

Received: 2015.05.24
Accepted: 2015.07.29
Published: 2015.12.15

Strategies for Coping with Chronic Lower Back Pain in Patients with Long Physiotherapy Wait Time

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Source of support: Departmental sources

Background: Treatment efficacy for the increasing prevalence of back pain is a great challenge for both health care providers and individuals coping with this problem. This study aimed to evaluate pain coping strategies used by primary care patients with chronic lower back pain (CLBP) as a supplementation of medical diagnosis before a physiotherapy programme.

Material/Methods: A total of 88 people were divided into 3 age groups: young adults (21–40 years old), middle-aged adults (41–60 years old), and the elderly (over 60 years old). Data was gathered from rehabilitation centers and primary medical care facilities. A cross-sectional design was used. The Coping Strategies Questionnaire (CSQ) was completed before the physiotherapy course.

Results: Patients complained of CLBP for 11.32 ± 6.81 years on average. The most common strategies to cope with back pain included declaring that the pain is manageable, praying and hoping, as well as increased behavioral activity. Statistically significant differences in coping strategies were found between age groups. The elderly patients were more likely to "declare coping with pain" in comparison to the younger age groups ($p < 0.01$). People over 60 years of age were more likely to declare active coping with pain, while young people reported catastrophizing.

Conclusions: Patients in different age groups had various difficulties in pain coping. Most of them required support in self-management of pain in addition to physiotherapy. The basic assessment of pain coping strategies should be consistently taken into account and included in rehabilitation protocols in chronic pain treatment.

MeSH Keywords: **Adaptation, Psychological • Low Back Pain • Physical and Rehabilitation Medicine • Primary Health Care**

Full-text PDF: <http://www.medscimonit.com/abstract/index/idArt/894743>



Background

The increasing prevalence of back pain diagnosis among people of different ages, working in highly industrialized/developed countries, highlights the need for new treatment methods [1–5]. High-efficacy treatment has become a challenge to both the health care system and individuals suffering from back pain, e.g. patients need to be less reliant on self-coping and be more proactive in seeking out professional help and support with regard to their treatment and pain management. However, some aspects of the process of diagnosis and effective treatment still remain unexplained. Hence, tailoring the protocols of examination and therapeutic programmes, where multidisciplinary diagnosis and multidimensional structure of the pain are taken into consideration becomes increasingly important [6,7]. In reality, a cursory attitude to the bio-psychological approach to chronic pain treatment may result in patients' disappointment with treatment outcomes [8–12].

Coping with pain is an important element in pain perception and responses. Therefore, it plays an important role in the healing process [13,14]. Lazarus and Folkman [15,16] developed a concept that fits well in the discussion on the problem of coping with chronic pain. According to them, coping means making cognitive and behavioral efforts to control the external and internal demands which a person considers as aggravating or exceeding his/her resources. The behavioral efforts refer to the measures taken to reduce pain, and the cognitive ones are those aimed at reinterpreting pain or finding a distraction [17]. Prior research has demonstrated poor treatment outcomes for patients who used passive coping strategies [18–20]. Passive coping with pain, catastrophizing, avoidance, depression and anxiety are important predictors of problems with adapting to chronic pain and the consequential further psychosocial problems [11,19–21]. Moreover, the passive coping strategy is accompanied by low self-efficacy, higher pain intensity and disability [20].

Age is considered one of the risk factors for low back pain (LBP) as its prevalence increases with age [4,5]. For young adults, pain is often associated with a sense of disability, lowered performance (loss of productivity), unemployment, and a serious limitation affecting the process of self-realization [22,23]. On the other hand, the elderly suffering from pain are exposed to functional limitations, economic difficulties and social isolation [11,24].

Scientific research has evaluated strategies that representatives of different populations use to cope with pain for different medical conditions [7,14,17,18,20,25–39]. There are, however, gaps in research assessing the need of psychosocial factors included in the rehabilitation process that focus on somatic disorders. The bio-psychosocial model in the case of LBP has not

yet been extensively analyzed [10]. The scientific publications emphasized the need to create new healthcare models for patients suffering from pain that would cover self-management of pain [4,40,41]. The present study attempted to adopt a different perspective on the development of research focusing on tailoring rehabilitation protocols and modifying therapeutic programmes for LBP rehabilitation.

The authors of the following survey have assumed that patients with chronic back pain need strategies to manage their pain and its impact, because coping is not restricted to one dimension of human functioning (cognitive, affective, behavioral, physiological) [14]. It may have significant outcomes in the process of physiotherapy and its long-term efficacy.

The aim of this study was to evaluate self-management and pain coping strategies in patients with CLBP awaiting rehabilitation just before commencing their treatment programme. The authors took into account the basic assessment that could be provided by a physiotherapist before therapy. Especially in situations when patients must longer (even more than 2 months) wait for the ordered rehabilitation, struggling themselves in this time with pain [42]. The general assessment of mental health seems to be sufficient for rehabilitation needs. The following hypotheses were analyzed:

- what pain coping strategies are used by patients with chronic LBP?
- does age affect the choice of certain strategies?
- are there relationships between the strategies chosen by the patient and his/her self-control and ability to ease the pain?

Material and Methods

The study involved 88 patients: 52 women and 36 men, experiencing CLBP (related to degenerative diseases), attending physical therapy in two rehabilitation centers in Warsaw. The diagnosis of lumbar spine degeneration was made by a specialist orthopaedic surgeon based on clinical examination, confirmed by X-ray imaging and MRI. The height of the respondents averaged 166 ± 11.30 cm, weight 79 ± 14.33 kg, and BMI 28.58 ± 3.36 . The range of pain intensity (VAS scale 0–10) before the treatments in each group is presented in Table 1. The duration of back pain ranged from 4 months to 23 years, mean 11.32 ± 6.81 years. Mean waiting time for ordered rehabilitation in primary health care was 6.82 ± 5.46 weeks. The most frequently recommended forms of treatment included individual or group exercises, interference currents, laser therapy, cryotherapy and massage. The respondents completed the study questionnaire and interview form before physiotherapy services. The patients did not use professional psychological counselling before.

Table 1. The range of pain intensity in pretreatment research groups (VAS scale 0–10).

	Young adults (N=28)		Middle-aged patients (N=32)		The elderly (N=28)	
	Women (N=16)	Men (N=12)	Women (N=20)	Men (N=12)	Women (N=16)	Men (N=12)
Mean pain X±SD	5.82±1.21	5.16±0.93	4.90±0.57	5.23±1.46	3.81±1.02	3.3±0.83
Min–Max	3–8	4–7	3–6	3–7	2–6	2–5

Table 2. Age groups and number of subjects belonging to each group.

	Young adults (N=28)		Middle-aged patients (N=32)		The elderly (N=28)	
	Women (N=16)	Men (N=12)	Women (N=20)	Men (N=12)	Women (N=16)	Men (N=12)
Mean age X±SD	31.8 ±5.62	32.9±6.76	53.4±3.56	52.8±3.68	69.5±7.02	71.3±6.13
Min–Max	22–40	23–40	41–59	43–60	61–85	62–82

The inclusion criteria for the study were as follows: chronic LBP lasting more than 3 months, degenerative changes of lumbar spine, no other acute conditions, referral to physiotherapy from physician, consent to participate in the study. The criteria for exclusion from the study were: difficulties in contact with the patient, identified deeper mental disorders, other significant pain, and age below 20 years.

According to the hypothesis, the results were analyzed for three age groups: young adults (21–40 years old), middle-aged (41–60 years old) and the elderly (61 years of age and older). The age groups were determined according to the human development periods (Table 2).

The management of the rehabilitation centers also gave their written consent to conduct the research and were informed about the purpose of the study, respecting the principles of anonymity and the fact that at any time they could terminate their participation without indicating the cause. The tested subjects were qualified for participation in the study based on the date of application for rehabilitation treatments. The permission to conduct the research was granted by the Ethics Committee at the Physiotherapy Faculty of the Jozef Pilsudski University of Physical Education in Warsaw (SKE no.01-5/2014). The participants provided their written informed consent to participate in this study. The ethics committees approved this consent procedure.

This study utilized the Coping Strategies Questionnaire (CSQ) by Rosenstiel and Keefe (1983), adapted to Polish by Juczyński [28], which was filled out by the subjects immediately prior to a series of physiotherapy treatments. This enabled evaluating the strategies used to cope with pain. In addition, it also made

it possible to predict if the patient adapted to chronic pain. The tool consists of 42 statements describing different ways of coping with pain, related to 7 pain coping strategies (each strategy consists of 6 statements).

The authors of the questionnaire proposed six cognitive strategies: (1) distraction, (2) re-evaluation of the sensation of pain, (3) catastrophizing, (4) ignoring the sensations, (5) praying/hoping, and (6) declaring the pain manageable, as well as one behavioral strategy (7) defined as increased behavioral activity. Those strategies comprise three factors: (1) cognitive coping, (2) distraction and taking substitutive steps, (3) catastrophizing and searching for hope.

Apart from assessing the 42 statements above, the respondents answered two questions concerning assessment of their own self-control and ability to ease the pain. The scales were as follows: Likert scale of 0–6 for the 42 statements, where 0 means ‘I never do that’ and 6 means ‘I always do that’. Hence, for each strategy, the final scores ranged from 0–36 points. The higher the score, the more important the strategy was to the patient. Two extra questions regarding control and alleviation of pain were separately graded by the respondent on a scale 0–6, where 0 means ‘I do not control the pain’ (in first question) and ‘I cannot alleviate it’ (in second question), and 6 means ‘I completely control the pain’ and ‘I can reduce it completely’ respectively. The higher the score, the more convinced the patient was about his/her ability to cope with pain. Cronbach’s alpha for the entire tool was 0.80, and particular strategies exceeded this value. The exceptions were two strategies: distraction, 0.64, and increased behavioral activity, 0.63.

Table 3. Strategies used for coping with pain (0–36 points scale) and opinions on pain control and relief (0–6 scale) reported by persons experiencing chronic LBP.

Strategies	M ±SD
1. Distraction	13.80±7.73
2. Reevaluation of the sensation of pain	8.67±6.30
3. Catastrophizing	9.47±7.28
4. Ignoring the sensations	14.51±6.94
5. Praying/hoping	17.53±8.48
6. Declaring coping with pain	21.10±6.52
7. Increased behavioral activity	16.79±7.67
Opinions on pain control (control over pain)	3.36±1.08
Opinions on the ability to reduce pain	2.92±1.07

Regarding statistical analysis, due to the fact that the distributions of variables were not normal, as shown by the Shapiro-Wilk test, the statistical analysis was performed based on non-parametric tests and Spearman’s pairwise correlations. The Kruskal-Wallis test was applied to compare the differences between the age groups. The level of significance was set at $p \leq 0.05$.

Results

The results showed that the following strategies were most popular among the examined patients: declaring that they cope well, praying and hoping, and increased behavioral activity (Table 3).

Gender dependent choice of strategies for coping with chronic pain

Men and women tended to choose different strategies to cope with pain. Women were more likely to use distraction techniques than men ($p=0.045$) and exhibited greater behavioral activity ($p=0.027$). They were also ignoring the sensation of pain ($p=0.045$) less frequently. For the remaining strategies, no differences were noted (Table 4).

Regarding opinions on pain control and the ability to reduce it (two additional questions), even though no gender related differences were found, the authors analyzed the relationship between these opinions and the strategies used to cope with pain in the same group of women and men (with the use of Spearman’s pairwise correlations). Among women, the opinions on pain control skills correlated positively with declarations of coping ($\rho=0.352$, $p=0.01$), and negatively with catastrophizing ($\rho=-0.276$, $p=0.048$), while the sense of effective reduction of pain was associated positively with declarations of coping ($\rho=0.352$, $p=0.01$), and negatively with catastrophizing ($\rho=-0.340$, $p=0.014$).

In the group of men, pain control was positively correlated with praying/hoping ($\rho=0.484$, $p=0.003$) and ignoring pain ($\rho=0.417$, $p=0.003$). The opinions on the reduction of pain correlated with re-evaluation of the experience of pain ($\rho=0.581$, $p=0.0001$), increased behavioral activity ($\rho=0.712$, $p=0.0001$), and distraction ($\rho=0.510$, $p=0.001$).

Age related choice of strategies for coping with pain

To compare the differences between the groups of patients based on age, the Kruskal-Wallis test was applied. People over 60, compared to younger people, more often resorted to the strategy of declaration of coping with pain ($\chi^2=8.693$). Although the rest of the results were not statistically significant, it was

Table 4. Gender related differences in the strategies used to cope with pain (the mean values).

Strategies	Women (N=52)		Men (N=36)		p
	Mean ±SD	Median	Mean ±SD	Median	
Distraction	15.28±6.87	16.50	11.75±8.50	11.50	0.045*
Reevaluation of the sensation of pain	7.71±5.42	7.5	10.05±7.25	8.00	0.188
Catastrophizing	8.80±7.13	6.5	10.44±7.50	8.50	0.408
Ignoring the sensations	13.26±7.40	14.00	16.30±5.85	16.50	0.045*
Praying/hoping	17.80±8.62	20.00	17.13±8.48	19.00	0.638
Declaring coping with pain	21.28±6.77	21.00	20.83±6.24	21.00	0.827
Increased behavioral activity	18.42±6.76	19.00	14.44±8.38	16.00	0.027*

Table 5. Pain coping strategies depending on the age of the subjects (the mean points values).

Strategies	Young adults		Middle-aged patients		The elderly		p
	Mean ±SD	Median	Mean ±SD	Median	Mean ±SD	Median	
Distraction	14.03±8.16	16.00	13.09±7.93	13.00	14.500±7.25	15.00	0.677
Reevaluation of the sensation of pain	8.85±5.64	8.50	6.96±5.86	6.00	10.42±7.08	9.50	0.127
Catastrophizing	11.98±7.27	8.50	8.59±8.02	6.00	8.96±6.37	8.00	0.354
Ignoring the sensations	13.25±6.50	12.00	14.78±6.48	15.00	15.46±7.87	17.50	0.394
Praying/hoping	17.60±7.02	19.50	16.34±9.44	16.50	18.82±8.77	23.00	0.402
Declaring coping with pain	19.82±5.24	20.00	20.18±7.49	21.00	23.42±6.08	24.50	0.013
Increased behavioral activity	14.64±7.31	14.50	17.06±7.84	19.00	18.64±7.57	19.00	0.101

Table 6. Spearman's rank correlations for pain control and reduction of pain, and pain coping strategies in three age groups.

Age group	KB	ZB	OU	PDB	K	IDB	M/PN	DRS	ZAB
Young adults	KB				-.384*	.647**	.538*		
	ZB		.575*	.452*			.395*	.450*	.630**
Middle-aged patients	KB	.759**						.491*	
	ZB	.759**						.351*	
The elderly	KB		.572*				.377*	.452*	
	ZB	.572*							.605**

KB – pain control; ZB – feeling of effective pain relief; OU – distraction; PDB – reevaluation of the sensation of pain; K – catastrophizing; IDB – ignoring the sensations; M/PN – praying/hoping; DRS – declaring coping; ZAB – increased behavioral activity. * p<0.01; ** p<0.0001.

worth analyzing some of them with regard to their clinical significance and their value to medical practice and to the functioning of individuals in a social context. Particularly noteworthy were: catastrophizing, which – as indicated by the average scores in the Kruskal-Wallis test – was most often used by young people and less often by the middle-aged and the elderly (respectively: 11.98; 8.59; 8.96), ignoring pain was most frequently chosen by the elderly (respectively: 13.25; 14.78; 15.46), and increased behavioral activity was also most commonly used by the elderly (respectively: 14.64; 17.06; 18.64). The above data is presented in Table 5.

Another analysis consisted of a comparison of self-assessment of pain control skills and the ability of reducing pain, depending on the age group. There were no significant differences found in this respect, nevertheless, some correlations were found within each group. In all groups, positive

correlations were found between the sense of controlling the pain and the ability to reduce it, and the declarations of coping. Among the middle-aged and older people, there was a relationship between the sense of pain control and the ability to reduce the suffering. Among young people, no such correlation was observed. However, in this group, unlike in the other groups, negative correlations between pain control and catastrophizing were noted. The statistically significant correlations are presented in Table 6.

Discussion

Chronic pain is a source of many problems and disability. Methods of treatment limited to actions aimed at the locomotor system alone tend to be ineffective, since cases in which chronic pain results only from a somatic cause are rare.

Allowing for bio-psychosocial factors in the rehabilitation process of CLBP enables global assessment and better characteristics of the patient's state as well as enabling more extensive perspectives on the causes of pain and the reaction to it [4,10,43,44]. Evaluation of pain coping strategies should be an essential part of both the diagnosis and the rehabilitation process of patients with chronic somatic disorders.

The CSQ was chosen as a tool to evaluate the pain coping strategies, which meets all the above criteria without the necessity of engaging benchmarking to define which accessible tools are more essential, which approach is more successful (e.g. acceptance base intervention or coping approach). These issues have already been tested by researchers from various countries [6,7,30].

The results of this study showed that the most commonly used strategies within the whole group were: declaration of coping, praying/hoping and increased behavioral activity. The least frequent strategies comprised re-evaluation of the sensation of pain and catastrophizing. A study conducted by Juczyński [28] showed that people suffering from LBP due to degenerative changes more often chose to ignore the pain, and patients with LBP and sciatica were more likely to choose a distraction strategy. Other findings in patients with LBP treated surgically were obtained by Misterska et al. [36], with the most commonly chosen strategies being: catastrophizing and praying/hoping. In the present study, the choice of strategy depended on age and sex of patients. Similarly, Mogil and Bailey [45] highlighted the need to take those differences into account while working with patients suffering from pain. However the literature is divided on the matter of sex-related coping strategy preferences [45–54]. Women represent a larger group of people struggling with chronic pain and they are more sensitive to it than men [45–48]. The survey by Stubbs et al. 2010 [48] revealed that women suffering from pain compared to men reported worse pain intensity as well as more restricted function and greater frequency. On the other hand, France et al. 2004 [49] claimed that women were more likely to use emotion-focused pain strategies. Sullivan et al. [47] demonstrated using the CSQ that women exhibited a higher level of catastrophizing.

The present study revealed other sex related differences regarding the choice of coping strategies. Women were more likely than men to use a distraction strategy as well as increased behavioral activity, and less likely to resort to ignoring the pain. Thanks to the first two strategies women more often directed their attention to other activities, in order to reduce or eliminate pain, which might have been more effective than ignoring it. It should also be noted that there were observed negative correlations among women between pain control and the ability to reduce it and the strategy of catastrophizing. This may be due to the tendency of women to

manifest stronger emotional reactions, as also indicated by other authors [24,49].

Experiencing pain, as was previously shown, is more common with age, and aging of the contemporary population brings about health consequences. Research on age-related differences in experiencing pain has provided an abundance of information [12,16,25,32,49,54]. Lansbury [32] demonstrated that the elderly opted for strategies that indicate greater control and are self-administered. Furthermore, these persons wanted to take part in their rehabilitation process in an active way and were open to new treatment approaches. The present study showed that the group of older patients, more often than young adults and middle adulthood declared that they cope with pain in a more active manner (using active coping). Similar results were obtained by Baker et al. 2005 [27] examining different age groups.

Although the differences concerning other strategies were not significant in the present study, it is worth emphasizing a few of them because of their clinical importance. Among the examined groups, young people exhibited catastrophizing (passive coping) more frequently. Ignoring pain and increased behavioral activity were the rarest. Stronger catastrophizing may hinder controlling the pain and decreasing it, and could be a predictor for chronic LBP and poor chronic pain adaptation [19]. In addition, in the younger group there was no relationship observed between pain control and the ability to reduce it. Perhaps in the case of long-term experience of pain in older patients – the ability to reduce it is increased thanks to behavioral and cognitive strategies. This is evidenced by the correlations between the coping capabilities and the strategies indicating certain purposefulness of activities, such as influencing the attitude towards pain and strengthening the motivation to overcome it (declaration of coping), as well as distraction, re-evaluation of sensations and increased behavioral activity [16,28]. The results obtained within the first age group may indicate that young people do have some difficulty in coping with pain as compared to older people. These differences may be due to the fact that young people manifest a more intense emotional response to pain than older people who are better at distancing themselves from critical life events [16,27,31]. Experiencing pain by young adults often significantly disrupts aspirations and goals in life and makes it difficult or impossible for them to satisfy different needs. Emotions associated with both the pain and its consequences cause anxiety, fear and catastrophizing [30,31,44,52].

In the primary healthcare practice concerning the locomotor system, the most popular pain reducing procedures include physiotherapy treatments and physical exercises (task strategy), but sometimes muscle tension relief obtained through relaxation, alleviating emotions (emotional strategy) or avoidance

strategy [28] could be more effective. This means that greater emphasis should be placed on dedicated treatment methods which should be dependent on the diagnosis of psycho-physical condition of the patient, strategies used to cope with pain, type of dysfunction and patient's living conditions. Positive changes in patients' beliefs about back pain, awareness and patients' knowledge concerning their mental condition and proper pain coping methods may make it easier for them to feel they have control over pain and their own lives. The involvement of the patients in the process of medical treatment/rehabilitation plays an important additional function, namely, it stimulates their activity, develops a sense of efficiency as well as reduces anxiety and the feeling of powerlessness and helplessness [55–58]. The learned ways of how to fight pain will serve patients long after the completion of the therapeutic sessions carried out at a rehabilitation centre.

Strengths and limitations

Regarding limitations, the authors acknowledge that there were some factors that restrict the present research (small group of patients, one strategy evaluating tool, too few reliable pain measurements). This was a preliminary study and not all analyses were included because of the size of the present study and this will be reflected in the next research.

The value of the study was to focus on a more accurate psycho-social assessment of the patient in physical therapy with regard to coping strategies, especially when they have to wait longer than their prescribed rehabilitation treatments.

In order to obtain successful treatment outcomes, the development of modern, up-to-date methods of rehabilitation, and emphasis placed on the relevant upgraded, modified research protocols are of great importance. All the above are believed to

facilitate better assessment of a patient who enters the prescribed rehabilitation program. Learning about, among others, the current ways of coping with pain may help a therapist identify the patient's needs in this regard. In consequence, the activation of the needs and finding support should facilitate more effective and active ways of coping with symptoms, even after the completion of a rehabilitation program.

We postulate that the assessment of self-management of pain (coping, controlling) should be consciously, intentionally, and consistently taken into account in the chronic pain rehabilitation process. Striving for more efficient and effective primary health care, as well as updating and tailoring diagnostic and therapeutic protocols, should keep up with the changing needs and challenges of the health of people of all ages.

Conclusions

1. Examined patients with CLBP related to degenerative diseases coped with pain in different ways during several weeks of waiting for the ordered physiotherapy. Most of them required support in self-management of pain in this time and during their rehabilitation program.
2. With increasing respondent age, the choice of more active strategies to cope with pain was demonstrated.
3. The main gender differences were: women more often than men used distraction strategies and behavioral activity, while men more often declared ignoring the pain.
4. Patients, who coped with pain better demonstrated better self-control of the pain.
5. The basic assessment of pain coping strategies and pain self-control should be included in rehabilitation protocols for more complete assessment of patient's needs in chronic pain before ordering a treatment program.

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