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Appointment the Effectiveness of Cognitive-behavioral Treatment of Pain on Increasing of Self-efficacy in Patients with Chronic Pain

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Abstract

From the beginning of history, the attempt for controlling pain has been one of the goals for humanity. This study has been performed in order to determine the efficacy of cognitive-behavioral treatment in addition of self-efficacy in patients with chronic pain. After selecting 12 eligible people for the test, the subjects are divided randomly into two groups including, cognitive-behavioral pain therapy group and the control group (6 persons per each group). Then, the difference of pre-test and post-test results was compared by the statistical models. The obtained results showed in general that in comparison with the control group, cognitive-behavioral therapy led to increase self-efficacy.

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1. Introduction

Chronic pain is a weakening situation which not only suffers the patients, but also causes psychological pressures which affect other aspects of their life (Turk and Gatchel, 2002). When a pain is lasting more than exception, it is called chronic. It should be considered that based on the treatments a chronic pain may last from 3 months to 30 years (Nicholas, Molloy, Tonkin & Beeston, 2006).

Previous studies in the past 40 years support this idea that chronic pain is a complex of psychological, social and biological problems. This multi factorial model is a substitution for the simple model which considers the pain as an absolute physical problem. In this model, social and psychological factors are indirectly related to pain feeling. As the pain become chronic, social and psychological factors also become more important than biological factors (Turk and Okifuji, 2002; Turk, Okifuji, Sinclair & Stan, 1996). So it shouldn't be forgotten that chronic pain is more than a biologic discomfort. Demoralization, emotional disorders, chronic thinking to pain, individual, social and professional activities limitation, increasing drug consumption, frequent visits to health organizations are all related to Chronic pain (Parsons, 1995). It should be noted that chronic pain also affects self-efficacy of the patients. Self-

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efficacy is closely related to control of Disturbing stimuli. Self efficacy is an individual opinion about the ability to do required behaviors to achieve a specific goal in a given situation. According to the previous reports, this item is a critical intermediate in treatment approaches (Nicholas, 2007).

American psychological association has introduced chronic pain treatment to the 25 scopes which psychology science usefulness is supported clinically and experimentally. Cognitive-behavioral model of pain has had the more acceptable concepts for pains which guide many researchers to distinguish chronic and acute pains (Turk and Gatchel, 2002).

Without considering the pain origin, chronic pain can cause several changes in patients' daily life. It seems that even if no cure exist for the chronic pain, treatment of the resulted problems will decrease total pain effects on the patient's life and improve his/her efficacy (Nicholas et al, 2006). In order to improve self-efficacy and pain severity in patients suffering from chronic pain, the efficacy of cognitive-behavioral model is investigated in this article.

2. Methods

2.1. Participants

Statistical populations for this project include all patients suffering from chronic pain which have study criteria and referred to Tehran clinics in 2010. 12 patients who had the study criteria voluntarily participated in this project. Study criteria were: 18-65 years old age, education degree upper than elementary school, chronic pain which was started 6 months ago and continues pain in the last 3 months daily or almost daily, using drug therapy as the only treatment protocol, no severe psychological disorders like Alzheimer or schizophrenia. Based on these criteria 12 patients were selected voluntarily and randomly divided into two groups.

2.2. Measures

2.2.1. Graded Pain Questionnaire

Demographic information collection and diagnosis of chronic pain was done by Graded Pain Questionnaire composed of 42 questions (Asghari, 1997).

2.2.2. Pain Self-Efficacy Questionnaire

Pain Self-Efficacy Questionnaire, compromised of 10 statements, was used to assess patients' self-confidence to do team works and routine daily activities without considering their pain. Each statement is scored based on a 7 point Likert scale. Patients' score in this questionnaire was in the range of 0-60 and more secure means more self-efficacy. Reliability and validity of this scale among patients with chronic pain has been confirmed. Factor analysis results also showed that pain self-efficacy questionnaire was saturated from one factor (Asghari and Nicholas, 2009).

2.2.3. Multidimensional Pain Inventory

Multidimensional Pain Inventory (MPI) has been designed based on the pain cognitive-behavioral theory by Kerns et al (1985). Reliability and validity of MPI have been confirmed among 120 patients suffering from chronic pain. This questionnaire is composed of three independent parts. The first part includes 20 statements about patients' assessment for pain severity, daily life disturbance, and life control, supportive and emotional disorders which are expressed by 5 subscales. The second part is about family and relatives' reactions about patients' chronic pains. In this part, patient scores her/his family reactions to her/his disease as three subscales: negative reaction, efforts to deviate others attention from pain and showing sympathy. The third part is composed of 18 statements and is assessed through 4 subscales including patients housekeeping activities, house equipment repair and maintenance, social activities and out house activities. In the present article, patients' score in the pain severity (three statements) was used.

2.3. Treatment structure

ADAPT treatment pattern was used in this article. This method helps patients to cope with pain related problems. ADAPT method was designed based on the project that Nicholas et al started at 1988 in Sent Thomas Hospital. Chronic pain cognitive-behavioral treatment approach main hypothesis is:” when a patient starts a treatment stage, he/she believes that many of his/her problems are uncontrollable. So the first goal in this approach is to change this patients’ opinion and then learning skills to patients in order to cope his/her present problems and those which may happen in the future. This approach obviously tries to help patients in the way of knowing and changing beliefs, understandings and non-adaptive or non-beneficial coping strategies which are the causes of chronic pain suffering patients’ problems (Turk and Gatchel, 2002; Turk et al, 1983). This project treatment protocol which was designed based on the ADAPT, consisted of 8 treatment session each lasted 120 minutes with 15 minutes break in each session (Nicholas et al, 2006).

2.4. Procedure and data analysis

Present study follows a pseudo-experimental model with pretest-posttest and control group. After doing relative pretests, samples became ready; samples in the test group were randomly substituted with control group samples. After that members of treatment group were individually treated by treating interventions. After finishing treatment sessions, posttest was taken for two groups. Finally pre/post test results were compared using SPSS and parametric and non-parametric statistic tests.

3. Results

3.1. Descriptive results

Descriptive indexes of samples demographic are shown in table 1 for both experimental and control groups.

Table1. frequency (percent) of demographic characteristic in experimental and control groups

Variables		Experiment group Frequency (percent)	Control group Frequency (percent)
Education	BSc	3(50)	2(33.33)
	Associate Degree	0(0)	1(16.66)
	Diploma	3(50)	3(50)
Job	Employed	3(50)	4(66.66)
	Housekeeper	3(50)	2(33.33)
Marital	Unmarried	2(33.33)	0(0)
	Married	2(33.33)	6(100)
	Divorced	2(33.33)	0(0)
Main pain region	Head	1(16.66)	1(16.66)
	Neck	1(16.66)	1(16.66)
	Chest	1(16.66)	1(16.66)
	Back	1(16.66)	1(16.66)
	Hand	1(16.66)	1(16.66)
	Leg	1(16.66)	1(16.66)

In the table 2, descriptive statistic of study variables in each control and experiment groups are shown.

Study variables descriptive results showed that the mean scores for self-efficacy and pain severity before starting this clinical trial between experiment and control groups were not significantly different. In addition, calculated Z

score for comparison of the pretest scores between the control and the experiment groups was not significant based on the critical values and U-Mann Whitney test.

Table2. Descriptive indexes of test and control groups at pre and posttest stages

Variables		Pretest (Mean± SD)	Posttest (Mean± SD)	Z score	Significant level
Self-efficacy	Experiment	34.6±8.2	42.2±2.59	-0.42	0.69
	Control	34.2±7.43	25.6±4.16		
Pain severity	Experiment	3.55±1.1	2.77±0.45	0.16	0.94
	Control	3.49±1.64	3.61±1.59		

3.2. Treatment Results

Table 3 shows the difference between pretest and posttest results in control and experimental groups as well as U-Mann Whitney test results based on the comparison of mean difference of test variables between control and experiment groups.

Table3. Scores by subtracting pretest-posttest (Mean± SD) for test variables

Variables		Scores by subtracting pretest - posttest (Mean± SD)	Z score	Significant level
Self-efficacy	Experiment	-7.60±5.98	-2.62	0.009
	Control	8.40±6.58		
Pain severity	Experiment	0.77±1.00	-1.92	0.065
	Control	-0.11±0.54		

As is shown in table 3, Z-score calculated from U-Mann Whitney test for self-efficacy comparison between control and experimental group is -2.62 which is significant. So it can be concluded that cognitive-behavioral model has significantly increased self-efficacy score in test groups. It is noticeable that Z-score for pain severity was -1.92 which was not significant means that cognitive-behavioral model could not significantly reduce pain in comparison to control group.

4. Discussion

Our results showed that cognitive-behavioral model can significantly increase self-efficacy of patients suffering from chronic pains. This result confirms previous reports on behavioral-cognitive model efficacy (Tatrowand Montgomery, 2006; Naseri, 2004; PoshtMashhadi, YekeYazdandoost and Asgharnezhad, 2003; McCracken et al, 2002; Guzman, Esmail, Karjalainen & et al, 2001; PooladiReyshahri, Najariyan, shokrkon and Mehrabizadeh, 2001). More specifically, our results agree with previous studies about ADAPT program efficacy. Previous reports showed that patients who attended in ADAPT program, compared to those who were just treated by routine therapies, experienced moral and confidence improvement as well as increase activity levels. Although no reduction in pain severity was reported, ADAPT attendant patients showed better pain adaptation and totally better performance in daily life (Flor, Turk & Birbaumer, 1992).

Coordination of our results with previous reports can be explained based on the mechanism of behavioral and cognitive model. In this way, cognitive variables which act as Intermediates between the treatment and outcome of treatment are considered very significant. Reviewing of what was educated in therapy classes shows that self-efficacy improvement, how to challenge with non-benefit understandings about pain controlling, talking about useful and useless pain controlling methods and problem solving skills were the main discussed issues. It is obvious that these items develop cognitive changes and improve self-efficacy in patients. Many studies support the effective role of self-efficacy for better adaptation to chronic pains (for example: Asghari and Nicholas, 2009; Nicholas,

2007; Asghari and Nicholas, 2001). At the other hand reviewing the treatment session content relieve that development of behavioral changes is one of the most important goals of cognitive-behavioral interventions in this program. Behavioral goals adjustment, small goals development, muscle relaxation method, break severe pain-long rest cycle and recommending to do muscle tension. It seems that this behavioral method can improve self-efficacy through developing positive feelings.

Based on our results, the hypothesis of reducing pain severity after cognitive-behavioral treatment was rejected which is confirmed by some studies (Leibing et al, 1999) and rejected by some other studies (Tatrow and Montgomery, 2006; Morley et al, 1999). Maybe the few numbers of treatment sessions in this study can explain these results. But it is important to consider that based on the ADAPT program pain reduction is not a treatment goal. Performance recovery, moral improvement, reducing physical disabilities and self-efficacy improvement are more expected by this method (Flor, Turk & Birbaumer, 1992). The main expectation of the cognitive-behavioral treatment plan (ADAPT) was improvement of self-efficacy and substitute behaviors in order to reduce negative emotions in chronic pain suffering patients. Therefore, reducing the pain severity was not the treatment goal and results paradoxes can be explained in this way.

Finally, it should be noted that this article emerged from a limited project. Planning project with higher sample size and study variables reviewing can improve extrapolation of results.

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