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The Effect of Benson's Relaxation on depression, anxiety and stress in patients undergoing hemodialysis

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ABSTRACT

Background: Chronic renal failure is a chronic disease in its end stage (ESRD), renal function was not enough to sustain life and person requires replacement therapy such as hemodialysis. One of the problems of patients on hemodialysis are depression, stress and anxiety. Objective: Determining the effect of Benson's relaxation on depression, anxiety and stress in patients undergoing hemodialysis in the province of Ilam. Patients and Methods: This triple-blind clinical trial study with repeated measures was conducted at five intervals before, immediately and one, two and three months after intervention on 70 patients undergoing hemodialysis in the province of Ilam in 2015-16. Samples were selected by census and assigned in two experimental and control groups randomly. Benson's relaxation intervention was done during 15 minutes twice a day for 4 weeks. Data was gathered by DAS questionnaires (Depression Anxiety Stress -21). Analysis was taken by SPSS software, version of 22 using descriptive statistics and inferential tests (paired t test, analysis of variance for repeated measures, post hoc tests S-N-K, Duncan, Scheffe and Tukey). Results: The mean score of depression, stress and anxiety in experimental and control groups showed no significant difference before the intervention. There is a significant difference between stress and anxiety in experimental and control groups in all intervals after intervention (P <0/05). There isn't any significant difference between mean scores of depression at any measuring times. Conclusion: Utilizing Benson's relaxation was recommended to reduce stress and anxiety in patients undergoing hemodialysis. Considering the lack of effect of this technique on depression, other studies need to be done in this area.

Keywords: hemodialysis, Benson's relaxation, stress, anxiety, depression

INTRODUCTION

Chronic kidney failure is a chronic disease that in its end stage, kidney function was not enough to sustain life and requires replacement therapy such as hemodialysis [1]. Nowadays, 2 to 3 percent of people in the world suffering from chronic kidney disease and their number will be doubled every year. The annual number of death caused by this disease in the world is 60 thousands people [2]. Annual mortality rates of dialysis patients in the United States of America was approximately 18% to 20% and their 5-year survival rate is approximately was 30 to 35 percent [3]. According to the US Renal Data System, approximately 90 percent of patients with chronic renal failure were undergoing hemodialysis and at most 92% of them preferred this treatment method [4]. There are currently about 16-17 thousands people on hemodialysis in Iran [5]. Approximately 15% is added to the hemodialysis patients in Iran [6]. In the today classification, hemodialysis patients are classified as special cases. These patients challenge issues that are mostly caught them until death due to specific and prolong problems of their disease [7].

Amongst the problems encountering patients on hemodialysis are depression, stress and anxiety [8-10]. In these patients, the most common psychiatric disorders requiring hospitalization is depression. The prevalence of depression in patients undergoing hemodialysis is unknown, so that 10-66% have been reported. This wide range is partly due to using different criteria to assess mood disorders [11]. Findings of several studies indicate that depression is more common in patients on dialysis than what is diagnosed and treated [12]. Depression reduces quality of life, discontinues appropriate treatment, failures following proper life style and finally reduces the long life of patient [13]. Anxiety and related disorders are very costly for society and anxious people. This disorder strongly correlate to double medical expenses, problems related to work and interpersonal relationship concerns [14]. People undergoing long-term hemodialysis are suffering from psychological and physiological stressors in addition to depression and anxiety and experience personality changes and lifestyle [15]. Inappropriate response to stress reduce their quality of life and create multiple physical, psychological, economic, and social problems as well as emotional reactions [16].

Generally, the control methods of depression, stress and anxiety include pharmacological and non-pharmacological. Using non-pharmacological prefer to pharmacological methods in controlling depression, stress and anxiety of patients due to high costs, serious complications and dependency to drugs [17]. Non- pharmacological methods include complementary therapies such as aromatherapy [18, 19], massage therapy [20-22], relaxation [8, 23-25], physical therapy [26], music therapy [27, 28] and Nursing care models [29, 30].

The benefits of complementary therapies can be mentioned as inexpensive, easily administered, non-invasive and non-pharmacological and lack of chemical side effects. Relaxation is one of the nursing interventions that can be used as complementary and non-pharmacological therapies [31].One of the relaxation techniques that is easily learned by the patient is Benson's relaxation [32]. Benson's relaxation including mindfulness techniques that are affected on wide range of physical and psychological signs and symptoms such as anxiety, pain, depression, mood and self-esteem and reduced stress [33]. Given the importance of depression, stress and anxiety in patients undergoing hemodialysis and due to the fact that little researches has been done in this area, researchers have conducted the clinical trial to investigate the effect of Benson's relaxation on depression, stress and the anxiety of patients undergoing hemodialysis.

Objective

Determining the effect of Benson's relaxation on depression, anxiety and stress in patients undergoing hemodialysis in the province of Ilam.

MATERIALS AND METHODS

Triple blind clinical trial study with repeated measurements was conducted on 75 patients undergoing hemodialysis at five intervals as before, immediately after, two weeks later, one and two months after intervention in the province of Ilam in 2015-16. This study was approved by the Ethical Committee of Ilam University of Medical Sciences as an research plan with number ir.medilam.rec.1394.125The sample size reached to 70 cases due to sample attrition. 35 people were filled in each experimental and control groups. Inclusion criteria were age older than 18 years, literate, and full consciousness. Exclusion criteria were disinclination to continue in participating the study, loss of consciousness, crisis intervention, including changes in disease progress and death of a family member.

Data gathering tool consisted of two parts. The first provided demographic characteristics including age, gender, marital status, education level, monthly income, number of dialysis per week, duration of dialysis and some features of the disease (awareness of the disease, interested to receive information, tolerance of illness limits, family support and cause of disease).The second was DASS- 21 that assessed depression, anxiety and stress. This questionnaire consists of 21 questions which the 7 questions are used for measuring any symptoms of depression, anxiety and stress.Scoring for Physical instrument as are normal for 0-4, average for 5-11 and severe for more than 12.The range of questions is classified in four options on a Likert scale of “never, low, average, and high”. Validity of this questionnaire has been approved in different studies inside and outside Iran, [34-36].

Benson's relaxation was done twice a day, each time for 15 minutes. The patient was advised to do these procedures twice a day for 15 minutes every day. This technique was carried out once in the presence of the researcher in a private room in the hospital and again by the patient at home. Benson's relaxation includes the following steps respectively:

- The patient is placed in a comfortable and relaxed position.
- The patient slowly closes his/her eyes.
- Slowly and gradually relax all the muscles of the body from the feet to the face and Keep calm.

- Breathe through the nose. Be aware of your breath. Breathe out slowly through the mouth, and when the air comes out, muttered number one and breathe comfortable and normally.
- Breathe as above for 15 minutes and try to relax muscles. Then slowly open your eyes and do not get up for a few minutes.
- Do not worry that deep level of relaxation is reached or not, but let to happen relaxation with its tune. When distracting thoughts came, try to ignore them and be indifferent to them [8, 37].

After entering data into SPSS 16 software, descriptive statistics including frequency tables, measures of central and dispersion as well as inferential statistics (paired t test, analysis of variance for repeated measures, post hoc tests of S-N-K, Duncan, Scheffe and Tukey) were used to analyse data. Mauchely's sphericity is one of the assumptions of ANOVA with repeated- measures. That is similar to the Levin test (equality of variances).The Mauchely test was done at five intervals within subjects analysing. Significance level was considered to be 0.05.

RESULTS

The majority of samples were married (55.7%), with a monthly income less than 400 thousand USD per month (60%), mean age 62.29 ± 8.51 with a minimum of 46 and maximum of 86 years. Other features related to the disease of the participants are summarized in Table 1.

Table 1. Demographic characteristics of samples

Variable	Group		P-Value
	Experimental	**Control**	
Gender			0.98
Male	18 (51.42)	17 (48.58)	
Female	17 (48.58)	18 (51.42)	
Marital status			0.64
Married	20 (57.15)	19 (54.28)	
Widow	15 (42.85)	16 (45.72)	
Financial status			0.93
Poor	20 (57.15)	22 (62.86)	
Average	10 (28.57)	8 (22.86)	
Good	5 (14.28)	5 (14.28)	
Being aware of the disease			0.42
High	24 (68.58)	26 (74.29)	
Average	6 (17.14)	5 (14.28)	
Low	5 (14.28)	4 (11.43)	
Tolerance for limits of the disease			0.51
Completely	2 (5.73)	3 (8.57)	
To some extent	11 (31.42)	11 (31.43)	
Not in the least	22 (62.85)	21 (60)	
Family support			0.98
High	8 (22.86)	9 (25.71)	
Medium	9 (25.71)	9 (25.71)	
Low	10 (28.57)	10 (28.57)	
Not in the least	8 (22.86)	7 (20.01)	

Table 2. Comparing the scores of depression, stress and anxiety in five stages of measurement

Outcome Measure	group	**Depression**		Stress		Anxiety	
		Mean(SD)	P value	Mean(SD)	P value	Mean(SD)	P value
Before	Experimental	5.89(0.83)	0.98	5.63(0.94)	0.80	6.29(0.86)	0.88
	Control	5.97(0.85)		5.57(0.94)		6.31(0.83)	
Immediately After	Experimental	4.06(0.80)	0.001	3.89(0.67)	0.001	6.23(0.91)	0.89
	Control	3.26(0.78)		5.54(1.09)		6.26(0.81)	
two weeks After	Experimental	5.94(0.98)	0.001	2.97(0.74)	0.001	6.20(0.90)	0.67
	Control	5.97(0.85)		5.66(0.98)		6.29(0.82)	
One month After	Experimental	2.74(0.95)	0.001	2.43(1.06)	0.001	6.14(0.91)	0.59
	Control	6.02(0.96)		5.80(0.99)		6.26(0.85)	
two month After	Experimental	2.71(0.92)	0.001	2.40(1.09)	0.001	6.09(0.88)	0.15
	Control	6.03(0.89)		5.80(0.99)		6.37(0.77)	

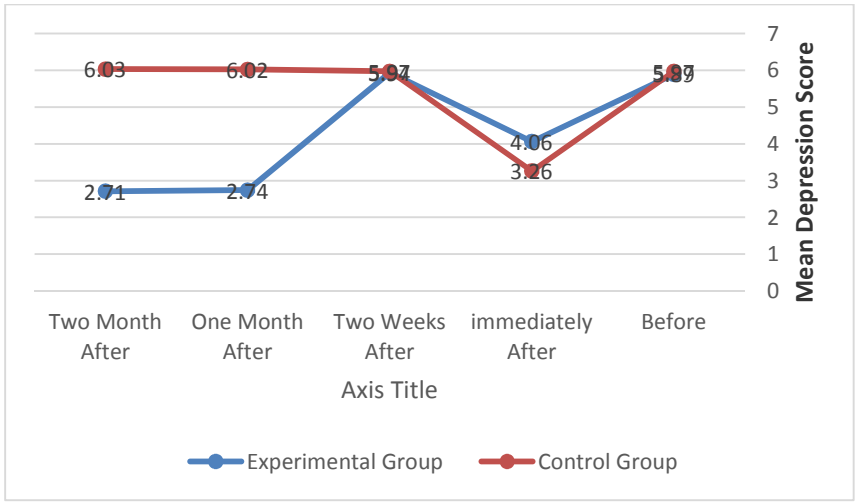

Figure 1. Comparison of Mean Depression Scores of Patients on Hemodialysis between the Experimental and Control Groups Before, Immediately After, Two Weeks After, One Month After, and Two Months After Intervention

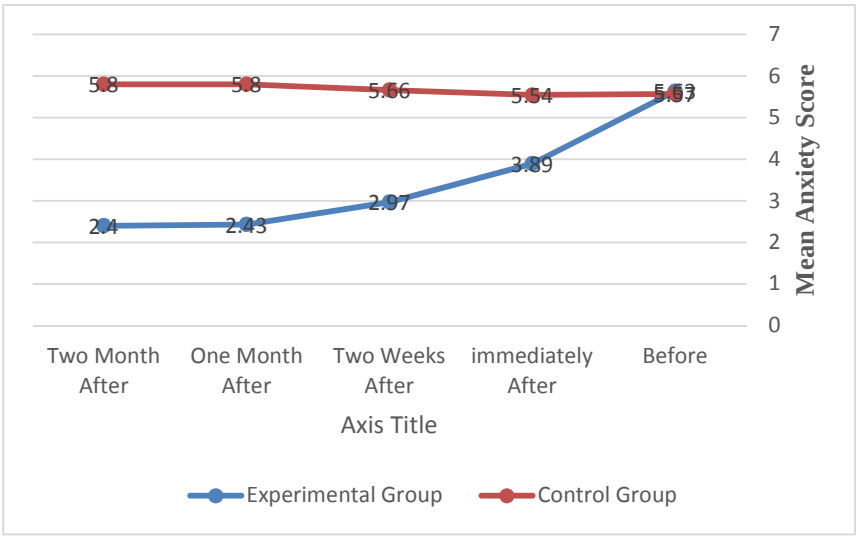

Figure 2. Comparison of Mean Anxiety Scores of Patients on Hemodialysis between the Experimental and Control Groups Before, Immediately After, Two Weeks After, One Month After, and Two Months After Intervention

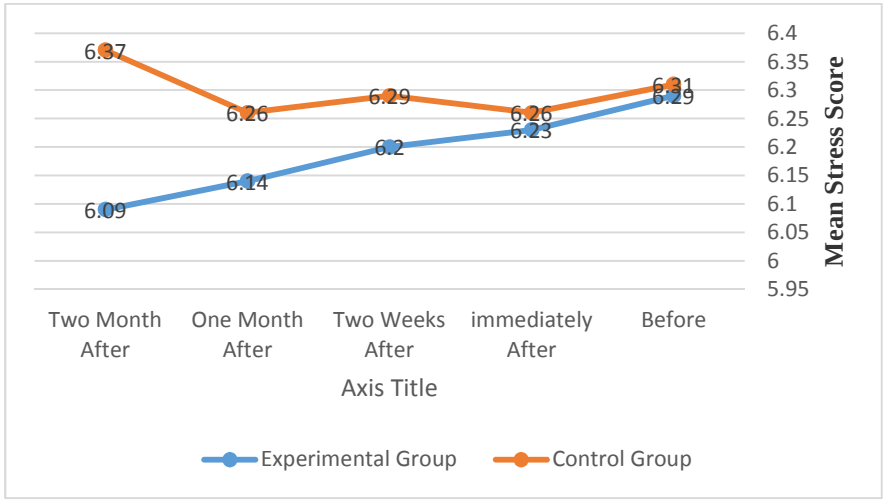

Figure 3. Comparison of Mean Stresss Scores of Patients on Hemodialysis between the Experimental and Control Groups Before, Immediately After, Two Weeks After, One Month After, and Two Months After Intervention

DISCUSSION

The findings showed that the majority of the patients had depression(57.7%), anxiety (48.6%) and stress (61.4%)before intervention. In a systematic and meta-analysis study in Iran (2009-2013), the prevalence of depression in patients undergoing hemodialysis was 63 percent[9].In Ahmad Zadeh et al. study, the prevalence of depression, anxiety, combined depression and anxiety in hemodialysis patients were 50, 12/2, and 7/8 percent respectively [10]. Inelali et al. study (2011) on patients undergoing hemodialysis, 11 (13/8 %) had mild stress, 51 (63/8%) had moderate stress and 18 (22/5 %) had severe stress before Benson's relaxation [8].

Related to high prevalence of depression, stress and anxiety in these patients, it can be noted some demographic characteristics such as low income as well as low social and family support. The relationship between depression, stress and anxiety with low income [38], low social and family support [39-41] has been confirmed in many studies. In this study, 61.4% of the patients reported intolerance of the limitations of disease. In the study of Otaghi et al. 50% of patients on hemodialysis did not tolerate limitations of disease [29].

Several studies have been conducted in Iran by using Benson's relaxation technique that all of them emphasis on reduce side effects and improve patients. It can be mentioned some controlled clinical trials that conducted on the variables such as: stress, anxiety and vital signs (blood pressure, pulse rate and respiratory rate) of patients with cancer [42], respiratory rate and pulse rate in patients undergoing coronary angiography [43], stress and anxiety in elderly patients with hypertension [44], level of anxiety in the different patients, such as patients waiting for cardiac catheterization [45],abdominal preoperative patients[46], patients with irritable bowel syndrome [47], and patients before kidney transplantation [20]. In all of these cases the implementation of this technique had a positive effect.

Controlled clinical trial of elali et al. on stress [8], the study of Heshmatifar et al. on depression [48],the study of Rambod et al. on improving physical activity [49], and the study of Heidari et al. on stress, anxiety and pain [50] confirmed the positive effect of this technique on improving the patients undergoing hemodialysis. In the study of Feizi et al, a significant difference was observed between mean scores of the general dimension of the quality of life before and after implementing Benson's relaxation technique, but the difference was not significant in special dimension of the quality of life [24].

In this study, stress and anxiety in patients undergoing hemodialysis has reduced after the implementation of Benson's relaxation technique that is consonant with the results of various studies. In experimental group, moving away from intervention and spending more months from the end of it, there was no statistically significant change in their level of stress and anxiety. In the second month after intervention, however stress and anxiety of the patients has a statistically significant difference compared with before intervention, there was not statistically significant difference in comparing with one month before intervention. It seems patients require continuous implementing the technique to reduce stress and anxiety. Thus it is necessary for the patients to carry out the Benson's relaxation technique always and continuously.Relaxation is effective as a stress reducers and can reduce stress and anxiety in these patients partly. It is necessary that other studies will be done on other factors having an effect in reducing stress and anxiety.

In the study of Ghafari et al. on patients with multiple sclerosis, a significant decrease was observed in anxiety and stress in these patients in the second compared the first month after intervention that is not consonant with the results of the present study (6). One of the causes of the variations of this research with the present study is the differences in population and intervention time: Patients with multiple sclerosis compared with patients on hemodialysis because the mechanism of their disease have different levels of ability and knowledge to do techniques of Benson's relaxation. Also, the level of stress and anxiety in these patients is different from the hemodialysis patients.

Although Benson's relaxation technique reduce depression in this study, but in none of the months after the intervention, a significant difference was found between experimental and control groups that is consonant with the results of the mahdavi et al. study [51]. But is not consonant with the results of Heshmatifar et al. study [48]. Of the differences between the results of this study and the study of Heshmatifar et al. [48] can be pointed the differences in measurement tools. In this study, the questionnaire of DASS-21 was used, but in Heshmatifar et al. study [48], depression inventory of Beck was used. Ineffective of implementing this technique on depression patients could be due to the high prevalence of depression in them. It is recommended to hold Benson's relaxation technique in the sequential months and prolonged period. Conducting interventions that provide family participation will create the basis for reducing depression in these patients.

CONCLUSION

The strengths of this study can be noted as measuring depression, stress and anxiety in five different time (before and after the intervention in the interval time of immediately, two weeks, one month and two months later). In previous researches on these patients, variables have been measured just before and one month after intervention [8] or in the interval time before, one month and two months after intervention. Also, Benson's relaxation technique carried out by the patient at home in previous researches [8]. Patients may not properly do Benson's relaxation techniques without supervision of the researcher. In the present study, relaxation has been done once a day under supervision of the researcher and once again by the patient at home. Patients were being gradual independence to perform the technique. If they had any problem in doing the technique, it would be solved by the researcher next day.

These findings will be useful in caringpatient sunder hemodialysis and persuade nurses' staff in applying Benson's relaxation technique for delivering these patients of depression, stress and anxiety. This study confirmed the impact of Benson's relaxation technique. This valuable technique can be used in the different fields of clinical nursing.

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