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Comparison between Effectiveness of Relaxation Therapy and Music Therapy in Reducing Depression and Anxiety in Hemodialysis Patients

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ABSTRACT: Background: Since the medical treatment is used in treatment of depression and Anxiety disorder, so relaxation therapy and music therapy were used to reduce the rate of depression and anxiety in hemodialysis patients. Objective: The aim of this study was to compare the effectiveness of relaxation therapy and music therapy in reducing depression and anxiety in hemodialysis patients. Method: This is a quasi–experimental study. The population consists of hemodialysis patients at Qazvin Bu-Ali hospital. The sample includes 45 people that were selected among research population and were placed randomly in three group relaxation therapy, music therapy, and control groups. The tools of data collection in this study were Beck Depression Inventory and Cattel Anxiety questionnaire. These questionnaires were administered to the subjects in experimental and control groups as pre-test, and the relaxation therapy and music therapy groups participated in ten organized sessions of training, one session per week and 1.5 hours per each session; but control group did not receive any training. For descriptive analysis of data, the statistical indices such as mean and standard deviation and in inferential statistic, covariance analysis have been used. Findings: the results of covariance analysis test indicated that after modifying the scores of pre-test, there was a significant difference between mean scores of two groups in post-test. Conclusion: The results showed that the relaxation therapy and music therapy are effective in reducing depression and anxiety in hemodialysis patients.
Keywords: Training music therapy, Training relaxation therapy, Depression, Anxiety.

INTRODUCTION

Chronic kidney disease is a health problem in the world today and is considered a threat for health, economic and social situations, infected individuals, their family and community, so that in the past few years, it has attracted many great attention especially in developing countries[1]. Of alternative therapies of kidney disease is various types of dialysis[2]. The purpose of dialysis is to maintain the acid-base balance, fluids and electrolytes balance in blood, and to remove metabolic waste products from the blood[3].

In most researches, the high prevalence of psychosocial problems is observed in dialysis patients. A glimpse of the desire towards suicide, depression and anxiety, sexual disorders and interpersonal problems in dialysis patients confuses human being that how these patients try to be survived[4]. There is no consensus about the severity of prevalence of psychiatric symptoms in patients undergoing hemodialysis, but all are consensus about one common thing that the most prevalent disease in these patients is depression as well as anxiety. In 50% these patients, depression, in 30%, anxiety and other psychiatric disorders with lower rate are observed[5]. Most studies that have been done in Iran indicate the prevalence of mental health problems, especially depression and anxiety among patients undergoing hemodialysis[6].

In the treatment of anxiety and depression, the different methods have been used. These treatments include a wide range of physical treatments and non-physical treatments such as behavioral and cognitive techniques and interpersonal therapies and medicine therapy, and also the use of electric shock[6]. Now, for treatments of many diseases, there are pharmacologic and non-pharmacologic treatments, and physicians are trying to reduce the extent of taking drugs and chemicals as much as possible and instead of them, use non-drug treatments such as exercise, art and diet. What is certain is that the serious diseases must be treated by medicine; but for treatment of these diseases, non-pharmacologic methods are used partially and as tonic. Of non-pharmacologic methods, relaxation and music therapy are common in many clinics around the world.

Music therapy is a complementary treatment that enhances the improvement and well-being of patients by increasing the threshold for stress and eliminate negative emotions, regulating internal processes, creating a relaxed state, and increasing immunity (Chang and Chen, 2008)[7] and helps the psychosocial integration, physiological and emotional unity of the individual during the treatment of illness and disability (Nilsson, 2008)[8]. Thus, this method can be considered as a powerful and inexpensive treatment as well as a non-invasive and easy technique to reduce anxiety in patients before surgery.

Several studies evaluated the effects of listening to music. For example, Seddiqi Arfaei et al. (2003)[9] in a study entitled "The effects of active and interactive music therapy on reducing depression in adolescents" found that the effect of active music therapy is more than the effect of interactive music therapy, but in the interactive level, no significant differences were observed between two groups; in other words, the effectiveness of using Persian songs is not significantly different comparing with western songs.

Keiri (2005)[10] in a research under the title "The study the effect of pop and traditional music on treatment of depressed patients" found that there is a significant relationship between traditional and pop music and reducing depression. Welch et al (2009)[11] conducted a study on the national music program in primary schools in England. The results showed that music can have a significant

effect on achieving to goals in the programs. Lister et al (2009)[12] conducted a study under the title "The study of development of the treatment center with innovative arts (kinetic therapy, music therapy, and dance and drama therapy) for adults suffering from developed disabilities" that the results showed that the creative arts can increase self-esteem, social skills and communication abilities of adults suffering these disabilities.

Reinhart and Lang (quoted from Fallah, 2007) studied the effect of various parts of songs, such as Chopin's waltzes, Mozart's piano concerts, on the depressed patients. The results showed that hearing these pieces of music have reduced their depression and have increased their self-automatism[13].

One of behavioral therapies, that are common in many clinics around the world, is relaxation technique. In relaxation technique by music, the patient in relax state travels imaginably far from any muscular pressure with deep and relax breath by melodies, and these melodies make relief the body gradually and the mind gets rid of tensions and becomes calm and this relaxation is transferred to the body[14]. Relaxation is the best way to achieve "the mental relaxation". As the stress and tension captures us, relaxation is a useful tool that will help our mind. Relaxation is more important as a tool to treat mental pressure and to reduce its physical and mental effects. The benefits of relaxation include reducing hypertension (blood pressure), balanced digestive and respiratory processes, improved sleep patterns, freedom from anxiety and depression[15].

In fact, relaxation is the music of expressing concentration, as in mental focus, the individual focuses on something stable like the flame of a candle and repeats a word or syllable in order the mind gradually becomes lethargic and be prepared to pay attention and becomes calm. In exercising with music, the appropriate and relaxant themes are the tools of the work. Research shows that music relaxation reduces blood pressure, heart rate, respiration rate; it also decreases the rate of oxygen consumption, reduces the blood acid level and slows down the brain waves of pressure and stress on the "beta" level, and changes them to lower waves at "alpha" level. All these changes that cause lethargy and apathy reduce the stress in physiological systems and organs of the body[16]. Jawharifard (2005)[17] studied the effects of relaxation and music therapy (PMT) on the reduction of anxiety in patients with generalized anxiety disorder (GAD). In that study, 40 patients with generalized anxiety disorder who had referred to the counseling centers of Isfahan, were randomly assigned to experimental and control groups. The results showed a significant difference between the two groups. In this regard, the findings by Wahabi (2002)[18] showed that music and relaxation therapy decreased significantly the anxiety and depression among cardiac patients.

Ghaffari et al. (2007)[19] conducted a research aiming to determine the effect of progressive muscular relaxation technique on depression, anxiety and stress in patients with multiple sclerosis. The results showed, since implementation of progressive muscular relaxation technique is practical in patients with multiple sclerosis, application of this technique could lead to reduction of depression, anxiety and stress as three prevalent and confounding symptoms of functions in

patients with multiple sclerosis. So, this technique, as an effective and economic method in terms of the cost and time, is recommended.

Center for mental health in the Australian national university conducted a research on relaxation in 2005 and stated that the muscle tension is usually related with stress and anxiety, and also it has a significant relationship with depression. However, a few researches have been done about the effect of relaxation on depressed individuals, and it is hoped relaxation therapy help to treat depression, but still more researches are needed to be done in this technique.

Experiences have shown that relaxation and music therapy have a great influence on many psychosomatic diseases and depressions. That is why it is recommended by the scientific and medical communities. With respect to importance of the subject matter in the studied population and also according to this subject that any research has not been done in the studied population, therefore, the aim of the present study is to examine the efficacy of music therapy and relaxation techniques on reducing depression and anxiety. In line with this objective, the depressed subjects are examined using a type of Iranian music, relaxation and anxiety, and the anxious subjects are also examined using a type of Iranian music and relaxation.

MATERIAL AND METHODS

The population of this study includes all hemodialysis patients that consists of 300 patients who had referred to Bu-Ali hospital in 2012 were selected as sample. To select the sample among these individuals, those who had higher scores according to criterion test, 55 patients were selected through random simple sampling, and 45 patients according to Morgan table were randomly selected and were assigned to experimental and control groups.

The present study is classified as pilot projects in which for determining the effect of music therapy and relaxation on rate of depression and anxiety of hemodialysis patients, pretest-posttest with control group has been used. Two groups of participants were used in this study. Both groups were examined twice. The first measurement was done by performing a pretest before training and the second measurement was done after training by a post-test. In order to form the groups, the researcher using a random sampling placed half of participants in the first group and the other half in the second group. The two groups that are formed by this way are similar and the measurement of dependent variables (depression and anxiety) for both groups was done simultaneously and under one condition. Indeed, the experimental group was placed under the application of independent variable (music and relaxation therapy). In fact, the control group did not receive any special training. The collected data were analyzed using multivariate covariance.

Research tools

A) Beck Depression Inventory (BDI): This questionnaire has 21 items and the subject selects one of the 4 options. For each question, a score ranging from 0 to 3 is assigned and the whole questionnaire will have a score ranged from 0 to 63. Fata et al (2005)[20] calculated the validity of this questionnaire that its Cronbach's alpha coefficient was 0.86, internal consistency coefficient was 0.92 and its reliability was 0.94. In the present study, reliability was calculated with Cronbach's alpha method that its coefficient is equal to 0.89.

B) Cattel Anxiety Questionnaire: This questionnaire includes 40 items which forms Cattel personality 16-factor test anxiety scale. Each question is scored on a 3-scale measurement that is scored from 0 to 2. Cattel 16-factor test has acceptable psychometric standards, so it has good reliability and validity. This questionnaire was standardized in an Iranian population in 1988 and has and standardized or normal scores for attributive anxiety (hidden), state/mode (apparent) and general anxiety[21]. In the present study, by Cronbach's alpha the reliability for the subscales of attributive anxiety, state/mode anxiety and whole scale was obtained 0.59, 0.69, and 0.84 respectively.

Results

Table 1. The mean sores of standard deviation, pretest and posttest, the rate of depression and anxiety for each group

Dependant variables	**Control group**		**Music therapy group**		**Relaxation therapy group**	
	SD	Mean	SD	Mean	SD	**Mean**
	s	$\overline{X}$	s	$\overline{X}$	s	$\overline{X}$
Depression pretest	3.226	33.67	2.774	37.47	3.989	**33.80**
Depression posttest	3.226	32.67	3.474	27.33	4.406	**18.13**
Anxiety pretest	3.481	37.40	2.800	30.87	4.941	**34.43**
Anxiety posttest	5.914	33.60	2.870	23.33	4.909	**18.33**

Table 2. The modified mean sores and standard deviation of the rate of depression and anxiety for each group

Dependant variables	**Control group**		**Music therapy group**		**Relaxation therapy group**	
	SD	Mean	SD	Mean	SD	**Mean**
	s	$\overline{X}$	s	$\overline{X}$	s	$\overline{X}$
Depression pretest	0.914	34.072	0.979	25.137	0.819	**18.924**
Anxiety pretest	1.209	31.278	1.296	26.194	1.084	**17.795**

Table 3. Analysis of covariance for depression and anxiety variables

Discrepancy source	**Sum of squares**	***DF***	**Mean squares**	**F**	**P**	**Effect size Eta**	**Test power**

Depression	1333.836	2	666.918	39.599	0.001	0.804	1.000
Anxiety	**1573.760**	**2**	**786.880**	**81.810**	**0.001**	**0.664**	**1.000**

Based on the results obtained from Table 3 for depression variable we can say that the posttest scores of depression in two groups of music therapy and relaxation therapy have a significant difference with those of control group. Also, for the anxiety variable, it can be said that the posttest scores of anxiety in two groups of music therapy and relaxation therapy have a significant difference with those of control group. Since the calculated F for the rate of depression and anxiety is statistically significant, the means differences of the rate of depression and anxiety in relaxation therapy and music therapy were compared using Lamatrix follow-up test to specify which training is more effective in reducing the rate of depression and anxiety.

Table 4. Results of the statistical analysis of the modified alpha between frequency of depression and anxiety between relaxation therapy group and music therapy group

Source of changes	Sum of squares	Degree of freedom	Mean squares	f	P
Depression	208.266	1	208.266	21.653	0.001
Anxiety	**380.613**	**1**	**380.613**	**22.599**	**0.001**

Table 5. Comparison of mean differences of the rate of depression and anxiety between music and relaxation therapy group

Groups	(D.M) Differences of means	SD	P
Music and relaxation therapy group and rate of depression	-6.213	1.355	0.001
Music and relaxation therapy group and rate of anxiety	**-8.399**	**1.767**	**0.001**

Based on the results obtained from Table 4.1 for depression variable we can say that the posttest scores of depression in two groups of music therapy and relaxation therapy have a significant difference and it is concluded that there is a significant difference between effectiveness of relaxation therapy and music therapy in the rate of depression that this difference is statistically significant at the level of 0.01; and by comparing mean differences of the rate of depression in two groups of music therapy and relaxation therapy, it becomes clear that there is a difference between the mean of music therapy group and relaxation therapy group equal to -6.213 that this difference is statistically significant at the level of 0.01; and these results show that relaxation therapy is more effective than music therapy in reducing depression.

Based on the results obtained from Table 4.1 for anxiety variable we can say that the posttest scores of anxiety in two groups of music therapy and relaxation therapy have a significant difference and it is concluded that there is a significant

difference between effectiveness of relaxation therapy and music therapy in the rate of anxiety that this difference is statistically significant at the level of 0.01; and by comparing mean differences of the rate of anxiety in two groups of music therapy and relaxation therapy, it becomes clear that there is a difference between the mean of music therapy group and relaxation therapy group equal to -8.399 that this difference is statistically significant at the level of 0.01; and these results show that training relaxation therapy is more effective than music therapy in reducing anxiety. Considering the significance of the difference of means with 0.99% confidence, we can state that the hypothesis of research that suggests that there is a significant difference between the effectiveness of music therapy and relaxation therapy in reducing depression and anxiety in hemodialysis patients is confirmed.

Discussion

This study was done to compare the effectiveness of music therapy and relaxation therapy on reducing the rate of depression and anxiety in hemodialysis patients at Qazvin Bu-Ali hospital. Based on obtained results, it is clear that there is a significant difference between the mean of relaxation therapy group and music therapy group, and the results show that training relaxation therapy is more effective than music therapy in reducing anxiety. The result of the present research is congruent and compatible with those of Seddiqi Arfaei et al. (2003), Keiri (2005), Welch et al. (2009), Lister et al. (2009), Jawharifard (2005), Wahabi (2004), Ghaffari et al (2007) that showed that training relaxation and music therapy is effective in reducing anxiety and depression[9-12,17-19].

In explaining this subject, it can be said that the reason of the success of the training music therapy on relaxation is the comprehensiveness and broadness of music. As mentioned in the definition of relaxation, it is a set of techniques that by reducing pressures on muscles and organs relieve the pain, fatigue and physical and psychological threats[16]. The relaxation technique has positive effects on human organ systems that results to reduction of heart activity and blood pressure, increasing breath volume, reducing the number of breaths per minute so that normal rate of 16 respirations reaches to 4 respirations at the time of meditation. The results of the conducted studies suggest that when eventually the effects of relaxation appear, the anti-hypertension medicine reagents can be reduced in half. In addition to relaxation, there are other forms of treatment that each form has specific psychological effects that sometimes make calm the nervous system and sometimes make it awake. Generally, the advantage of this technique is its comprehensiveness such that it results to improvement of the morals and aesthetic, the increase of the feeling of euphoria and richness of interpersonal relationships, all of which can lead to reduction of symptoms of anxiety and depression in these patients.

Another explanation could be that music is the primary instrument of the therapist and s/he wants to improve the level of mental performance and physical duties of the patient by experiencing music exercise and basic trainings by this patient. In

fact, music therapy is a supportive profession[22]. Like many medications, music can cause side effects, but, in any way, its benefit is more than its harm[23]. In terms of psychology, music can lead to abreaction or can give an appropriate and positive response to emotional experience and can provide the facilities of the optimum use of this method.

There are many opinions about the positive effects of music. Music can reduce the anxiety through diverting attention from anxiety and pain and also negative experiences towards the pleasant experiences, helping to cope with emotional stress and stimulation of calming reactions[24]. Also, increasing the threshold of stress and eliminating negative emotions, regulating internal processes, creating a relaxed state, increasing the security power and helping the psychosocial, physiological and emotional integrity of the person may be involved in reducing anxiety in the music therapy[25].

Smolen et al. (2002)[26], considering Roy adaptation model, know the created changes in the rate of anxiety and physiological parameters because of listening to music as the result of physiological adaptation in patients with medical conditions. While Almerud and Peterson (2003)[27] argue that the music reduces anxiety by affecting on the brain and stimulating the brain's alpha waves which cause endorphins to be released, and also by creating relaxation.

The present study like any other study was confronted with some limitations, of which the lack of full control of intervening variables, lack of license to record treatment sessions, and lack of cooperation of some patients due to their illness conditions can be mentioned. Also it is suggested that the effectiveness of these methods on other disorders other than anxiety and depression in different populations with different age groups to be addressed. Training these two interventions for psychologists, psychiatrists, social workers and so on in health centers, clinics, psychiatric hospitals and counseling centers can be used as a reliable and stable method for the treatment of depression and anxiety disorders, and the use of such procedures is recommended in future therapeutic orientations.

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