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Effect of acceptance and commitment therapy on the acceptance of pain and psychological inflexibility among women with chronic headache

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Abstract

Tension headaches and migraines are the most common types of headaches that severely decline the daily functioning of patients. It seems that drug therapy is not useful by itself for most of these patients. The aim of this study was to evaluate the effect of acceptance and commitment therapy on the acceptance of pain and psychological inflexibility among women with chronic headache. It was a quasi experimental study using pretest- posttest with control group. The study population included women aged 20 to 40 who were suffering from chronic headaches and referred to a pain clinic in Tehran. In the study, 30 patients were selected and randomly divided into experimental and control groups (each group 15 members). Acceptance and Commitment therapy was implemented for eight one and a hours half sessions, once a week. Data collection tool in this study consisted of the questionnaire of pain acceptance and psychological flexibility. The results of this study showed that there was a significant difference in the variables of pain acceptance and psychological inflexibility between the experimental and control groups after the intervention .The results emphasized on the importance of this intervention in psychosomatic diseases to provide new horizons to clinical interventions.

Keywords: Acceptance and Commitment Therapy, Headache, Pain

Introduction

Pain is a common phenomenon which forces people to seek help from care health systems. A suffering person , not only experiences the stress and discomfort caused by pain, but also other various aspects of his life would be affected by other stressors, such as medical expenses, job and family outcomes [1]. Pain reduces the people's emotional and affective abilities; so releasing from it would be often unattainable; this ultimately led to demoralization, hopelessness, helplessness and depression of patients. Furthermore, chronic pain, not only diminishes the ability of the patient, but also undermines the ability of his family and supporters [2]. Headache is the most common chronic pains, and more than 90 percent of the

population, experience it at least one day per year. The primary complaint of ten to twelve percent of them who see a physician is headache [3]. Psychological and physical consequences of headache, implies the necessity of treating the disorder and applying ways to reduce pain sufferers. There are two general types of treatment for headache: medication and non-medication. Drug therapy focuses only on the physical aspects of a biochemical headache. The main mechanism of the treatment in this way is more on restoring the biochemical balance of the body rather than emotional aspects and consequences of headache in the patient's life. An introduced structure in the field of positive psychology with the aspects of treatment is acceptance [4]. Evers and Colleagues [5] considering chronic pain have proposed the domain of positive psychology, which has emphasized on the role of positive terms such as acceptance. Acceptance plays a role in coping with chronic pain for years and is discussed in medical centers. Pain Acceptance means the willingness to engage in the activity, despite the presence of the pain. Besides, the pain is experienced without trying to control it or avoid of it [6]. Acceptance of chronic pain include active desire on the presence of the pain, the associated thoughts and feelings, the concern and involvement of conducting valuable activities, as well as achieving personal goals. Pain acceptance is defined as the tendency to experience chronic pain without the need for reducing, avoiding or making any attempts to change it [7]. In line with this idea, research findings show that patients with more accepting attitudes are more compatible with chronic pain and based on diagnostic questionnaire, they reported less depression, anxiety and desperation [7]. Also, it is observed that people with greater pain acceptance have more levels of adaptation [7]. Involvement in daily activities, regardless of the presence of pain in patients with chronic pain can lead to their health [8]. Pain acceptance has a strong association with more engagement in the activities of daily living [9]. Pain acceptance is associated strongly with the cognitive control of pain. Therefore, the researchers concluded that the best way for the pain acceptance is removing the painful aspects of life from non-painful aspects of it. Several studies support the role of pain acceptance in daily function of patients with chronic pain. Clinical samples revealed that pain acceptance was associated with pain experience, psychological problems, less physical disabilities, and psychological well-being [10,11]. Recent studies have shown that pain acceptance was associated with a high quality of life in patients with low back pain [12], the effect of pain on the function of patients with rheumatoid arthritis [13], more engagement in personal activities [14], retained adaptive functioning [15], reduced distress and disability, less pain, and psychological well-being [9,16] . Interventions based on Acceptance, such as Acceptance and Commitment Therapy, have been introduced as the third wave of cognitive – behavior therapy, and used in the treatment of patients with chronic pain [17]. Acceptance and commitment therapy is one of the subsets of the cognitive behavior therapy, which is based on the avoidance of the pain causing disability and reducing the quality of life. According to this theory, avoidance occurs when rational thoughts and feelings are inappropriate and have excessive influence on behavior. However, in the treatment process, exposure to avoided situations may be considered as an intervention. Many treatments focus on reducing or controlling the symptoms or increasing the acceptance level of negative reactions, which are not directly modified (thoughts, feelings, and physical). However, this approach focuses on improving the level of activity [18]. McCracken and Vowels [6] studied the effectiveness of acceptance and commitment therapy on patients with chronic pain on 171 patients. Their study showed a significant improvement on the study parameters such as the level of pain experience, depression, anxiety, disability, occupational status and physical performance after treatment. Despite advances in the fields of anatomy, physiology,

biology, chemistry and pharmaceutical industry, still the pain is considered as a significant problem. In this regard, it is observed that using drugs (including opioids drugs, antidepressants, and anticonvulsants) for patients with pain decreases their pain, only 30% to 40% [19]. Numerous researches show that the acceptance of concept reduces the experience of chronic pain. Also it is necessary to evaluate the effectiveness of this treatment in an intercultural framework. Due to the impact of psychological interventions on chronic diseases, the aim of this study was to evaluate the effect of acceptance and commitment therapy on the acceptance of pain and psychological inflexibility among women with chronic headache.

Method

This is a quasi experimental study using pretest-posttest with control group. The study population included women aged 20 to 40 who were suffering from chronic headaches and referred to a pain clinic in Tehran in 2012. The study sample was selected by the available sampling method. Due the nature of the study (experimental study), voluntary sampling was used. In this study, 30 patients were selected and randomly divided into two groups (experimental and control) each with 15 members. Including criteria were as follows: having chronic tension headaches and migraine which was diagnosed by a psychiatrist on the basis of the International Headache Society (second international classification of headache disorders), the age range between 20 to 40 years old, Having at least high school education and willingness and informed consent to participate in the research project. Also the exclusion criteria were: severe physical disease, serious neurological disorders, or the symptoms of psychotics; and the history of drug abuse or dependence.

Acceptance and Commitment therapy was applied individually in eight one-hour sessions, once a week. For this, the protocol of Vowles & Sorrell on acceptance and commitment therapy was used [20]. This protocol was translated and conducted by the author (Gharaee-ardakani).

Session 1) Establishing the medical relations, familiarity with the subject, explaining headache, signs and symptoms, drugs and other therapies, to assess the willingness of individuals for changing their response to the questionnaire and medical contracts. Session 2) the detection and evaluation of patient treatment and scoring them; the effectiveness evaluation of the treatment methods; causing distress on a temporary and ineffective treatment with using the analogy; giving assignments and providing feedback. Session 3) helping patients to control their detection of personal events, thoughts and memories; diagnosis of dysfunctional strategies and realizing the futility of the acceptance of their painful personal events, without any conflict with it and lack of control using the metaphor, providing feedback, and offering assignments. Session 4 and 5) Explaining the avoidance of painful experiences and awareness of its consequences; discovering avoided situations and contacting them through adoption; training acceptance steps by explaining concepts enthusiasm, barriers, expressing the evaluation concept; describing by analogies; changing language concepts by using analogies, relaxation training, providing feedback and offering assignments. Session 6)explaining the role and background concepts; viewing oneself as a platform and establishing contact with him through using allegory; awareness of different sensory information and the separation of sense which are part of mental content. In this exercise, participants were trained to focus on their activities (such as breathing, walking) and got aware of every moment of their status, and during their emotional, sensitive and cognitive processing; they were to be observed without judgment. When participants found that their minds wander into thoughts, memories or imagine, if possible, regardless of their nature content, return their attention to the present moment. Therefore, participants were trained to pay attention to the thoughts and feelings, although not connected to their content; feedback and assignments. Session 7) Explaining the concept of value and expressing

the difference between the values, goals and needs; clarifying the patient's values; creating a powerful motivation for change and patient better life; concentration exercises (focusing on breathing, walking, eating, brushing, ambient sounds and ...); assignments and provide feedback. Session 8) Training commitment to action; identifying the patterns of behavior consistent with the values and making a commitment to practice them; reviewing assignments and summing up sessions with patients; and performance after the test.

In this study the questionnaire of chronic pain acceptance McCracken by Vowels & Celestin [21] was used to measure chronic pain acceptance. Internal consistency coefficient alpha was reported 0.82 for accept pain and 0.78 for involving activities. Also, this questionnaire showed a high correlation with the scales of avoidance, emotional distress and daily functions. A good prediction was obtained from pain-related disability and psychological distress by using this questionnaire. This indicated the validity of these tests [21]. Also, psychological inflexibility in pain scale was used to measure psychological inflexibility (PIPS).

The PIPS is a 16-item scale used to assess psychological inflexibility (i.e. avoidance, acceptance, fusion, values orientation, dirty discomfort) in people with chronic pain. Respondents are asked to rate items on a 7-point scale that ranges from 1 (never true) to 7 (always true). Higher scores indicate greater levels of psychological inflexibility. Overall, the results support the concurrent validity of both subscales as well as the total scale.

For example, PIPS was found to be significantly correlated with the subscales of the The Short Form Health Survey-12 (SF-12) (e.g., the quality of life-item) and with all the subscales of Multidimensional Pain Inventory (MPI) except the support. The PIPS demonstrated a good internal consistency as Cronbach's alpha was as follows: 0.90 for avoidance, 0.75 for fusion and 0.89 for total scale. Besides, the inter correlation between the subscales was found to be 0.46, which indicates that the subscales provide distinctive information in relation to psychological flexibility [22]. Statistical analyses were performed using SPSS-19. There was no missing value. The homogeneity and normal distribution of data were assessed respectively using Levene's test, and Kolmogorov Smirnov test. There was no interaction between variables. Data were confirmed to be homogeneous and normally distributed. There were no outliers in the research data. Confounding factors were controlled in this study by using analysis of covariance as well as ANCOVA test.

Results

Descriptive results showed that the mean and standard deviation age for experimental and control groups were respectively 33.28±7.91 years and 32.83±7.53 years. Also, the mean and standard deviation of disease duration were respectively 8.5±8.06 years and 7.63±6.74 years. The scores of mean and standard deviation for pain acceptance and psychological inflexibility in experimental and control groups are provided in Table 1.

Table 1 *Mean and standard deviation (SD) scores for pain acceptance and psychological inflexibility*

Variable	Experimental group				Control group			
	Pretest		Posttest		Pretest		Posttest	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Pain acceptance	55.36	13.72	95.27	11.91	55.93	12.86	61.80	9.73
Psychological inflexibility	62.66	16.88	32.53	10.45	66.33	14.63	67.80	11.91

The contents of Table 1 shows that the mean scores for pain acceptance of the experimental group in pre-test and post-test were respectively 55.36 and 95.27. Besides, mean scores for pain acceptance of the control group in pre-test and post-test were respectively 55.93 and 61.80. Also, the mean score of psychological inflexibility of the experimental group in pre-test and post-test were respectively 62.66 and 32.53. Furthermore, the mean score of psychological inflexibility for the control group in pre-test and post-test were respectively 66.33 and 67.80.

Table2 *The ANCOVA analysis results of acceptance and commitment therapy on the pain acceptance in women with chronic headache.*

Source	Dependent variable	SS	df	MS	F	Sig.
Group	Psychological inflexibility	2319.319	1	2319.319	30.191	p<0.001
Error		2074.149	27	76.820		
Total		147996.000	30			

Table 2 shows that the acceptance and commitment therapy was significantly related with the pain acceptance in women with chronic headache after the adjustment of the pre-test (p<0.001 and F=30.191).

Table3 *The results of ANCOVA analyze of the acceptance and commitment therapy training affects the psychological inflexibility of women with chronic headache*

Source	Dependent variable	SS	df	MS	F	Sig.
Group	Psychological inflexibility	8402.998	1	8402.998	103.050	p<0.001
Error		2120.106	27	81543		
Total		88349.000	30			

Table 3 shows that the training of acceptance and commitment therapy was significant on the inflexibility among women with chronic headache after adjusting the pre-test scores (p<0.001 and F=103.050).

Discussion

The aim of this study was to evaluate the effect of acceptance and commitment therapy on pain acceptance and psychological inflexibility among women with chronic headache. Based on Tables 2 and 3, the results of this study indicated that the approach of acceptance and commitment therapy is effective on pain acceptance and flexibility among women with chronic headache. These results are consistent with previous studies [17,18,23]. Dahl and colleagues showed that acceptance and commitment therapy reduces pain experience [24]. Keogh and colleagues demonstrated that acceptance-based interventions may be less sensitive to pain [16]. Also, McCracken & Vowles [6]. In their study on the effectiveness of acceptance and commitment therapy on patients with chronic pain patients reported a significant improvement on the indexes such as the experience of pain, depression, anxiety, disability and handicap, occupational status and physical performance over the previous treatments [18]. Regarding these results, it must be mentioned that the acceptance and commitment therapy approach uses the acceptance process, mental focus, commitment and behavior change processes to provide flexibility [25]. The acceptance of pain is defined as tendency to experience chronic pain without the need to reduce, avoid, or make any attempt to change it [7]. Considering these ideas, research findings showed that the patients with greater acceptance attitude were more compatible with chronic pain and reported less anxiety and desperation according to diagnostic questionnaires [7]. The acceptance and commitment therapy focuses on accepting further, focusing on the present moment, awareness and involvement in activities that are in line with personal values. It seems that acceptance process is a key factor in reducing the painful experience of emotional functions. It is also a predictor of patient performance in the future. Strategies based on the acceptance

implies on the reduction of pain symptoms and improving the quality of life along with pain. The main theoretical constructs of acceptance is based on behavioral treatments such as acceptance and commitment therapy and psychological flexibility. It means the ability to take effective action in line with personal values despite the presence of pain [26]. The results of these studies demonstrated the importance of psychological acceptance in psychological functioning. Patients who were reported to have more tendency to experience negative psychological experiences, emotional experiences, thoughts and bad memories, showed better social, physical and emotional functioning. The approach of acceptance and commitment therapy focuses on resolving and removing harmful factors. It helps the patients to accept their emotions and control their cognition and get rid of controlling verbal rules, which is caused due to their problems. So they will give up the struggle and conflict [26]. Acceptance and commitment therapy is essentially a process orientation and clearly emphasizes on the increasing the acceptance of psychological experiments, by enhancing the meaningful, flexible, adaptive, activities, regardless of the content of psychological experiences. The second goal of acceptance and commitment therapy used in the treatment is not only an increase in realism, effectiveness, rational thinking, or emotional encouragement, but also the reduction of avoidance of psychological experiences, and raising patient's awareness of the present moment without taking unnecessary conflict and non-evaluative manner [27]. The aim of most patients is blurring the past and its associated suffering. Most people have a long-term struggle with their problems in different ways, and avoid these practices. When people do not make contact with their own experiences, they will not take steps to alter the form or frequency of these events or their contexts; so the psychological trauma happens. One of the key advantages of acceptance and commitment approach is the experience which has been avoided and putting aim on it.

Conclusion

The results emphasized on the importance of this intervention in psychosomatic diseases to provide new horizons in clinical interventions. The limitations of the present study were: the lack of sufficient time for treatment follow-up outcomes, not including male patients with chronic headaches as well as different age groups. We recommend this approach to be used in larger groups and on male group to validate the reliability of the methods. Also, we recommend future researches to examine it longitudinally for more assurance and accuracy during the time. Further research is needed to compare the effectiveness of this treatment with other behavioral therapies.

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Contribution

Study design and analysis: SGA, PA.
Data collection: AZ, FHN.
Manuscript preparation: MEB, MT

Conflict of Interest

"The authors declare that they have no competing interests."

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