Evidence Based Care Journal
http://ebcj.mums.ac.ir/

Comparison of the Effect of Face-to-Face and Multimedia Education on the Anxiety Caused by Electroconvulsive Therapy in Patients with Mood Disorders

Saeed Vaghee, Mohsen Sepehrikia, Seyed Ali Saghebi, Hamidreza Behnam Vashani, Azam Salarhaji, Zohre Nakhaee Moghaddam

The online version of this article can be found at
http://ebcj.mums.ac.ir/article_8375.html

Evidence Based Care Journal 2017 07:25 originally published online 01 April 2017
DOI: 10.22038/ebcj.2017.20532.1476

Online ISSN: 2008-370X

Address: Mashhad Nursing and Midwifery School, Ebn-e-Sina St., Mashhad, Iran
P.O.Box: 9137913199
Tel.: (098 51) 38591511-294
Fax: (098 51) 38539775
Email: EBCJ@mums.ac.ir

Evidence Based Care Journal

Original Article

OPEN ACCESS JOURNALS

Comparison of the Effect of Face-to-Face and Multimedia Education on the Anxiety Caused by Electroconvulsive Therapy in Patients with Mood Disorders

Saeed Vaghee[1], Mohsen Sepehrikia[2*], Seyed Ali Saghebi[3], Hamidreza Behnam Vashani[4], Azam Salarhaji[5], Zohre Nakhaee Moghaddam[6]

Received: 04/12/2016
Accepted: 05/03/2017

Evidence Based Care Journal, 7 (1): 25-34

Abstract

Background: Training methods to reduce the anxiety caused by the electroconvulsive therapy (ECT) should match the necessity of communicating with the patients suffering from mood disorders.

Aim: This study aimed to compare the effects of face-to-face and multimedia education on the anxiety induced by the ECT.

Method: This randomized controlled clinical trial was conducted on 75 patients with mood disorders undergoing ECT in the Ebn-e-Sina Psychiatric Hospital in Mashhad, Iran within 2013-2014 in three groups of face-to-face education (i.e., individual training), multimedia education (i.e., training through CD), and control (i.e., usual training), Receiving training for half an hour to get familiar with the ECT department, nursing care, and self-care one day before performing the ECT. The Spielberger's State-Trait Anxiety Inventory was completed prior to the intervention and before the first, middle, and final sessions of the ECT. The data were analyzed using the one-way and repeated measures ANOVA in the SPSS version 11.5.

Results: According to the results of the study, 56% (n=14), 56% (n=14), and 48% (n=12) of the participants in the face-to-face, multimedia, and control groups were male, respectively. The post-hoc Tukey's test demonstrated that the control group had a significant difference with the face-to-face and (P=0.01) multimedia education groups (P=0.03) before the first session of the ECT. In addition, there was a significant difference between the face-to-face and multimedia education groups in this regard (P=0.07).

Implications for Practice: Considering the conditions and facilities of the psychiatric hospitals, it is possible to use different methods of face-to-face or multimedia education to reduce the anxiety caused by the ECT.

Keywords: Anxiety, Education, Electroconvulsive therapy, Mood disorders

---

1. Evidence-based Care Research Center, Instructor of Nursing, Department of Psychiatric Nursing, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran
2. MS in Psychiatric Nursing, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran
3. Assistant Professor of Psychiatry, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
4. Evidence-based Care Research Center, Instructor of Pediatric Nursing, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran
5. Department of Health, Neyshabur University of Medical Sciences, Neyshabur, Iran
6. MS in Psychiatric Nursing, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran

* Corresponding author, Email: sepehrikiam2@mums.ac.ir

Introduction

Mood disorders are ascribed to a large group of psychiatric disorders whose clinical picture is usually the abnormality of mood and its related disorders (1). The lifetime prevalence of these disorders is about 2-25%, and the highest prevalence pertains to major depressive disorders (15% and 25% in the males and females, respectively) (2). The chronic and relapsing nature of mood disorders are almost always accompanied by social, occupational, educational, and interpersonal dysfunctions (2). The status of the patients with mood disorders becomes more severe. Furthermore, they become resistant to treatment with repeated relapses; as a result, they may not often respond to the medical therapy and psychotherapy (3).

The electroconvulsive therapy (ECT) is one of the most useful and effective therapies in situations when these disorders are not responsive to treatment. This therapy is very helpful in serious psychiatric conditions such as suicide attempts (4, 5). The most common application of this therapeutic method is in the treatment of major depressive disorders. This method is also effective in the treatment of manic or mixed episodes (6). The ECT has shown to have beneficial therapeutic effects on the treatment-resistant mood disorders.

However, such restrictions as the stigma on the use of ECT, the need for general anesthesia, seizure stimulation, and cognitive side effects, including memory disorder have limited the application of the ECT in psychiatry (7). The negative publicity of the ECT in the media regarding the possibility of electrocution, death, and permanent mental changes has resulted in the stimulation of fear and anxiety in the patients (8). Accordingly, many patients believe that the ECT has been a form of punishment that is associated with irreversible brain damage (9).

The main sources of information in 90% of the individuals are the patients who are treated with the ECT (10). These unrealistic views about the ECT and the absence of any proper training to remove and deny these false assumptions have caused increased anxiety and dissatisfaction with ECT in the patients (11). This anxiety can affect the mental health of the patients with mood disorders and create additional problems (12).

Therefore, considering the important role of the nurses in the training and support of the patients with mood disorders, increasing the patients' awareness through training seems to be one of the methods to overcome the anxiety caused by ECT (13). However, due to the dense crowdedness of the psychiatric departments and the lack of sufficient personnel, training in the field of health and treatment is associated with some problems and complications that must be considered in designing and implementing the educational programs (14).

The most common training method in the health care system is face-to-face education in which the direct relationship between the trainer and trainees is based on the educational needs of the trainees. This method provides more opportunity for discussion than the group methods (15). Nevertheless, one of the drawbacks of this training method is its limitation to be applied in the overcrowded centers (16). The development of communications and technology has facilitated the employment of multimedia teaching methods. Although these teaching methods cover the disadvantages of the face-to-face education, it has also such drawbacks, such as virtual communication and the absence of active communication with the trainer (15, 17, 18).

However, the research findings are indicative of the influence of both face-to-face and electronic teaching methods on reducing anxiety in the patients with myocardial infarction (19). In addition, these two methods have been concluded to be effective in reinforcing the attitudes relating to adherence to watery diets in the patients undergoing hemodialysis (15). Nonetheless, there are conflicting results about the larger effects of the practical education than those of the multimedia education on the degree of learning about cardiopulmonary resuscitation in the medical students (20).

Therefore, the high usefulness and effectiveness of the ECT in the treatment-resistant mood disorders and the anxiety arising from false information on this therapeutic method should be taken into consideration. On the other hand, the different conditions of the patients with mood disorders necessitate the use of educational practices and methods tailored to these patients' conditions and the psychiatric departments. Since the majority of the studies have been conducted in the field of physical illness, this study aimed to compare the effects of multimedia education with those of the face-to-face education on the anxiety induced by the ECT in the patients with mood disorders.

Methods

This randomized controlled clinical trial was conducted on 75 inpatients and outpatients suffering

from mood disorders employing a three-group pretest-posttest research design. These patients referred to the Ebn-e-Sina Psychiatric Hospital of Mashhad, Iran to receive the ECT within 2013-2014. Following a study conducted by Ebrahimi et al. (2013), the sample size was estimated using such parameters as mean and standard deviation of the total anxiety in the intervention (100.2±9.8) and control (122.2±10.6) groups obtained after the intervention (21).

The minimum sample size was calculated to be 4 cases with 95% confidence interval and 80% power. According to a statistician's opinion, the sample size of 25 cases was estimated for each group in order to ensure the veracity of the obtained results. This sample size did not witness any significant drop out by the end of the test stages.

The inclusion criteria were: 1) the diagnosis of mood disorders by psychiatrists, 2) residence in Mashhad, 3) age range of 18-50 years, 4) educational degree above the fifth grade of primary school, 5) the ability to communicate with speech and hearing, 6) the absence of psychotic disorders at the time of the ECT, and 7) no diagnosis of anxiety disorders by the psychiatrists. On the other hand, the exclusion criteria included the unwillingness to continue participating in the study, receiving less than four sessions of ECT, and the incidence of post-ECT complications.

The data were collected using the demographic form and Spielberger's State-Trait Anxiety Inventory (STAI). The demographic form included eight items that were prepared based on the research objectives and the latest related studies. The STAI includes 40 items, the first 20 of which are related to the state anxiety (i.e., one's anxiety at the specific moment and during responding) and the second 20 items cover the trait anxiety (i.e., relatively stable individual differences in anxiety susceptibility). The items of the state anxiety are rated on a four-point Likert scale (1=not at all, 2=somewhat, 3=moderately, and 4=very much). Likewise, the items pertaining to the trait anxiety are scored based on a four-point Likert scale (1=almost never, 2=sometimes, 3=often, and 4=almost always), which are scored in reverse.

The scores range of this inventory is 40-160, where a higher score indicates more stress. The content validity of the STAI has been confirmed in multiple studies, including a study conducted by Mahram (1993) (22). In the present study, the content validity index (0.92) and content validity ratio (0.99) of this inventory were confirmed by seven faculty members of Mashhad University of Medical Sciences. Furthermore, the reliability of this scale in this study was calculated using the internal consistency and the Cronbach's alpha coefficients, which were found to be 0.94 and 0.98 for the trait and state anxiety, respectively.

The eligible participants were selected using the convenience sampling method, followed by quota sampling technique. The researcher obtained the written informed consents of the participants. Subsequently, the patients were randomly assigned into three groups of multimedia education, face-to-face education, and control. To do so, a list of all inpatients and outpatients waiting for the ECT was prepared, and three inpatients and three outpatients were randomly selected using the table of random numbers. Afterwards, the first, second, and third patients were randomly placed in the face-to-face education, multimedia education, and control groups, respectively. Accordingly, the sampling continued in one-person selection mode until the required sample size was obtained.

In the face-to-face education group, some explanations were given to each of the inpatients and outpatients separately one day before the onset of the first ECT session (30 min). Each participant in this group was provided with some information by a psychiatric nurse about the physical environment, ECT room, recovery, pre- and post-ECT nursing care, and self-care training. These explanations were delivered to prevent the possible complications and prepare the patients for the ECT (Table 1).

Table 1. Administration of the educational methods

Title	Objective	Content	Duration	Educational method	Trainer
Face-to-face education	Familiarity with ECT	Familiarity with physical space, electroconvulsive therapy room, recovery, nursing care before and after ECT, and ...	30 minutes	Education on an individual basis	A psychiatric nurse
Multimedia education	Familiarity with ECT	Familiarity with physical space, electroconvulsive therapy room, recovery, nursing care before and after ECT, and ...	30 minutes	CD	A psychiatric nurse

In the multimedia group, a training package CD was played for the inpatients one day prior to the ECT via computer. In this CD, which lasted for 30 min, the person responsible for audio-visual of the Ebn-e-Sina Psychiatric Hospital provided some explanations about the physical environment, ECT room, recovery and the relevant authorities' recommendations, pre- and post-ECT nursing care, interviews with the patients who had had a positive memory of ECT (with anonymous face), applications of the ECT, self-care training to prevent the possible complications, and preparation for ECT by the performance of a psychiatric nurse (Table 1).

This CD was given to the outpatients' companions one day before the ECT. The hospital officials asked the patient a few questions about the content of the CD an hour prior to the onset of the ECT in order to ensure that they had watched it. It was attempted to select the patients from different wards in order to prevent the interaction of the patients participating in the face-to-face and multimedia education groups.

In the control group, only the routine measures of the ward were taken. These measures included giving information regarding the onset of the ECT, the anticipated number of sessions, fasting the night before the ECT, emptying the bladder, removal of ornaments, metals, and fit dentures, making suitable intravenous routes, necessary consultations with specialists, as well as physical examination and tests. The STAI was completed in four stages, i.e., before the intervention as a pre-test and three post-tests including before the first, middle, and final sessions of the ECT.

The ethical research principles approved by the Vice Chancellor of Research at the University of Medical Sciences were observed throughout the study process. Accordingly, the written informed consent was obtained from the Ethics Committee of the University. In addition, an introduction letter was taken from the Faculty of Nursing and Midwifery and submitted to the head of the Ebn-e-Sina Psychiatric Hospital. Moreover, the questionnaires were coded in order to ensure the confidentiality of the participants' data. The patients were also assured about the possibility to leave the research process at any time in case of reluctance to continue participating in the study.

The research data were analyzed by the SPSS version 19.5. The Kolmogorov-Smirnov test was used to assess the normal distribution of the quantitative data. The Chi-square and Fisher's exact tests were employed to investigate the homogeneity of the qualitative variables. In addition, the homogeneity of the quantitative variables were estimated using the one-way ANOVA test. The intra- and inter-group comparisons were made using the repeated measures and one-way ANOVA. The confidence level of 95% and the significance level of 0.05 were considered.

Results

According to the results of the study, there was no significant difference between the groups in terms of the demographic information including the gender, hospitalization or outpatient status, education level, occupation, marital status, history of ECT, and age ($P>0.05$). Therefore, the three groups were homogeneous in these aspects (Table 1).

According to Table 2, the majority of the participants in the face-to-face education group were male (14 patients, 56%) and married (14 patients, 56%). In the multimedia education group, most of the participants were female (14 patients, 56%) and married (13 patients, 52%). Likewise, the majority of the participants in the control group were female (12 individuals, 48%) and married (12 individuals, 48%). The mean ages of the participants were 36.1±13.7, 35.6±8.4, and 35.8±6.2 years in the face-to-face education, multimedia education, and control groups, respectively.

According to Table 3, the results of the ANOVA test in the inter-group comparison demonstrated no significant difference between the three groups in terms of the state anxiety before the intervention ($P=0.47$). However, the results of the one-way ANOVA showed that there was a significant difference between the three groups regarding their anxiety mean scores before the first ($P<0.001$), middle ($P<0.001$), and the last sessions of the ECT ($P<0.001$).

The post-hoc Tukey's test revealed that the control group had a significant difference with the face-to-face ($P<0.001$) and multimedia groups ($P=0.04$) before the first session of the ECT. However, no significant difference was observed between the face-to-face and multimedia groups ($P<0.10$) in this regard. In addition, there was a significant difference between the face-to-face and control groups ($P<0.001$), multimedia and control groups ($P<0.02$), as well as face-to-face and multimedia groups ($P=0.04$) regarding the state anxiety prior to the middle session of the ECT. Likewise, a significant difference was observed between the face-to-face and control groups ($P<0.001$), multimedia and control ($P<0.02$), and face-to-face and multimedia groups ($P=0.03$) before the last

Table 2. Demographic characteristics of patients with mood disorders for each group

Groups / Variables	Face-to-face education N(%)	Multimedia education N(%)	Control N(%)	Test results
Gender				
Male	14(56%)	11(44%)	12(48%)	*P=0.69
Female	11(44%)	14(56%)	13(52%)	
Attendance of the patient in the ward				
Hospitalized	15(0.60 %)	22(0.88%)	18(72%)	*P=0.08
Outpatient	10(0.40%)	3(0.12%)	7(28%)	
Level of Education				
Primary school	4(16%)	0(0%)	2(8%)	
Secondary school	5(20%)	6(24%)	5(20%)	*P=0.35
High school	8(32%)	14(56%)	10(40%)	
Higher education	8(32%)	5(20%)	8(32%)	
Occupation				
Employee	5(20%)	7(28%)	3(12%)	
Worker	6(24%)	2(8%)	5(20%)	
Self-employed	5(20%)	3(12%)	5(20%)	*P=0.10
University student	0(0%)	0(0%)	2(8%)	
Housewife	7(28%)	6(24%)	2(8%)	
Retired	0(0%)	2(8%)	0(0.0%)	
Unemployed	2(8%)	5 (20%)	8(32%)	
Marital status				
Single	9(36%)	(20%)	10(40%)	
Married	14(56%)	13(52%)	12(48%)	*P=0.29
Divorced	2(8%)	5(20%)	3(12%)	
Dead spouse	0(0%)	2(8%)	0(0.0%)	
History of electroconvulsive therapy				
Yes	9(4.47%)	9(36%)	7(28%)	**P=0.07
No	10(6.52%)	16(64%)	18(72%)	
		$\overline{X} \pm SD$		
Age (year)	36.1±13.7	35.6±8.4	35.8±6.2	***P=0.34
State anxiety before the intervention	45.7±5.8	50.6±13.6	49.8±13.9	***P=0.29
Trait anxiety before the intervention	49.3±5.8	54.5±8.9	51.0±10.5	***P=0.11
Total anxiety before the intervention	95.2±10.4	105.1±21.2	100.8±24.0	***P=0.20

session of the ECT in terms of the state anxiety.

According to Table 3, there was no significant difference between the three groups in terms of the state anxiety before the intervention (P=0.47). However, the results of the one-way ANOVA revealed a significant difference between the three groups regarding their anxiety mean scores before the first (P<0.001), middle (P<0.001), and final sessions of the ECT (P<0.001).

In the intra-group comparison, the results of the repeated measures ANOVA showed that there was a significant difference in terms of the stage effect in both face-to-face (P<0.001) and multimedia education groups (P<0.001). In contrast, in the control group, no significant difference was observed in this regard. The results of the repeated measures ANOVA showed that there was a significant difference in terms of the group effect (P<0.001) and interactive effect (P<0.001) between the variations of the state anxiety mean scores of the four stages in face-to-face, multimedia education and control groups.

In the inter-group comparison, the results of the one-way ANOVA indicated that there was no significant difference between the three groups in terms of the trait anxiety before the intervention (P=0.45). Nevertheless, a significant difference was found between the three groups regarding their trait anxiety mean scores before the first (P=0.01), middle (P=0.007), and final sessions of the ECT (P=0.008). According to the post-hoc Tukey's test, the control group showed a significant difference with the face-to-face (P<0.001) and multimedia groups (P=0.02) before the first ECT session in terms of the trait anxiety.

In addition, there was a significant difference between the face-to-face and multimedia groups in

this regard (P=0.009). Furthermore, there was a significant difference between the face-to-face and control groups (P<0.001), multimedia and control groups (P=0.01), and face-to-face and

Table 3. Comparison of the mean and standard deviation of anxiety between the three groups based on the evaluation stage

Groups		Face-to-face education	Multimedia education	Control	Inter-group comparison (one-way ANOVA)
		$\overline{X} \pm SD$	$\overline{X} \pm SD$	$\overline{X} \pm SD$	
State anxiety					
Before the intervention		51.7±5.8	48.6±13.6	49.8±13.9	P=0.47
Before the first session		48.8±8.1	49.4±10.7	58.4±14.2	P<0.001
Before the middle session		36.4±10.6	41.4±5.4	56.1±14.2	P<0.001
Before the last session		33.4±10.0	40.9±10.4	54.4±13.8	P<0.001
Results of intra-group comparison (repeated measures ANOVA)	stage effect	P<0.001	P<0.001	P=0.76	
	group effect		P<0.001		
	Interaction effect		P<0.001		
Trait anxiety					
Before the intervention		47.3±5.8	49.5±8.9	48.2±10.5	P=0.45
Before the first session		46.9±4.5	51.3±8.6	53.1±11.0	P=0.01
Before the middle session		38.6±5.3	47.9±8.8	51.2±10.9	P=0.007
Before the last session		39.7±5.4	44.1±8.7	51.4±10.3	P=0.008
Results of intra-group comparison (repeated measures ANOVA)	stage effect	P<0.001	P<0.001	P=0.73	
	Group effect		P<0.001		
	Interaction effect		P<0.001		
Total anxiety					
Before the intervention		99/0±10.4	98.1±21.2	97.8±24.0	P=0.43
Before the first session		95.7±10.1	100.8±20.1	111.1±24.2	P=0.02
Before the middle session		75.0±13.3	89.4±19.5	107.0±24.2	P=0.007
Before the last session		73.1±13.7	85.9±18.1	105.9±23.4	P=0.006
Results of intra-group comparison (repeated measures ANOVA)	stage effect	P<0.001	P<0.001	P=0.70	
	Group effect		P<0.001		
	Interaction effect		P<0.001		

multimedia groups (P=0.008) in terms of the trait anxiety before the middle session of the ECT.

Regarding the last ECT session, the results of the post-hoc Tukey's test suggested that the control groups had a significant difference with the face-to-face (P=0.02) and multimedia groups (P=0.002) in terms of the trait anxiety. Similarly, a significant difference was revealed between the face-to-face and multimedia groups (P=0.04) in this regard. In the intra-group comparison, the results of the repeated measures ANOVA showed that there was a significant difference between the variations of the trait anxiety mean scores of the four stages of the study in terms of the total effect (P<0.001), group effect (P<0.001), stage effect (P<0.001), and interactive effect (P=1.0) in the face-to-face education group.

Likewise, in the multimedia group, a significant difference was observed between the variations of the trait anxiety mean scores of the four stages of the study regarding the total effect (P<0.001), group effect (P<0.001), stage effect (P<0.001), and interactive effect (P<0.001). However, no significant difference was found in the trait anxiety mean scores of the control group between the four stages in this regard.

In the inter-group comparison, the one-way ANOVA revealed no significant difference between the three groups in terms of the total anxiety level before the intervention (P=0.43). However, the results of the one-way ANOVA showed that there was a significant difference between the three groups regarding their total anxiety mean scores before the first (P<0.02), middle (P=0.007), and final sessions of the ECT (P=0.006).

Based on the results of the post-hoc Tukey's test, the control group demonstrated a significant difference with the face-to-face education (P=0.01) and multimedia groups (P=0.03) before the first session of the ECT in terms of the total anxiety. In addition, there was a significant difference between the face-to-face

and multimedia groups (P=0.07) in this regard. However, the results of the post-hoc Tukey's test revealed that the control group had a significant difference with the face-to-face (P=0.002) and multimedia (P=0.01) groups in terms of the total anxiety level before the middle session of ECT.
Likewise, there was a significant difference between the face-to-face and multimedia groups in this regard (P= 0.04). Similarly, regarding the last ECT session, the control group showed significant difference with the face-to-face (P=0.003) and multimedia groups (P=0.02) in terms of the total anxiety. Furthermore, the face-to-face and multimedia groups were significantly different in this regard (P=0.04).
In the intra-group comparison, the results of the repeated measures ANOVA showed that there was a significant difference in terms of the total effect (P<0.001), group effect (P<0.001), stage effect (P<0.001), and interactive effect (P<1.00) between the changes of the total anxiety mean scores of the four stages in the face-to-face and multimedia education groups. On the contrary, in the control group, no significant difference was observed in the variations of trait anxiety mean scores between the four stages of the study regarding the total effect (P=0.31), group effect (P=0.21), stage effect (P=0.70), and interactive effect (P=1.00).

Discussion

As the findings of the present study indicated, there was no significant difference between the face-to-face and multimedia education groups regarding the reduction of total anxiety and state anxiety scores before the first ECT session. In other words, both face-to-face and multimedia education methods were effective in the reduction of the total anxiety and state anxiety before the first ECT session. However, there was a significant difference between these two groups regarding the reduction of the total anxiety and state anxiety scores before the middle and last ECT sessions.
It is also noteworthy that both face-to-face and multimedia education groups had undergone a significant decline in total anxiety and state anxiety scores before the middle and last ECT sessions in comparison to the control group. The reduction levels of the total anxiety and state anxiety scores before the middle and last ECT sessions were higher in the face-to-face education group than those in the multimedia education group.
Therefore, it seems that the face-to-face education method is more effective in reducing the degrees of total anxiety and state anxiety among the patients suffering from mood disorders before the middle and last ECT sessions, compared to the multimedia education method. However, both face-to-face and multimedia education methods were revealed to be effective in reducing the total anxiety and state anxiety mean scores in this study.
Saki et al. (2013) also found that both face-to-face and electronic educational methods reduced the anxiety in the patients with myocardial infarction six hours after the training (19). Karimi Moonaghi et al. (2011) demonstrated that both face-to-face and video training methods were equally effective in the promotion of the attitudes pertaining to compliance with diets and consumption of liquid foodstuff preceding, during, two weeks following, and four weeks after the intervention process in the hemodialysis patients (15). These findings are consistent with the results of the present study.
In addition, Najafi et al. (2010) evaluated the effect of video training on the continuation of the reduced complications caused by the ECT during six post-test stages (after each stage, the ECT was administered) (18). Their results are in line with the findings of the present study. The patients with mood disorders experience severe anxiety before the ECT due to lack of awareness and knowledge in this regard (23). Therefore, it seems that the method of providing information can be also effective in the anxiety reduction and the resultant behavioral changes with respect to the environmental conditions, target group, and educational content (15).
Before the first ECT session, both face-to-face and multimedia education methods were equally effective in the reduction of total anxiety and its state dimension (23). However, the level of anxiety reduction further increased during the middle and final stages of the ECT in the face-to-face education group in comparison with the multimedia education group. This can be due to the fact that the establishment of a positive patient-nurse relationship is one of the key elements in nursing interventions at the psychiatric departments (24).
Therefore, it seems that the face-to-face education leads to higher reduction of anxiety in the middle and final stages of the ECT, compared to the multimedia education method. At these stages, the relationship between the patients and nurses is satisfactorily established, and the patients are encouraged to express their feelings and fears of the ECT. The multimedia educational method was also effective in reducing

the anxiety caused by the ECT (13). The reduction of total and state anxiety during the test stages was statistically significant in both face-to-face and multimedia education groups.
However, this change was not significant in the control group. The control group even witnessed an increasing trend in terms of the mean scores of total anxiety and state anxiety during the test stages. These findings highlight the importance of informing the patients and improving their awareness about the respective therapy (through any method). Accordingly, the patients should be ensured about the soundness of the ECT therapy and the associated complications. This measure will help the patients with mood disorders to better accept such treatments (25).
The results of the present study showed that there was a significant difference between the face-to-face and multimedia education in terms of their effectiveness in reducing the trait anxiety induced by the ECT before the first, middle, and last ECT sessions. In addition, the level of trait anxiety was significantly reduced in both face-to-face and multimedia education groups, compared to the control group.
However, there was a higher decrease in the trait anxiety scores of the face-to-face-education group before the first, middle, and last ECT sessions, compared to those of the multimedia education group. Therefore, it seems that the face-to-face education has been more effective than the multimedia education in reducing the trait anxiety caused by the ECT during the test process.
Navidian et al. (2015) showed that the nurses' supportive care, such as communicating with patients and providing them with information and knowledge about the advantages and disadvantages of the ECT would reduce the state and trait anxiety in the patients (10). Although the mentioned study did not assess different educational and training methods, its findings are consistent with those of the present study in terms of the effectiveness of patients' awareness and communicating with patients in reducing the ECT-induced anxiety.
Since depression and mania are two of the main symptoms of mood disorders, the patients with depressive episode often experience such cognitive symptoms as the lack of concentration and intellectual impairment because of low mood. On the other hand, the patients with manic episode are extremely irritable and lack concentration owing to elevated mood and exhilaration. Therefore, a series of features and attributes, including impaired concentration, is common in the patients with mood disorders despite the individual and genetic differences (26).
Accordingly, it seems that the provision of information about the ECT can also reduce the patients' trait anxiety in both face-to-face and multimedia education groups (23).
On the other hand, the results of the current study showed that there was a significant reduction in the trait anxiety scores of both face-to-face and multimedia education groups before the first, middle, and last ECT sessions. On the contrary, the trait anxiety in the control group not only had no significant reduction, but also witnessed an increasing trend during the test stages. This is representative of the effectiveness of the training and education via any method in reducing the trait anxiety originating from the ECT.
Abbas-zadeh et al. (2014) showed that the video training was more efficient and effective than the face-to-face education in increasing the perceived threat in the patients with myocardial infarction (16). Moreover, Vaghee et al. (2016) found that anger management training through workshop method was more effective in the reduction of the emotional-affective dimension of anger in the opiate-dependent patients, compared to the educational training package (27). These findings are inconsistent with those of the current study. This discrepancy can be ascribed to the employment of different educational contents and target groups in these studies.
The administration of the post-tests before the first, middle, and final sessions was one of the limitations of this study. However, this was fulfilled based on the number of the ECT implementations, which had been specified based on relative estimates. Therefore, different patients received the post-tests at different times.

Implications for Practice

The results showed that both face-to-face and multimedia educational methods were effective in reducing the anxiety caused by the ECT. However, this decline in the anxiety was higher in the face-to-face educational method. Therefore, considering the psychiatric conditions and the lack of experienced personnel and facilities, the psychiatrists and nurses are recommended to use different non-verbal multimedia and face-to-face educational methods in accordance with the existing conditions and facilities. Further studies are suggested to investigate the effect of the face-to-face and

multimedia methods on the anxiety induced at the time of receiving ECT in the patients with mood disorders under the same conditions.

Acknowledgments
This paper has been extracted from the research project coded 940802 with the clinical trial code of IRCT2016031527067N1, approved by the Vice Chancellor of Research at Mashhad University of Medical Sciences. Hereby, the researchers of the current study express their gratitude to Mashhad University of Medical Sciences for funding this study. Thanks also goes to the respected officials and professors of Mashhad Faculty of Nursing and Midwifery, the staff of the Ebn-e-Sina Psychiatric Hospital, and the participants for their sincere cooperation.

Conflict of interest
The authors declare no conflict of interest.

References

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders (DSM-5®). New York: American Psychiatric Pub; 2013.
2. Sadock BJ, Sadock VA. Kaplan and Sadock's synopsis of psychiatry: behavioral sciences/clinical psychiatry. 11th ed. New York: Wolters Kluwer; 2014.
3. Petrides G, Tobias KG, Kellner CH, Rudorfer MV. Continuation and maintenance electroconvulsive therapy for mood disorders: review of the literature. Neuropsychobiology. 2011;64(3):129-40.
4. Kellner CH, Fink M, Knapp R, Petrides G, Husain M, Rummans T, et al. Relief of expressed suicidal intent by ECT: a consortium for research in ECT study. Am J Psychiatry. 2005;162(1):977-82.
5. Birkenhäger TK, van den Broek WW, Mulder PG, de Lely A. One-year outcome of psychotic depression after successful electroconvulsive therapy. J ECT. 2005;21(1):221-6.
6. Valenti M, Benabarre A, Garcia-Amador M, Molina O, Bernardo M, Viete E. Electroconvulsive therapy in the treatment of mixed states in bipolar disorder. Eur Psychiatry. 2008;23(1):53-6.
7. Fraser LM, O'Carroll RE, Ebmeier KP. The effect of electroconvulsive therapy on autobiographical memory: a systematic review. J ECT. 2008;24(1):10-7.
8. Alaa EI Darweesh DM, Mohammed KA, Sayied NE, Khalif NM. Assessment of knowledge and attitude about electroconvulsive therapy among caregivers of patients with different psychiatric disorders. Middle East Curr Psychiatry. 2012;20(3):205-15.
9. Patry S, Graf P, Delva NJ, Chan P, Enns M, Gilron I, et al. Electroconvulsive therapy teaching in Canada cause for concern. J ECT. 2013;29(2):109-12.
10. Navidian A, Ebrahimi H, Keykha R. Supportive nursing care and satisfaction of patients receiving electroconvulsive therapy: a randomized controlled clinical trial. Iran Red Crescent Med J. 2015;17(9):e27492.
11. Payne N, Prudic J. Electroconvulsive therapy: Part II: a biopsychosocial perspective. J Psychiatr Pract. 2009;15(5):369-90.
12. Davis M, Walker D, Miles L, Grillon C. Phasic vs sustained fear in rats and humans: role of the extended amygdala in fear vs anxiety. Neuropsychopharmacology. 2009;35(1):105-35.
13. Webster S. Patients' satisfaction with mental health nursing interventions in the management of anxiety: results of a questionnaire study. J Nurs Educ Pract. 2012;2(2):52-62.

14. Fletcher JD. Effectiveness and Cost of Interactive Videodisc Instruction in Defense Training and Education. IDA Report R2372. Washington, DC: Department of Defense; 1990.
15. Karimi Moonaghi M, Shamsadini LS, Emamimoghaddam Z, Ebrahimzadeh S. Comparative study of the effect of face-to-face and video on Attitude of diet and fluids in patients undergoing hemodialysis. Twelfth National Congress on Medical Education, Mashhad, Iran; 2012. (Persian)
16. Abbaszadeh A, Borhani F, Asadi N. Effects of face-to-face health-belief oriented eduation about risk factors on knowledge and attitude of myocardial infarction patients after discharge. Iran J Med Educat. 2012;12(9):638-46.
17. Shahjafari T. Design and evaluation of multimedia educational software. Tehran: Bushehr Amiri; 2007. (Persian)
18. Najafi M, Tavakoli S, Ganji F, Rostami A. Effect of video education on reduction of post ETC complications. Iran J Med Educat. 2011;10(5):1216-27. (Persian)
19. Saki A, Hooshmand Bahabadi A, Asadi Noghabi AA, Mehran A. Comparison of face-to-face and electronic education methods on anxiety in patients with acute myocardial infarction. Hayat. 2014;20(1):6-14. (Persian)
20. Alijanpour E, Amiri M, Khafri S, Razzaghi F. Assessment of different cardio-pulmonary resuscitation teaching approach on quality of education in medical student, Babol 2011. Med J Mashhad Univ Med Sci. 2014;56(6):376-82. (Persian)
21. Ebrahimi H, Navidian A, Keykha R. The effect of supportive nursing care in reducing anxiety of patients receiving electroconvulsive therapy. Iran J Psychiat Nurs. 2014;1(4):13-24. (Persian)
22. Mahram B. The normative of Spielberger anxiety test in Mashhad city: thesis of module and evaluation in psychology. [Master Dissertation]. Tehran: Psychology College Allameh Tabatabaie University; 2000.
23. Spielberger CD. State-Trait anxiety inventory. New York: John Wiley and Sons Inc.; 2010.
24. Koushan M, Vaghei S. Psychiatric nursing mental health. 1th ed. Tehran: Andishe Rafi; 2014.
25. Erickson JM, Spurlock LK, Kramer JC, Davis MA. Self-care strategies to relieve fatigue in patients receiving radiation therapy. Clin J Oncol Nurs. 2013;17(3):319-24.
26. Sadock BJ, Sadock VA. Kaplan and Sadock's synopsis of psychiatry: Behavioral sciences/clinical psychiatry. Philadelphia: Lippincott Williams & Wilkins; 2011.
27. Vaghee S, Ebadi M, Ardani AR, Asgharipour N. The Effect of anger management training using workshop and training package methods on the aggression of patients with addiction. Evid Based Care J. 2016;6(1):37-48. (Persian)