

Comparison the Effectiveness of Two Methods of Psychological Treatment (Cognitive - Behavioral Therapy) and Muscle Relaxation (Relaxation) In Reducing Symptoms of Chronic Fatigue Syndrome in Nurses

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ABSTRACT: Fatigue is one of the components of mental health, which is less attention has been paid to it. The first technique for muscle relaxation and refreshment is relaxation, and other methods to improve chronic fatigue is cognitive – behavioral therapy. According to these definitions the aim of this study is to compare the effectiveness of two methods of psychological treatment (cognitive - behavioral therapy) and muscle relaxation in reducing symptoms of chronic fatigue syndrome in nurses. The research method was experimental with control and experimental groups. The study population comprised all nurses working in public hospitals in Kerman. The sample consisted of 36 patients in the two control groups and 36 patients in the two experimental groups. The sampling metho was available sampling. First, in both two control groups and two experimental groups we evaluated nurses fatigue with Chalderan fatigue questionnaire (1993) before teaching cognitive - behavioral therapy and muscle relaxation with pre-test. The first experimental group was trained in cognitive behavior therapy in 6 sessions of 1 hour and second experimental group in the 6-hour session 1 were exposed muscle relaxation training and again Fatigue Inventory was performed in all 4 groups. Data analysis was performed with software Spss18, dependent and independent t-test and analysis of covariance. The results showed that training cognitive - behavioral therapy and progressive muscle relaxation had a significant impact to reduce fatigue nurses. Reduce fatigue in the group who trained in cognitive - behavioral therapy were more than reduce fatigue in people who have been trained in progressive muscle relaxation, but this difference was not statistically significant.

Keywords: Cognitive - Behavioral Therapy, Relaxation Of Muscle, Chronic Fatigue Syndrome, Nurses.

INTRODUCTION

One of the major problems of the today world is the issue of health and human health. Undoubtedly, physical and mental health of the community is very important (Chambers et al., 2006). Chronic fatigue syndrome is a condition that the person feel tired and cannot do daily work well and with sufficient energy. Symptoms of chronic fatigue syndrome can include: reducing person's mental and physical capacity, loss of daily activities, irritability,

decreased concentration and memory, decreased quality of sleep, chronic fatigue, aching limbs and joints, feeling soreness of the muscles, and sometimes headaches or gastrointestinal problems. In summary we can say that, a person is not happy and goes into seclusion (Christley et al., 2012).

Work or make task in an organization or administration involved many factors. One of the problems that can hurts to the people over the time and now creates some problems too is the issue of fatigue. Normal fatigue may improve with rest or take other measures, but there is some kind of fatigue that does not improve with rest, we called them chronic fatigue (Bleijenberg et al., 2013). People against the environment or conditions that did not satisfied them, which may be converted to sleep soon by a certain fatigue and lack of appetite and concerns and show this reaction. This would cause reductions in alertness and attention and disruption of the actions and consequently, there will be accidents in work (Cho et al., 2005).

In the nineteenth century for more people, doctors recognized that they have been the weak nerves. The term is used in disorders that include chronic fatigue and a feeling of helplessness and in the tenth International Statistical Classification of Diseases and Related Health Problems (ICD-10) remains as a neurosis disorder (Cella et al., 2011). In 1988, the Centers for Disease Control and Prevention in America, identified chronic fatigue syndrome (Holmes et al., 1988).

This disorder is characterized by severe fatigue and sleep disturbances, and impaired concentration. Many factors, including chronic infections, chemical imbalances, metabolic problems, bad chronic disorder of the immune system, neurological dysfunction, muscle abnormalities are presented as causes of chronic fatigue. As well as patient attitudes and beliefs, lifestyles and negative mood states can also be considered as psychological reasons (Knoop et al., 2007). Progressive muscle relaxation and psychological treatments such as cognitive behavioral therapy, are new therapeutic approaches to chronic fatigue syndrome. Approach, cognitive behavior therapy is based on coherent cognitive model, therapy is based on collaboration between patient and therapist, terms of therapy is short and limited in which to try to help patients to created independent self-help skills in themselves (Narimani & Roshan, 2002). CBT is based on this assumption that the false and disappointing beliefs (eg attributions and beliefs catastrophic illness, perfectionism, etc.) affect the formation and persistence of fatigue (Neshatdoost, 2002). Also ineffective coping behaviors in the face of stress and life problems (eg, avoidance behavior), negative mood states (such as anxiety and depression), social problems (eg, job conditions, conflicts of life, etc.) and pathological physiological processes, all of them are interacted with continue and continuity of disorder (Grover et al., 2002). Cognitive behavior therapy is a method based on responses by effects of mental, not physical which is used by psychologists and treatment (Sanchez et al., 2006). In cognitive-behavioral therapy we talk about some issues such as anxiety, depression, anger, shame, low self-esteem, implementation problems, sleep disturbances, and stress and trauma of the past (Deshmukh et al., 2006).

Another effective strategy in reducing anxiety and fatigue that is used in most treatment is relaxation. Basically, fatigue and a series of physical symptoms such as rapid breathing, palpitations and muscle tension associated with one of the strategies effective for reducing them, is using the techniques of relaxation (Hanifi et al., 2005). Relaxation Training's helps people to recognize that, despite the automation of many physical responses, they can identify and change those items (Podell et al., 2010). Relaxation, is a technique for muscle relaxation. Since there is a close relationship between mind and body, whatever you have make more relaxed in your body, established more relaxed in your mind too. Most of those who complaining from lack of concentration and fatigue that in fact whining from thoughts of their mental, and always ask what we can do with this intrusive thoughts that our mind occupied, they can use relaxation of muscle (Hamidzade et al., 2006).

Nurses Re one of the groups those under high risk of this disease because of the possibility of job stress, such as exposure to viruses in the position of working shifts, stress the rhythms of life and makes trouble or other stressors in situations (such as accidents and collisions) are is (Castell et al., 2011). One of the problems affecting the function of nurses is chronic fatigue, which can have different effects on the efficiency of nurses or other hospital staff. In the study, Jason et al (1998), almost 50 percent of people with chronic fatigue syndrome-related institutions were contacted were nurses and 90 percent of them worked in hospitals. The prevalence of this syndrome in nurses is 1.1% (Wiborg et al., 2012).

The results of studies showed that there are significant differences between experimental group and control group, in the three groups of cognitive therapy, relaxation and behavioral in pain self-sufficiency and improving pain treatment. In addition, the statistical results of the comparative study of the effectiveness of treatment showed that these differences were significantly (Pouladi Reishahri al., 2001). The results indicated that there was the correlation significant between fatigue and hypochondriasis, somatic complaints, anxiety and sleep problems, social dysfunction and depression (Nasri, 2004). Research results also showed that the addition of CBT to pharmacotherapy in reducing chronic tension-type headaches is effective. It is recommended that this method be used in the treatment of patients (Sadoughi & Akashe, 2008). Research showed that cognitive behavioral methods,

has created a significant role in reducing dysfunctional attitudes and reliability of the participants in the treatment group (Lotfi Kashani, 2011). The results showed that cognitive-behavioral therapy in reducing fatigue and dysfunction is more effective than relaxation training. While for reducing emotional distress, relaxation training therapy is more effective (Nasri et al., 2002).

Researchers in a 5-year follow-up study of long-term outcome examined cognitive-behavioral therapy versus relaxation. A total of 68 percent of those who received cognitive-behavioral therapy and 36 percent of patients who had taken treatment Relaxation after 5 years rating themselves as "much improved" or "very much improved", the (Deale et al., 2001). The results showed that 57% of participants in cognitive-behavioral therapy group were attributed symptoms to physical illness, while 73% of women in the relaxation group have such documents (Deal, 2001). The results showed that stress of people who trained in cognitive-behavioral interventions significantly reduced (Gruess et al., 2010). The results showed that compared with the control group, a significant proportion of cognitive - behavioral therapy group achieved a satisfactory level of functioning. As well as it was demonstrated a significant decrease in depression, interference with daily activities and fatigue in patients who received the cognitive - behavioral therapy (Sharpe et al., 2012).

According to the above, hypotheses were tested in this study include:

1. Training progressive muscle relaxation is effective in reducing chronic fatigue of nurses.
2. Training cognitive - behavioral therapy is effective in reducing chronic fatigue of nurses.
3. Training cognitive - behavioral therapy is more effective than progressive muscle relaxation training in reducing chronic fatigue of nurses.

MATERIALS AND METHODS

The research method in this study was semi-experimental with pre-test and post-test in two groups. The study consisted all of nurses working in public hospitals in Kerman city. The minimum sample size for each group is 15 people for the pilot study (Delaware, 2006). In this study sample size were selected was 80 patients. Sampling method is available sampling and people are randomly replaced in the group. In this study, we have four groups consisting of a control group (n = 20) and an experimental group (n = 20) for Muscle Relaxation Training, and a control group (n = 20) and an experimental group (n = 20) for training of cognitive - behavior therapy. At the end the researchers worked with 18 patients in each group, In other words, sample size of research is 72 people. For the measurement of fatigue we used, Chalderan fatigue scale, that it has 14 questions. Chalderan et al (1993) made a short 14-item tool, which measures symptoms of mental and physical fatigue.

Chalderan scale were used in several studies of the epidemiology and outcomes of patients with chronic fatigue syndrome. Cut-off point of this scale measured as 22. The validity and reliability of this scale were studied by Chalderan et al (1993). The clinical interview checklist was, 75/5% of sensitivity and 74/5% of respectively (Chalderan et al., 1993). The internal consistency coefficient for the items of physical fatigue was 0/85. That was 0/82 for the mental fatigue items. To assess the validity of the questionnaire, with the help of this scale, a group of patients with symptoms of fatigue were compared with a group of normal individuals and the results indicate the value of this scale to measure fatigue (Reid et al., 2004). Test-retest coefficients, internal consistency and split-half respectively were respectively vary from 0/85, 0/91 and 0/82 (Rahimian Boogar, 2012).

Group psychotherapy protocol for each session with cognitive-behavioral therapy and relaxation sessions was designed based on available resources: to test hypotheses we used of pre-test and post-test with the control group. As a first step, 200 nurses were selected randomly and chronic fatigue questionnaire was conducted on them. Then the nurses who have had chronic fatigue (according to scores) 80 samples were selected (The reason of selecting 80 person was during research participants may be dropped). The next step is to put nurses with chronic fatigue in 4 groups randomly. Then from fourth group, one group were trained in cognitive-behavioral therapy in six one-hour sessions (2 sessions per week) and the other group were exposed muscle relaxation training in six one-hour sessions (2 sessions per week) and two other groups were considered as control groups.

In this study, according to the Measures and data, for analyze data, descriptive and inferential statistical methods were performed under using the software SPSS18. For the fatigue of nurses, descriptive statistics such as mean was used and for check the hypothesis, inferential statistics such as dependent and independent t-test and analysis of covariance was used.

RESULTS

First hypothesis: Training progressive muscle relaxation is effective in reducing chronic fatigue of nurse.

H0: fatigue of nurses were similar in the experimental and control groups.

H1: fatigue of nurses is lower in the experimental group than the control group.

Table 1. Descriptive statistics for the pre-test and post-test fatigue scores of nurses in the control and experimental groups.

Time Group	Pre-Test		Post-Test	
	Average	SD	Average	SD
Control group	15.88	5.51	15.33	5.43
Experimental group	15.38	4.36	10.5	4.23

Based on the above table, in 18 nurses of the control group, average test scores of fatigue was 15.88 in pre-test and 15.33 in post-test and in 18 nurses of the experimental group, average test scores of fatigue was 15.38 in pre-test and 10.5 in post-test.

Table 2. T-test statistics to compare pre-test and post-test average scores of fatigue of nurses in the experimental and control groups.

Group	Number	Difference average	SD	df	Calculated t	Sign.
Control group	18	0.555	1.503	17	1.567	0.135
Experimental group	18	7.222	5.673	17	5.401	0.000

The above table shows that the t calculated for the experimental group is 5.401 and p-value (significantly) is equal to 0.000 because that is significantly smaller than the significant level of $\alpha=0.05$. In conclusion, there is a significant difference in the fatigue of nurses in the pre-test and post-test in the experimental group, In other words, progressive muscle relaxation training had a significant impact on reducing fatigue of nurses. Above table average fatigue is 7.222 in the experimental group and 0.555 in the control group ($7.222 > 50.555$). This indicates that fatigue has decreased after progressive muscle relaxation training significantly.

Second hypothesis: training cognitive - behavioral therapy is effective in reducing chronic fatigue of nurses.

H0: fatigue of nurses were similar in the experimental and control groups.

H1: fatigue of nurses is lower in the experimental group than the control group.

Table 3. Descriptive statistics for the pre-test and post-test fatigue scores of nurses in the control and experimental groups.

Time Group	Pre-test		Post-test	
	Average	SD	Average	SD
Control group	15.33	4.63	14.77	4.77
Experimental group	15.16	4.85	7.94	5.8

Based on the above table, in 18 nurses of the control group, average test scores of fatigue was 15.33 in pre-test and 14.77 in post-test and in 18 nurses of the experimental group, average test scores of fatigue was 15.16 in pre-test and 7.94 in post-test.

Table 4. Covariance Analysis of Training cognitive-behavioral therapy on reduces fatigue of nurses.

Source Changes	SS	df	Average of squares	F	P	Ita squares	Statistical power
Pre-test	788.73	15	58.51	13.505	0.000	0.914	0.999
Group	321.37	1	321.37	74.17	0.000	0.796	0.999
Error	82.32	19	4.333	-	-	-	-

Based on the above table in the analysis of covariance according to that the p-value was calculated (0.000) and that is significantly lower than 0.05 ($\alpha=0.05$). Therefore, at this level H0 be rejected (H1 accepted). That's mean fatigue in the post-test in the experimental group significantly less than the control group. As a result training cognitive-behavioral therapy had a significant effect on reducing fatigue of nurses and according to the squared coefficient of Ita the effect of cognitive-behavioral therapy reduced fatigue on nurses about 6.79 percent.

Third hypothesis: Training cognitive - behavioral therapy is more effective than progressive muscle relaxation training in reducing chronic fatigue of nurses.

H0: reducing chronic fatigue in nurses are the same in both training cognitive - behavioral therapy and progressive muscle relaxation training group.

H1: reducing chronic fatigue in nurses in training cognitive - behavioral therapy is more than progressive muscle relaxation training group.

Table 5. T-test statistics to compare pre-test and post-test average scores of reducing of chronic fatigue of nurses in the experimental groups as both cognitive-behavioral therapy and progressive muscle relaxation groups.

Ggroup	Cognitive-Behavioral Therapy		Progressive Muscle Relaxation		t	df	Sign.
	Average difference between pre-test & post-test	SD	Average difference between pre-test & post-test	SD			
Experimental Group	7.22	5.67	4.89	3.77	1.45	34	0.155
Control Group	0.61	1.04	0.55	1.25	0.145	34	0.885

Based on the above table we compare the reduction in fatigue in two experimental groups as both cognitive-behavioral therapy and progressive muscle relaxation groups. Based on calculations obtained through T test and as the p-value (significantly) over 0.155 and greater than the significance level of $\alpha=0.05$, Therefore, the null hypothesis is not rejected. In conclusion, fatigue between two groups who underwent different training there were no significant differences. Difference between the average in pre-test and post-test in both groups suggest that reduce fatigue in the group who trained in cognitive-behavioral therapy were have been more than reduce fatigue in the other group that trained by progressive muscle relaxation training, however, difference was not statistically significant.

DISCUSSION AND CONCLUSION

Crossbow results match with the findings of Pouladi Reishahri et al (2001) in which they showed that cognitive, relaxation and behavioral therapy have been effective in improving subjects with chronic back pain. The results also match with the findings of Deal et al., (2001) showed that 36% of patients who had taken treatment Relaxation after 5 years rating themselves as "much improved" or "very much improved". Relaxation, is a technique for muscle relaxation. Since there is a close relationship between mind and body, whatever you have make more relaxed in your body, established more relaxed in your mind too and fatigue is reduces or disappears. So we can say that one of the effective techniques to reduce fatigue of nurses is relaxation.

These results are consistent with findings of Nasri et al (2002), which showed that cognitive-behavioral therapy affects in reducing fatigue of nurses and findings Deale et al (1993) which showed that cognitive-behavioral therapy has been effective in the control and management of chronic fatigue. Cognitive-behavioral therapy is based on the overall impression are located that negative behaviors and thought patterns vary a great impact on a person's emotions. Cognitive-behavioral therapy helps to detect analyze and changes in thoughts and behaviors, cognitive-behavioral therapy method based on responses by effects of mental, not physical used by psychiatrists and therapist to help promote definite change in people and help relieve the emotional suffering as well as raised the large number of behavioral, social, intellectual issues. Therefore, this therapy can be effective in reducing chronic fatigue syndrome of nurses.

These results are consistent with findings of Deale et al (2001) and Nasri et al (2002) which showed that cognitive-behavioral therapy in reducing fatigue is slightly more effective than relaxation training. Therefore,

cognitive - behavioral therapy can be more important and more effective method than muscle training. Because this method, relatively in its infancy approach, That puts the person in the right field of tissue or biological, social and cultural, and by relying on principles from the fields of psychology and other related sciences, teaches "Healthy Living" and "Healthy Thinking" to persons. In the other word can be said that in cognitive-behavioral therapy, are gathered strengths of behavioral therapy and cognitive therapy approaches, that's mean objectivity, assessment and evaluation on the one hand and involved role in the reconstruction and interpretation of data from the memory on the other hand, have become pragmatic as a body of knowledge.

Conflict of Interest

The authors declare no conflict of interest.

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