012 at the Neurosurgery ward of Pomorskie Centrum Traumatologii w Gdańsku [Pomeranian Neurosurgery Trauma Centre]. It involved 60 patients diagnosed with osteoarthritis of the spine, scheduled for surgery. The respondents were informed about the purpose of the research, anonymity of the questionnaires and how to complete the forms.

## METHOD

The patients completed the questionnaires on their own a day before the surgery. The following tools were used: the Acceptance of Illness Scale (AIS), developed by Felton et al. (1984), Centre for Community Research and Action, Department of Psychology, New York University, in the Polish version adapted by Juczyński. The scale comprises eight statements describing negative consequences of ill health, such as the need to accept the limitations caused by the illness, having to surrender one's self-reliance, being dependent on other people and having lower self-esteem. The acceptance of illness is demonstrated by a lower intensity of negative responses and emotions linked with the actual illness. The respondents define their present state on a 5-step scale, from definitely agree (1) to definitely disagree (5). The score is a measure of the degree of the acceptance of illness (possible score 8-40 points). Low score stands for not accepting the illness and lower

self-esteem, whereas high scores mean higher acceptance of illness and lack of negative illness-related emotions. The reliability of the Polish scale, defined by the Cronbach's coefficient is  $\alpha=0.82$ , and its theoretical accuracy explains 49% of the total variance [3].

The Beliefs about Pain Control Questionnaire (BPCQ) is a scale developed by Skevington in 1990 and adapted for the Polish language version by Juczyński. BPCQ serves the purpose of group and individual research into ill adults who suffer from pain. It consists of 13 statements comprising three factors, which assess the strength of the individual beliefs regarding pain control: personal (internal factors), doctor's interventions (other powers) or pure chance. The reliability of the whole scale expressed by Cronbach's  $\alpha$  is 0.75. The accuracy of the Polish version does not deviate from the original [3].

The Pain Strategies Questionnaire (CSQ) constructed by Rosenstiel and Keefe and adapted by Juczyński evaluates patients' pain coping strategies, their effectiveness in controlling and reducing pain. The methods of coping with pain reflect six cognitive and one behavioural strategies which comprise 3 factors, i.e. coping actively (reevaluation of pain perceptions, ignoring perceptions, declared coping), diverting attention and creating distractions (diverting attention and increased behavioural activity), catastrophizing and seeking hope. The reliability of the questionnaire assessed by Cronbach's  $\alpha = 0.80$ . The comparison of the CSQ and BPCQ scores confirms the theoretical accuracy [3].

All statistical analysis have been carried out with the SPSS software.

## RESULTS

The study involved 60 people (including 40 women and 20 men), aged between 22 and 77 ( $M=47.26$ ;  $SD=12.48$ ). Almost half of our subjects were educated to the secondary (44.1% – 26 people) and 17 to higher education level, 14 had vocational, 1 primary education and 1 incomplete degree studies.

### Subjective level of acceptance of the illness

The AIS questionnaire was filled out by 60 respondents, yet 2 of the tests were incomplete so they were rejected for our analysis which finally included the survey of 58 people.

**Table 1.** Overall evaluation of the acceptance of illness

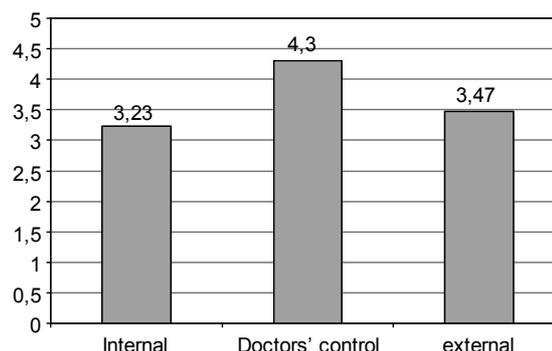
Level of the acceptance of illness	Number N = 58	%
None	5	8.6
Average	31	55.2
Good	22	36.2

There were significant differences in the number of people in the groups with different levels of the acceptance of illness ( $\chi^2(2) = 19.07, p < 0.001$ ). Most of the subjects showed an average acceptance of the illness, more than the third the good acceptance. One in 12 respondents showed the lack of acceptance (scored less than 19 points).

The multivariate analysis of variance (MANOVA) showed the existence of significant differences between responses to individual questions –  $F(7, 51) = 4.62, p < 0.001, \eta^2 = 0.39$ . The respondents showed the highest level of acceptance of the disease in the question about the state of their health and self-sufficiency, and of bothering others and a sense of being no longer needed. The lowest acceptance was revealed in terms of having to depend on others and inability to be involved in the activities that the patients liked.

### Patients' beliefs about pain control

The repeated measures ANOVA analysis (Fig. 1) was used to obtain the answer to the question whether the respondents think of pain as dependent on their internal control, doctors' interventions or pure chance.

**Fig. 1.** Beliefs about pain control

The tested model was proven to be statistically significant:  $F(2;58)=27.77; p < 0.001; \eta^2=0.489$ , which means that the respondents had varied approach to the beliefs regarding their possible influence on the experiences of pain. Pairwise comparisons showed that the subjects attributed the highest status to the influence of physicians on the pain they experienced ( $M = 4.30, SD = 1.02$ ) – a significant difference with the external ( $p < 0.001$ ) and internal ( $p < 0.001$ ) control. This supports the hypothesis that before the surgery patients revealed stronger belief in the impact of doctors/staff on the experienced pain, whereas there was no difference between the strength of beliefs about the internal and external control ( $p > 0.05$ ).

### Strategies of coping with pain

In order to identify the strategies used most by our respondents, the MANOVA analysis (fig. 2), was performed which showed the differences in the frequency of using various strategies  $F(8;52)=29.13; p < 0.001$ .

**Table 2.** Responses to the questions regarding the acceptance of illness – the AIS Questionnaire

Assessment	The AIS Questionnaire statements															
	1		2		3		4		5		6		7		8	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
I definitely agree	8	13.79	12	20.69	7	11.86	10	16.95	2	3.39	9	15.25	5	8.47	6	10.17
I agree	11	18.97	15	25.86	7	11.86	17	28.81	6	10.17	4	6.78	7	11.86	7	11.86
Difficult to say	24	41.38	8	13.79	9	15.25	12	20.34	12	20.34	11	18.64	9	15.25	6	10.17
I disagree	11	18.97	15	25.86	16	27.12	10	16.95	14	23.73	12	20.34	11	18.64	14	23.73
I definitely disagree	4	6.9	8	13.79	20	33.9	10	16.95	25	42.37	23	38.98	27	45.76	26	44.07

1 – I have problems with adjustment to the limits imposed by the disease, 2 Due to my health status I am not able to do things I like most, 3 – Disease sometimes makes me feel that I am not needed, 4 – Health problems make me more dependent on others than I would like to be, 5 – The disease makes me a burden to my family and friends, 6 – My health status makes me feel that I am not a fully valuable human being, 7 – I will never be as self-sufficient as I would like to be, 8 – I think that people in my surrounding are often embarrassed by my disease

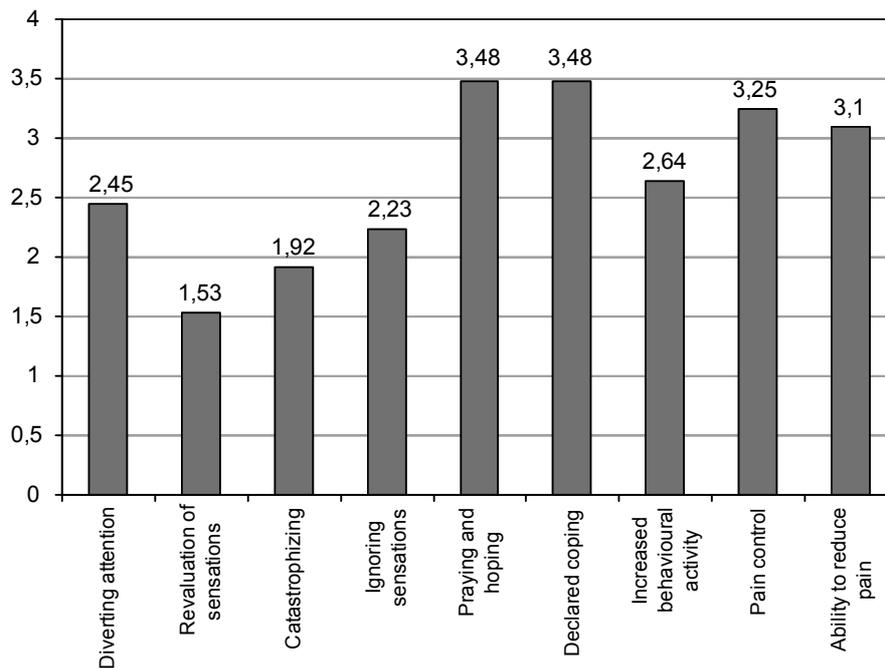


Fig. 2. Strategies of coping with pain – CSQ (mean values for each strategies)

Further into the analysis pairwise comparisons with Sidak correction was performed. Most subjects used the praying/hoping, and declared coping with pain, pointed to the possibility of pain control and the ability to reduce pain. The least frequent was the redefinition of experience and catastrophizing. Other strategies were used with similar frequency. It was assumed that the greater acceptance of illness by the patient correlated positively with higher levels of perceived internal control. The analysis showed no significant relationship between these variables. The correlation analysis (Pearson’s r) showed no relationship between the illness acceptance and socio-demographic variables such as age, sex or education ( $p > 0.05$ ).

Table 3 presents the breakdown of the results of the analogous analysis pain locus of control (N=58). People with higher education less frequently indicated the significance of doctors’ impact on their pain. Similar tendency (trend level) was observed in men. The analysis of a relationship between the strategies of coping with pain and socio-demographic variables (Table 4) suggests that the older a person the more frequently they use behavioural activity strategies, and the higher the education the lower is the tendency to catastrophizing.

Table 3. Relations between the demographic variables and pain locus of control (N=58)

Pain locus of control	Age (Pearson’s r)	Sex (Pearson’s r)	Education (Spearman’s ρ)
Internal	0.116	-0.112	0.183
Doctors’ influence	0.142	0.243 <sup>T</sup>	-0.386**
Pure chance	0.061	0.100	-0.210

Correlation significant at the level: \*\* $p < 0.01$ ; T – statistical trend

Table 4. Correlation between pain coping strategies and demographic variables (N=56)

Strategy	Age (Pearson’s r)	Sex (Pearson’s r)	Education (Spearman’s ρ)
Diverting attention	0.256 <sup>T</sup>	0.026	-0.109
Revaluation of sensations	0.12	-0.039	0.098
Catastrophizing	0.021	-0.011	-0.533***
Ignoring sensations	0.095	-0.053	0.003
Praying/hoping	0.223	0.016	-0.268 <sup>*</sup>
Declared coping	0.152	0.007	-0.104
Increased behavioural strategy	0.280 <sup>*</sup>	-0.195	-0.092
Pain control	-0.157	0.059	0.153
Ability to reduce pain	-0.185	-0.059	0.123

Significant correlation at the level \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ ; T – statistical trend

## DISCUSSION

The study demonstrated that immediately before the neurosurgery most of the patients with osteoarthritis of the spine accept their illness, though to various extent. Only 8.6% of the respondents did not accept their illness and over half (55%) accepted to the average level. This high average acceptance may be caused by awaiting surgery, aimed at improving the quality of patient's life. The respondents were tested a day before the surgery and were likely to have high expectations as to its positive outcome. Optimism about the future less burdened with physical pain might have at that stage influenced the perceptions of the illness. These results are consistent with studies by other authors, conducted among patients with spine diseases (e.g. Juczyński, 2001). They differ, however, from the studies carried out using the same scale, among patients with other diseases. Karna-Matyjaszek's research team which investigated patients with glaucoma showed that the levels of acceptance of the illness (poor, average, good) refer to glaucoma patients in the same degree, i.e. at approximately 30% of the patients in each group, which means that one third of glaucoma patients poorly tolerate the illness [5]. In the research by Kułak and Kondzior (2010) carried out among the patients with the lumbar degenerative disc disease found high acceptance of the condition (48% of respondents) [12]. Similar results to ours were obtained among patients with diabetes mellitus type II (Kurowska, Lach 2011), having discovered an average acceptance of the disease [11].

The locus of control means the individual's inner conviction about their influence on the events that occur in their life, including experiencing pain. It was demonstrated that people with high level of internal locus of control have a strongly developed conviction of their ability to control the pain [8]. It is considered that such attitude reduces the feeling of hopelessness and depressive symptoms, promotes activity and helps the coping with pain [8]. The largest group of respondents thought that the level of pain they experienced was, above all, influenced by medical personnel. This situation can be attributed to the level of organization of the Polish healthcare system (e.g. personnel-patient relation). The healthcare system in Poland is still hierarchical, with doctors enjoying unquestionable authority and patients trained into submission. And so a change into thinking that pain can be reduced by patients' own interventions or other non-medical factors would not only require

particular exercises of the one party but also the change of approach of the other. Doctors, for example, could more frequently explain to their patients how much actually depends on them, which would help achieve the reversal of the results obtained in the study. It seems a much better option to include clinical psychology specialists in the therapeutic process, whose competences are aimed at helping patients with various temperament or personality cope with pain, change their attitude towards the illness and approach towards themselves in the illness. Strategies of coping with pain involve active engagement of the patient in the situation when they suffer pain. The effectiveness of applied strategies depends on the type of stressful situation and its requirements, especially on the degree to which it can be controlled [9,10].

Pain control and pain coping strategies depend on specific, individual conditions enhancing the experience of pain or reducing it [8]. Owing to this research it is possible to assess the type of strategies chosen by patients, their capacity for mastering the pain and, if so, the degree to which it is controlled. After all, further treatment and recovery depend on these factors [10]. Among our respondents, the most frequently used strategy of coping with pain was praying and hoping and also declaration of coping. These results are a little different to the results of Juczyński's research [3], in which people suffering from degenerative changes of the spine more often chose coping and ignoring pain sensations. They are also marginally different from the results of the study carried out by Anduszkiewicz [10] among the patients with degenerative changes in the hip joint, who chose praying and hoping as their most frequent strategies of coping with stress. Perhaps the differences between the studies resulted from different sex ratio in the surveyed groups. Our group was dominated by women whereas in Anduszkiewicz's study the number of women and men was the same. It was characteristic for women to address God for help and finding comfort in the prayer, in fact the strategy was highly valued. Turning to religion seems a characteristic strategy also in case of other illnesses where pain dominates, as confirmed by the research conducted by Hayati [14] or Najres [15] among women with breast cancer in Iran, for whom the most frequent strategies was turning to religion, acceptance of the illness and planning. These are interesting cultural comparative studies. Some research demonstrates [16] that with the increase of religious feeling the depression and anxiety subside and the adapta-

tion to the requirements of the illness, satisfaction with life and its quality prevail.

Also of interest are the results demonstrating the high share of the strategy “declared coping”, which means that there is a large group among the respondents who use more constructive, pro-active strategies. Further research of into this area might be interesting, explaining whether active coping strategies play a larger role in the initial stages of experiencing pain or persist unchanged throughout the entire illness.

It is also remarkable to note the low result of the “catastrophizing” strategy. Many studies mention the correlation between pain, disability, fear and catastrophizing strategy. For example the regression model, presented in the study by Domenech [13] among patients with chronic knee pain, the “catastrophizing” strategy and depression explain 56% of disability variance and “catastrophizing” explains 37% of pain among those patients. These findings confirm the significance of biopsychosocial perspective in the treatment of this kind of patients. The study did not endorse the hypothesis about the significant relation between the acceptance of illness and pain locus of control, and strategies of coping with pain. The research revealed some relationships between pain coping strategies and selected socio-demographic factors. Older people more often used the strategy of increased behavioural activity and diverting attention (weak correlation at the trend level). No relation was noted with sex but interesting result was reached by correlating education with pain coping strategies. There were fewer responses of “catastrophizing” among people with higher education (moderate correlation) who also prayed less or placed their hopes in higher forces/fate (weak correlation).

## CONCLUSIONS

The method of responding to pain has its consequences e.g. it affects starting or delaying treatment, accepting medical treatment and rehabilitation. Pain is a subjective, multidimensional experience, which is why it is difficult to evaluate it directly and objectively. Changes in social awareness create new interactions between a physician/psychologist and a patient, which is why further research with regard to not only invasive methods of treatment but also patients’ subjective perceptions is important.

1. Most of our respondents represented average acceptance of the illness.

2. The most numerous group of respondents think that the pain they feel can be mostly influenced by medical personnel.
3. The most common pain coping strategy among the respondents was praying and hoping and declared coping.
4. No significant relation was revealed between the level of accepting illness, pain locus of control and pain coping strategies.
5. The research demonstrated some relations between the strategies of coping with pain and demographic variables.
6. The therapeutic process of patients with osteoarthritis of the spine should involve clinical psychology specialists.

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