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ORIGINAL ARTICLE

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Effect of executive music therapy on state and trait anxiety levels of patients in a psychiatric ward: A quasi-experimental study

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Abstract

Aim: This quasi-experimental study aimed to assess the effect of executive music therapy (EMT) on the state and trait anxiety levels of patients with psychiatric disorders.

Design and Methods: The study sample consisted of 64 patients who were hospitalized in a psychiatric ward in Giresun, Turkey between January and April 2019.

Findings: This study showed that EMT decreased the state anxiety levels of inpatients with psychiatric disorders ($P < .05$). However, the treatment caused no effect on trait anxiety levels ($P > .05$).

Practice implications: In line with these results, we recommend that EMT should be included in therapeutic nursing interventions in psychiatric ward.

KEYWORDS

executive music therapy, psychiatric disorder, state anxiety, trait anxiety

1 | INTRODUCTION

Music therapy is a procedure of using the multilateral influence (cognitive, motor, emotional, communicative, social, sensory, and educational domains) of music on psychosomatic human conditions in many ways.[1] It is applied in two ways as passive listening to music (record from a CD or live music) and active singing, playing, or improvising with instruments.[2] Listening to music is a safe and low-cost method that positively affects the mood and physiological symptoms of both healthy individuals and patients with various physical conditions.[3-5] Listening to music for about 10 to 30 minutes in a session significantly decreases the anxiety, depression, and stress levels of patients.[6-8] In other studies on such issue, listening to music has been reported to reduce sleep problems,[9,10] reduce the severity of pain and increase patient satisfaction,[11] and lower systolic and diastolic blood pressure and heart rate.[12] Music intervention leads to positive developments in the patient before and during surgical procedure and reduces postoperative complications.[13]

Studies also evaluate the effect of music listening activity on psychiatric patients. Music played for patients with major depression improves depressive symptoms.[14] Another study reports that music played for patients with major depressive disorder improves their depressive symptoms and sleep problems. Deshmukh et al[15] Music therapy administered with relaxation exercises in patients with schizophrenia reduces the psychological symptoms and depression levels of patients.[16] In another study on patients with schizophrenia, listening to music reduces the state anxiety and depression levels of patients and improves their sleep quality.[17] In a study on patients with substance abuse, listening to music reduces the depression levels of patients.[18] In another study, music played for psychiatric patients decreases their anxiety levels.[19]

In Turkey, there are few studies that examine the effects of music therapy on patients with psychiatric problems. However, music therapy intervention can be a part of the therapeutic environment. In a study conducted with 195 psychiatry clinics to evaluate the therapeutic environment characteristics in Turkey, 45.6% of the clinics are not engaged in occupational therapy, 54.4% consider playing and painting as responsibilities of nurses, and 66.2% are not provide psychoeducation.[20] In another study evaluating the therapeutic environment perceptions of patients hospitalized in psychiatric wards, therapeutic environment interventions are inadequate and unsatisfactory in terms of autonomy, anger management, social support,

and problem-solving according to inpatients.[21] The results show inadequacies in planning and implementation of planned activities in psychiatric clinics.

The therapeutic environment is an ideal and dynamic atmosphere aiming to cure patients, to raise self-confidence and self-value and to provide return to social life as soon as possible.[22] Group activities conducted by nurses to create the therapeutic environment aim to improve social skills and problem-solving ability, increase autonomy, improve self-esteem, and increase treatment adherence through communication and interactions within the group.[23,24] Executive music therapy (EMT) can be incorporated into the occupational therapy routine for psychiatric disorders. Such treatment can speed up recovery and create a more positive experience. Music therapy is a valuable but relatively unexplored asset in the field of psychiatry and psychotherapy.[25] Given that EMT can be easily performed in inpatient psychiatric ward, the effects on patients must be evaluated. Also, Deatrich et al[26] suggest that music therapy in inpatient psychiatric settings may be effective as standard of care and further research is needed to fully understand the impact of music therapy in this setting. Therefore, this study was conducted using quasi-experimental design to evaluate the effect of EMT on the state and trait anxiety levels of patients in a psychiatric ward.

2 | METHOD

2.1 | Design

This quasi-experimental study was carried out using a nonrandomized control group pretest and posttest design.

2.2 | Study sample

The study sample consisted of 64 patients who were hospitalized in the psychiatric clinic of a Training and Research Hospital between January and April 2019 and who agreed to participate in the study. Twenty-nine patients with alcohol addiction, 17 patients with mood disorder, 10 patients with anxiety disorder, and 8 patients with psychotic disorder constituted the sample of the study. A total of 31 and 33 patients were selected for the intervention and control groups, respectively. The subjects were not randomized and a purposeful sampling method was used in the selection based on inclusion criteria. The patients who met the inclusion criteria for participation in the study were included in the sample. The study inclusion criteria were literacy, age between 18 and 65 years, verbal and written consent for participation in the study, and adherence to treatment.

The study exclusion criteria were incompletely filled questionnaire and scale forms, withdrawal syndrome, occurrence of psychotic symptoms (delusions, hallucinations, klang connotations, etc), and limited social interaction. Patient diagnoses were obtained from the patient files in accordance with the diagnosis made as a result of the psychiatric evaluation.

2.3 | Ethical considerations

The approval for the study was obtained from the Provincial Health Directorate and the Ethics Committee of GRU Faculty of Medicine (date, 9 January 2019 and number, 92). Before filling in the forms and scales, the participants were informed about the study, in line with the principles of the Helsinki Declaration, and the data collection forms were administered to the patients who volunteered to participate in the study.

2.4 | Data collection forms

The data were collected using the patient information form and the Spielberger State and Trait Anxiety Inventory (SSTAI). The demographic information form was prepared by the researchers in line with the literature and consisted of questions, such as the patient's age, gender, marital status, educational status, socioeconomic status, and the diagnosis with which the patient was hospitalized.[16,18]

The SSTAI was developed by Spielberger et al[27] to determine the levels of state and trait anxiety separately. The inventory was tested for validity and reliability in Turkish by Öner and LeCompte.[28] The SSTAI is a self-assessment scale consisting of 40 short expressions. This inventory consists of two subscales: "state anxiety subscale (SAS)" and "trait anxiety subscale (TAS)." The SAS is a 20-item scale that allows an individual to describe how she/he feels in a particular moment and under certain conditions and is answered by considering feelings about a condition. The TAS, on the other hand, is a 20-item scale that allows an individual to describe their feelings in general.

The 4-point Likert type response choices of the inventory were rated as "not at all" (a), "a little" (b), "much" (c), and "completely" (d). Two types of expressions are included in the SAS: direct and reverse. The direct expressions consist of 10 items, including items 3, 4, 6, 7, 9, 12, 13, 14, 17, and 18. The reverse expressions also comprise 10 items, including items 10, 1, 2, 5, 8, 10, 11, 15, 16, 19, and 20. In the evaluation, the total score of the direct expressions was calculated first. Then, the total score of the 10 reverse expressions is calculated, and the score obtained individually from the SAS was obtained by adding 50 points to the value obtained by subtracting the total score of the reverse expressions from the total score of direct expressions.

Expressions 21 to 40 on the TAS measure the trait anxiety levels of individuals. The four-point Likert type response choices of the inventory were rated as "not at all" (a), "a little" (b), "much" (c), and "completely" (d). Two types of expressions are included in the TAS: direct and reverse. The direct expressions consist of 13 items, including items 22, 23, 24, 25, 28, 29, 31, 32, 34, 35, 37, 38, and 40. The reverse expressions comprise seven items, including items 21, 26, 27, 30, 33, 36, and 39. In the evaluation, the total score of the direct expressions was calculated first. Then, the total score of the seven reverse expressions was calculated, and the score obtained individually from the TAS was obtained by adding 35 points, the constant value for the TAS, to the value obtained by subtracting the total score of reverse expressions from the total score of direct

expressions. The scores obtained from the SAS and TAS ranged from 20 to 80. A high score obtained from the scales indicates high anxiety level, whereas a low score indicates a low anxiety level. In this study, the pretest SSTAI Cronbach's alpha was .60, the posttest Cronbach's alpha was .65, and the total SSTAI Cronbach's alpha was .78.

2.5 | Data collection

Before the data were collected, the researchers introduced themselves, informed the patients about the objective and duration of the study, and stated that the names would be kept confidential, and the information would only be used for research purposes. Verbal and written consents were obtained from the patients. The data collection forms were completed before participating in the EMT program and after the four-session program was completed. The pretest and posttest measurements of the control group were performed simultaneously with the experimental group. The forms were completed 25 to 30 minutes.

2.6 | Intervention and procedure

The music activity was held between 14.00 to 16.00 in the afternoon because of the sedative effects of the drugs taken by psychiatric patients, lack of energy of the patients as a symptom of diseases, such as depression, and the high number of patients sleeping in the morning. Figure 1 shows the subject recruitment and participation flowchart. Ninety-two patients were assessed for eligibility. Twenty-eight patients who did not meet inclusion criteria were excluded from the study. Sixty-four patients who wanted to participate in the music activity and met the study inclusion criteria constituted the

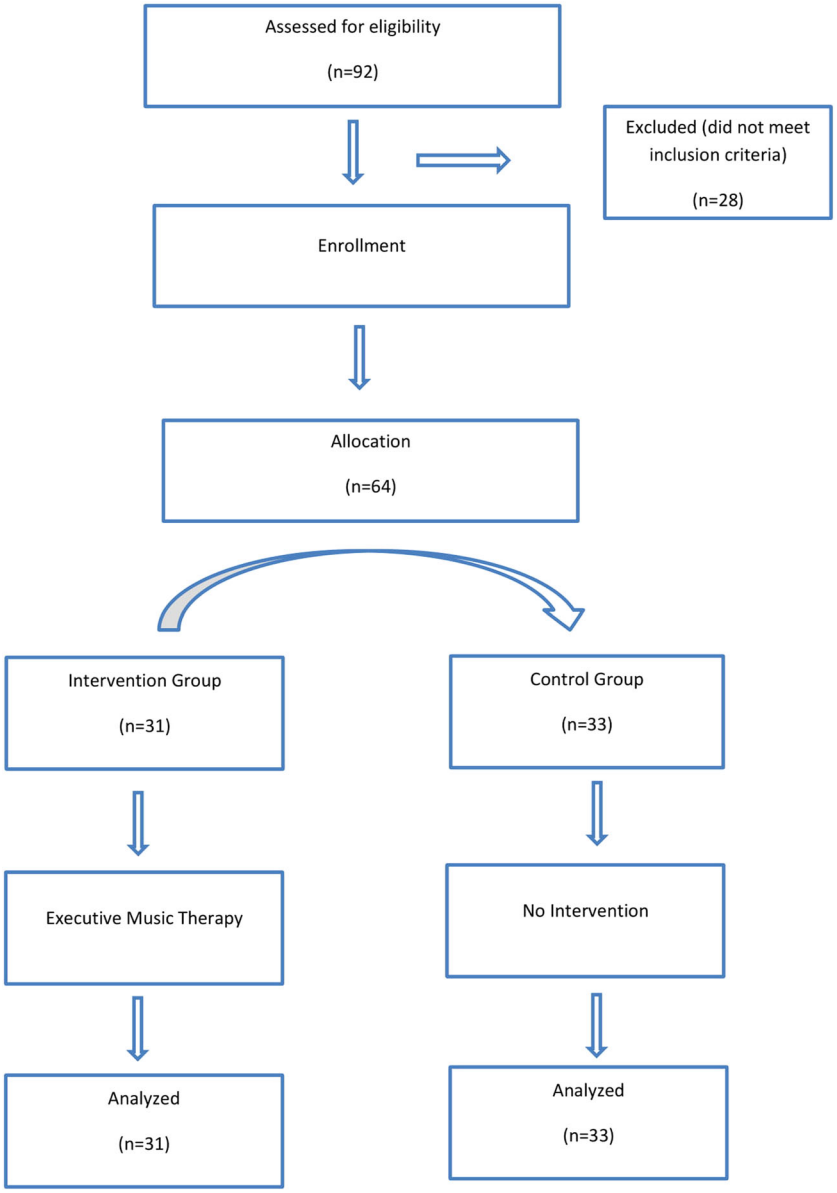

FIGURE 1 Subject recruitment and participation flowchart

sample of the study. Thirty-one patients for the intervention group and 33 patients for the control group were selected. A randomization method was not used for the assignment of patients to groups. However, the patients who wanted to continue the EMT program without interruption were assigned to the intervention group and the patients who did not want to continue were included in the control group. A total of 31 patients in the EMT group were divided into 3 groups of 10 and 11 participants.

The EMT is different from usual music therapy, as it enables the active participation of the patient.[25] The EMT program includes practices, such as singing alone and in a group and playing musical instruments.[25] It is based on the high degree of personal interaction that active musical engagement may induce.[29] It is carried out in a group environment and music interventions in group environment show better improvements in patients with psychiatric disorders.[2] For these reasons, this treatment is considered to be the most suitable form of therapy for psychiatric patients who will be hospitalized for a long time, and it has been reported to strengthen the self-confidence of patients and their sense of self-worth among other people. EMT can be easily integrated into occupational therapy.

The music activity consisted of four sessions for 2 days a week, and each session lasted for about 45 minutes. The sessions began with music listening. The main interventions were (a) listening to guitar performance played by a musician, (b) group singing facilitated by musician and researcher, (c) playing together with music, (d) allowing to patients who wanted to sing solo, and (e) group singing facilitated by musician and researcher. At the end of each session, the patients expressed the feelings they experienced during the group music therapy session.

2.7 | Data analysis

The statistical package for the Social Sciences v.16.0 statistical software package was used to analyze the data. The χ^2 test was used to compare variables, such as age, gender, educational status, marital status, and place of residence, between the two groups. The *t*-test was used in independent groups to compare age between the groups because the age-related data were normally distributed. Given that the data were non-normally distributed, the Mann-Whitney *U* test was used to compare the pretest and posttest mean scores between the groups. The Wilcoxon signed-rank test was used to compare the pretest and posttest mean scores of each group in themselves.[30] The level of statistical significance was set at $P < .05$.

3 | RESULTS

The mean age of patients in the intervention group was 45.32 ± 8.75 years, whereas that of patients in the control group was 43.69 ± 9.75 years ($t = 0.700$, $P = .487$). Among patients in the intervention and control groups, 77.4% and 75.8% were male, respectively ($x^2 = 0.025$, $P = .875$). A total of 51.6% and 54.5% patients were married in the intervention and control groups, respectively ($x^2 = 0.055$, $P = .814$). When the patients were compared in accordance with their educational status and place of residence, no statistical difference was observed between the groups ($x^2 = 0.939$, $P = .332$; $x^2 = 0.031$, $P = .999$, respectively). Finally, no statistical difference was noted between the patient groups in terms of diagnosis ($x^2 = 0.031$, $P = .999$) (Table 1).

Table 2 shows the pretest and posttest mean SAS and TAS scores between the groups. No difference was observed between the pretest SAS scores of the patients who participated and did not participate in EMT ($z = 0.761$, $P = .447$), whereas posttest SAS scores revealed a statistically significant difference between the participating and nonparticipating patients ($z = 2.310$, $P = .021$). When the TAS scores of the patients who participated and did not participate in EMT were evaluated, no statistically significant difference was observed between the pretest ($z = 0.821$, $P = .412$) and posttest ($z = 0.511$, $P = .609$) mean TAS scores.

Table 3 shows the pretest and posttest mean SAS and TAS scores within the groups. A significant difference was observed between the pretest and posttest state anxiety mean scores of the patients who participated in EMT ($z = 2.861$, $P = .004$). No significant difference was noted between the pretest and posttest state anxiety mean scores of the nonparticipating patients ($z = 1.179$, $P = .238$). No statistically significant difference was observed between the pretest and posttest mean trait anxiety scores of the patients who participated in EMT and those of patients who did not participate ($P > .05$).

4 | DISCUSSION

This study investigated the effect of EMT on the mean state and trait anxiety scores of patients in a psychiatric ward. The state anxiety scores of patients who participated in the program were higher than those of nonparticipating patients after the therapy. A significant difference was observed between the pretest and posttest mean scores of the patients participating in the program.

The single-intervention music played for patients hospitalized in intensive care and receiving mechanical ventilation reduced the state anxiety levels of the patients.[31] The study evaluating the effect of music played for oncology patients during the insertion of a port catheter on physiological parameters, including pain and anxiety, reported that the state anxiety scores of the patients decreased.[32] The studies evaluating the effect of music listening on the preoperative anxiety levels of patients undergoing surgery revealed decreased anxiety levels of patients.[5,12,33-35] In two separate studies evaluating the effect of music played for patients who present to the emergency department, the anxiety levels of the patients decreased.[8,11]

In another study evaluating the effect of music therapy on the anxiety and perceived stressor scores of dialysis patients, the anxiety levels of patients decreased after the therapy.[36] Different from this study, in a research on patients who were at the initial stage of

TABLE 1 Sociodemographic characteristics of the patients

Sociodemographic characteristics	Intervention group (n = 31) n (%)	Control group (n = 33) n (%)	Test value	*P* value
Age (X ± SD)	45.32 ± 8.75	43.69 ± 9.75	$t = 0.700$	.487
Sex				
Female	7 (22.6)	8 (24.2)	$x^2 = 0.025$	.875
Male	24 (77.4)	25 (75.8)		
Marital status				
Married	16 (51.6)	18 (54.5)	$x^2 = 0.055$	.814
Single	15 (48.4)	15 (45.5)		
Educational status				
<8 y	17 (54.8)	22 (66.7)	$x^2 = 0.939$	.332
≥8 y	14 (45.2)	11 (33.3)		
Place of residence				
City	5 (16.1)	7 (21.2)	$x^2 = 4.558$	.102
Town	21 (67.7)	14 (42.4)		
Village	5 (16.1)	12 (36.4)		
Diagnosis				
Alcohol addiction	14 (45.2)	15 (45.5)	$x^2 = 0.031$	.999
Mood disorder	8 (25.8)	9 (27.3)		
Anxiety disorder	5 (16.1)	5 (15.2)		
Psychotic disorder	4 (12.9)	4 (12.1)		

radiotherapy, the music selected by patients themselves was played. However, no change was observed in anxiety levels although the patients stated that listening to music distracted them and made them feel supported.[37] The aforementioned studies were conducted on patients without psychiatric problems, and positive results were obtained in terms of state anxiety. In these studies, the experimental group was exposed to music therapy or music listening for a single session, except for one study (three times a week) and lasted for approximately 20 to 90 minutes. The music therapy or music listening session was short since it was generally applied before or during the procedure. The patients in the experimental group did not interact with each other.

TABLE 2 The pretest and posttest mean SAS and TAS scores between the groups

	Pretest *X* ± SD	Posttest *X* ± SD
State anxiety sucscale		
Intervention group	58.38 ± 5.94	53.96 ± 5.93
Control group	57.18 ± 5.64	56.75 ± 5.67
test value	$z = 0.761$	$z = 2.310$
P value	$P = .447$	**.021**
Trait anxiety subscale		
Intervention group	50.22 ± 7.54	51.00 ± 7.83
Control group	52.18 ± 6.29	52.03 ± 6.37
Test value	$z = 0.821$	$z = 0.511$
P value	$P = .412$	$P = .609$

Note: Bold value indicate $p < .05$

Studies also applied music therapy programs to psychiatric patients. In the study by Kavak et al[16] on patients with schizophrenia, 20 sessions of music activity were held together with relaxation exercises, and they showed positive effect on psychological findings and depression. Yang et al[19] applied 11 sessions of music therapy to hospitalized psychiatric patients; the anxiety levels of patients decreased significantly compared with patients who did not receive the therapy. A study evaluating the efficacy of 15 sessions of music therapy applied to psychiatric patients showed positive effects on the anxiety and depression levels of patients and their relationship scores.[38] Stefani and Biasutti[39] applied 48 sessions of music therapy to psychiatric patients who were followed-up as outpatient and observed that the treatment was notably effective in controlling neuroleptic drug doses. These studies had much longer intervention durations than this study. Although the effect duration was short, this study showed a decrease in the anxiety levels of patients.

TABLE 3 The pretest and posttest mean SAS and TAS scores within the groups

	Pretest *X* ± SS	Posttest *X* ± SS	Test value	*P* value
State anxiety sucscale				
Intervention group	58.38 ± 5.94	53.96 ± 5.93	$z = 2.861$	**.004**
Control group	57.18 ± 5.64	56.75 ± 5.67	$z = 1.179$	.238
Trait anxiety sucscale				
Intervention group	50.22 ± 7.54	51.00 ± 7.83	$z = 0.638$	.523
Control group	52.18 ± 6.29	52.03 ± 6.37	$z = 0.813$	.416

Note: Bold value indicate $p < .05$

EMT affected the state anxiety scores of patients but caused no effect on the trait anxiety scores. Similar to this finding, a 7-day music relaxation intervention in people living with schizophrenia decreased the level of situational anxiety.[17] Another study showed that an 11-day music therapy intervention decreased anxiety scores in hospitalized psychiatric patients.[19] The ineffectiveness of EMT in trait anxiety is attributed to two reasons. The first reason is the short therapy duration. The second reason is the absence of trait anxiety problems among patients. Trait anxiety refers to the stable tendency to attend to, experience, and report negative emotions, such as fears, worries, and anxiety across many situations, and it is part of the personality dimension of neuroticism vs emotional stability.[40] For these reasons, the effectiveness of EMT should also be evaluated in patients with trait anxiety problems.

4.1 | Study limitations

The present study had some limitations. First, the patients who did not want to continue the EMT program in good order were included in the control group. This would lead to selection bias. Therefore, it has been accepted as a limitation. Second, The EMT program consisted of four sessions. The duration of the intervention was shorter than other studies. Therefore, the long-term effects of the EMT on state and trait anxiety should be assessed in future studies. Third, a quasi-experimental design was used in this study. Finally, the patients were chosen from a single hospital. Therefore, the results cannot be generalized to other patients.

5 | CONCLUSION

In conclusion, EMT positively affects state anxiety levels of patients, but it causes no effect on trait anxiety levels. In the context of music therapy, studies on psychiatric patients are limited. The EMT applied to the patients who participated in this study consisted of four sessions and lasted for approximately 45 minutes. In line with the study results, the EMT positively affects the state anxiety levels of the patients, although the effect duration was short. EMT is also an intervention that can be easily performed by healthcare professionals in psychiatric clinics. Thus, EMT is thought that to have positive effects on the mental state and socialization of patients in the long-term when it transforms into routine practice.

6 | IMPLICATIONS FOR NURSING

This study was carried out in a psychiatric ward, and the study sample consisted of patients who were in the acute stage of the disease. Before starting the music therapy, relief of acute symptoms of the disease was expected. For this reason, EMT is thought to be suitable for these patients. The implications of this study can also really only be applied to an inpatient psychiatric ward setting. In line with these results, music therapy interventions should be held in clinics to allow patients to manage their anxiety, and long-term intervention studies should be planned to evaluate the effect of music therapy intervention on trait anxiety level. It was also suggested that the intervention should have been implemented for a longer period of time. Music therapy as an addition to standard care helps people with psychiatric disorders to improve their psychological well-being and to reduce their acute disease symptoms if a sufficient number of music therapy sessions are provided.

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CONFLICT OF INTEREST

The author declares that there is no conflict of interest.

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