



# Determining the effect of cognitive-behavioral therapy, desensitization with eye movements and reprocessing and biofeedback on migraine attacks (frequency, duration and intensity), anxiety sensitivity, sleep quality and quality of life of women with Migraine

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#### Abstract

**Aim:** The purpose of this study is to determine the effect of cognitive-behavioral therapy, desensitization with eye movements and reprocessing and biofeedback on migraine attacks (frequency, duration and intensity), anxiety sensitivity, sleep quality and quality of life of women with migraine. **Method:** The research was semi-experimental and was conducted using a pre-post test and follow-up design with a control group. The statistical population included all women who referred to Tehran's Vision of the Future Clinic in 2019 due to headache. Among the people who were diagnosed with migraine, 60 people were selected and randomly divided into 3 experimental groups and one control group. Then the people of the cognitive-behavioral group underwent group therapy for 11 sessions of 90 minutes each week, and the people of the desensitization group with rapid eye movements and reprocessing individually in 3 sessions of 90 minutes and once a week, and the people of the biological feedback treatment group were treated for 15 sessions in 3 weeks of 45 minutes. The data was analyzed by SPSS-25 software and by multiple variance analysis. **Results:** Based on the results of this research, it can be stated that cognitive-behavioral therapy, desensitization with eye movements and reprocessing and biofeedback are effective on attacks (frequency, duration and intensity), anxiety sensitivity, sleep quality and quality of life of women with migraine. **Conclusion:** It can be used to cure this disease. **Keywords:** cognitive behavioral therapy, desensitization with eye movements and reprocessing, biofeedback, migraine attacks, anxiety sensitivity.

## Introduction

Migraine is the most common type of primary headache with a worldwide prevalence of about one in seven people. A global study has shown migraine to be the 7th most common cause of disability worldwide and the 3rd most common cause of disability in people under 50 (Scottish Inter-University Guidance Network, 2018). Despite this, doctors and researchers have not made much progress in the treatment options available to treat this disease in the last two decades. Recent advances in our understanding of migraine pathophysiology have led to the development of pharmacological and non-pharmacological treatments leading to better patient management (Pulda, 2017).

Research has shown that cognitive behavioral therapy reduces the severity of migraine symptoms in affected people, especially people with mental illness. Women with migraine usually experience more anxiety and worry due to the fear of the pain starting again. The results of the present study showed that people who have high anxiety sensitivity, when they undergo cognitive behavioral therapy, experience less anxiety sensitivity and their migraine becomes calmer (Dikan et al., 2003). Cognitive behavioral therapy helps to increase people's ability to deal with the psychological pressures related to insomnia, because the psychological pressures resulting from insomnia help to reduce the quality of sleep. Cognitive-behavioral therapy helps to increase the quality of their sleep by helping people with migraines to reduce these psychological pressures resulting from insomnia (Morin et al., 2002). Rapid eye movement desensitization and reprocessing was initially used to treat post-traumatic stress disorder, but now the tendency to use it for other disorders, including anxiety disorders and chronic pain, is increasing. EMDR processes not only distant memories but also the most recent events and situations that the client imagines they will encounter in the future (Shapiro, 2001). Through this method, people repeat and review the information and memories that have caused damage in their brain to the extent that it is not harmful and problematic for their life and mental health, so that those memories lose their negative impact and are replaced with positive memories and feelings.

Biofeedback is a mind-body technique that involves using visual or auditory feedback to gain control of involuntary body functions such as heart rate, muscle tension, blood flow, perception of body temperature, and blood pressure (Cherry, 2019). Biofeedback is a common intervention in the treatment of pain. For the treatment of migraine, the most common methods of biofeedback are skin temperature, blood pulse and electromyographic feedback (Stokes & Lappin, 2010). With the help of biofeedback therapy, sensors are placed on the person's head or the treated area, which are captured and checked by the device.

A number of basic quality of life factors are absent in people with migraine, such as health and the absence of any type of disease or pain, and also having migraine affects interpersonal relationships in the family and occupational and non-occupational performance. It can be concluded that people with migraine have a low quality of life, especially women who are more sensitive than men in terms of mental structure and physiology. Therefore, considering the chronic, debilitating, pervasive and costly nature of migraine and the limited effects of drug therapy and long-term drug side effects (due to continuous use due to the chronic nature of the disease) and most importantly, considering the psychosomatic nature of migraine, searching for effective non-pharmacological treatment seems very useful and necessary. Based on

this, the aim of this research was to answer the question whether cognitive-behavioral therapy, desensitization with eye movements and reprocessing and biofeedback have an effect on migraine attacks (number, duration and intensity), anxiety sensitivity, sleep quality and quality of life of women with migraine.

### **Method**

The research was semi-experimental and was conducted using a pre-post test and follow-up design with a control group. The statistical population included all women who referred to Tehran's Vision of the Future Clinic in 2019 due to headache. Among the people who were diagnosed with migraine, 60 people were selected and randomly divided into 3 experimental groups and one control group. Then the people of the cognitive-behavioral group underwent group therapy for 11 sessions of 90 minutes each week, and the people of the desensitization group with rapid eye movements and reprocessing individually in 3 sessions of 90 minutes and once a week, and the people of the biological feedback treatment group were treated for 15 sessions in 3 weeks of 45 minutes. The data was analyzed by SPSS-25 software and by multiple variance analysis.

### **Results**

Based on the results of MANCOVA, cognitive-behavioral therapy, desensitization with eye movements and reprocessing and biofeedback on migraine attacks (number, duration and intensity), anxiety sensitivity, quality of sleep, quality of life of women with migraine are effective and confirmed, and based on the results of the present study, all 3 treatments have led to the reduction of migraines in women with migraine in different ways.

By controlling the effect of pre-test scores for research variables, the difference of all 4 groups in both post-test and follow-up phases is statistically significant for all research variables (group membership is significant). Therefore, the hypotheses of the research are confirmed.

The effect of group membership on the variable number of attacks is 0.31 in the post-test phase and 0.30 in the follow-up phase, which indicates that group membership explains 0.31 of the changes in the scores in the post-test phase and 0.30 of the changes in the scores in the follow-up phase, and in other words, the treatment methods have improved the number of attacks in the post-test phase by 0.31 and 0.30 in the number of attacks in the follow-up phase. Statistical power of 1.00 and 0.994 indicates excellent statistical accuracy and sufficient sample size to evaluate this hypothesis.

The effect of group membership for the variable of severity of attacks is 0.42 in the post-test stage and 0.33 in the follow-up stage, which indicates that group membership explains 0.42 of the changes in scores in the post-test stage and 0.33 of the changes in scores in the follow-up stage, and in other words, the treatment methods have improved the intensity of attacks in the post-test stage by 0.42 and 0.33 in the intensity of attacks in the follow-up stage. Statistical power of 0.956 and 0.896 indicates excellent statistical accuracy and sufficient sample size to evaluate this hypothesis.

The effect of group membership for the duration variable of pain attacks is 0.41 in the post-test phase and 0.36 in the follow-up phase, which indicates that group membership explains 0.41 of the changes in the scores in the post-test phase and 0.36 of the changes in the scores in the follow-up phase, and in other words, the treatment methods improve the intensity of the attacks by 0.41 in the post-test phase and 0.36

in the intensity of the attacks in the follow-up phase. Statistical power of 0.956 and 0.896 indicates excellent statistical accuracy and sufficient sample size to evaluate this hypothesis.

The effect of group membership for the variable of anxiety sensitivity is 0.61 in the post-test stage and 0.52 in the follow-up stage, which indicates that group membership explains 0.61 of the changes in the scores in the post-test stage and 0.52 of the changes in the scores in the follow-up stage, and in other words, the treatment methods have improved the quality of sleep by 0.61 in the post-test stage and 0.52 of the anxiety sensitivity in the follow-up. Statistical power of 1.00 indicates excellent statistical accuracy and sufficient sample size to evaluate this hypothesis.

The effect of group membership for the variable of sleep quality is 0.43 in the post-test phase and 0.39 in the follow-up phase, which indicates that group membership explains 0.43 of the changes in scores in the post-test phase and 0.39 of the changes in scores in the follow-up phase, and in other words, the treatment methods have improved the intensity of insomnia by 0.43 in the post-test phase and 0.39 in the quality of sleep in the follow-up phase. Statistical power of 1.00 indicates excellent statistical accuracy and sufficient sample size to evaluate this hypothesis.

The effect of group membership for the quality-of-life variable is 0.43 in the post-test stage and 0.38 in the follow-up stage, which indicates that group membership explains 0.43 of the changes in scores in the post-test stage and 0.38 of the changes in scores in the follow-up stage. Statistical power of 1.00 and 0.961 indicates excellent statistical accuracy and sufficient sample size to evaluate this hypothesis.

### **Conclusion**

The present study was conducted with the aim of determining the effect of cognitive-behavioral therapy, desensitization with eye movements and reprocessing and biofeedback on migraine attacks (frequency, duration and intensity), anxiety sensitivity, sleep quality and quality of life of women with migraine. The results of Mancova multivariate analysis showed that cognitive-behavioral therapy is effective on attacks (severity, duration, number) in people with migraine and leads to a significant reduction ( $P < 0.05$ ) of attacks (severity, duration, number) in people with migraine. In addition, the results showed a significant decrease ( $P < 0.05$ ) in the scores of attacks (severity, duration, number) in people with migraine in the post-test and follow-up stages compared to the pre-test.

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