

Single Music Therapy Session Reduces Anxiety in Patients with Stroke

Tek Seans Müzik Terapisi İnmeli Hastalarda Anksiyeteyi Azaltır

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ABSTRACT

Objective: Music therapy is using music as a treatment method to provide mental, social and emotional wellness in patients with somatic and mental sickness. Music therapy alters emotional mood positively, decreases stress and pain perception and causes relaxation in patients with chronic diseases. The aim of this study was to investigate the effect of one session music therapy on anxiety in patients with stroke.

Methods: Thirty one patients with stroke and 53 healthy volunteers with a mean age of 59.9±11.8 and 56.5±12.8 years, respectively were included in the study. The level of anxiety was evaluated with State-Trait Anxiety Inventory (STAI). Music therapy was applied during 50 minutes for one session to the groups consisting of 6-8 individuals.

Results: No significant difference in anxiety levels was detected before music therapy between stroke patients and healthy individuals. After the therapy, significant improvements in anxiety in both groups were observed. No significant difference in differentiation ratio of anxiety levels was found between the groups.

Conclusion: Music therapy reduces anxiety in patients with stroke and healthy individuals. This is a safe and cheap method and can support participation of the patients in the rehabilitation program actively. (*J PMR Sci 2011;14:12-5*)

Keywords: Music therapy, stroke, anxiety, rehabilitation

ÖZET

Amaç: Müzik terapisi somatik ve mental bozukluğu olan hastalarda mental, sosyal ve emosyonel iyilik halini sağlamak için müziğin tedavi yöntemi olarak kullanılmasıdır. Müzik terapisi, kronik hastalığı olanlarda emosyonel duygu durumunu pozitif yönde değiştirir, stress ve ağrı algısını azaltır ve gevşeme sağlar. Bu çalışmanın amacı tek seans müzik terapisinin inmeli hastalarda anksiyete üzerine etkisini araştırmaktır.

Yöntemler: Sırasıyla ortalama yaşları 59,9±11,8 ve 56,5±12,8 yaş olan 31 inmeli hasta ve 53 sağlıklı gönüllü çalışmaya dahil edildi. Anksiyete düzeyi Durumluk-Sürekli Anksiyete Envanteri (DSAE) ile değerlendirildi. Müzik terapisi 6-8 kişiden oluşan gruplar halinde, 50 dakika süresince 1 seans olarak uygulandı.

Bulgular: Müzik terapisi öncesinde anksiyete düzeylerinde, inme hastaları ve sağlıklı bireyler arasında belirgin fark saptanmadı. Terapi sonrasında, her iki grupta da anksiyetede anlamlı iyileşme gözlemlendi. Anksiyete düzeylerinin değişim oranlarında gruplar arasında anlamlı fark bulunmadı.

Sonuç: Müzik terapisi inmeli hastalarda ve sağlıklı bireylerde anksiyeteyi azaltır. Bu, güvenli ve ucuz bir yöntemdir ve hastaların rehabilitasyon programına aktif olarak katılımını destekleyebilir. (*FTR Bil Der 2011;14:12-5*)

Anahtar kelimeler: Müzik terapi, inme, anksiyete, rehabilitasyon

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Introduction

Music is described as the composition of rhythm, grade, accordance and the expressive organized voices like melody. Listening to the music has been found to increase cognitive performance in healthy individuals. Music therapy can be defined as a treatment method to provide mental, social and emotional wellness in patients with somatic and mental sickness (1,2). In patients with chronic health conditions, it has been revealed that music therapy improves mood, decreases stress, depression, anxiety and perception of pain and relaxation (3-6). It is reported that listening to sedative music after an open-heart surgery decreases pain and anxiety (7). In the patients undergoing sigmoidoscopy, less level of anxiety and discomfort is reported in music group compared with control group (8). It is stated in several studies that music therapy is effective in patients with chronic pain, children with migraine and chronic tinnitus (2). Music therapy has also been found to repair emotional mood, decrease pain and anxiety in patients with burn injuries, cancer, myocardial infarct and patients addicted to mechanic ventilator (9-13).

Psychiatric disturbances are very common after stroke (14). High prevalence of anxiety has been reported in patients with stroke (15). These emotional changes may occur as a reaction of functional limitations and affect the recovery of the patient adversely. The efficacy of music therapy on mood and social functioning of the patients with stroke has been shown. This complementary therapy seems to facilitate the participation of the patients to the rehabilitation program (16). The aim of this study was to investigate the effect of the music therapy on anxiety in patients with stroke.

Materials and Methods

Participants

Thirty one patients with stroke who were in rehabilitation program and 53 healthy volunteers were included in the study. The exclusion criteria were; presence of hearing problem, illiteracy and impaired cognitive functions. Hearing problems of the patients were decided on the basis of complaints associated with hearing, understanding and responding questions during the interview.

Healthy volunteers were selected as control group from hospital employees that have no psychological or systemic disorders. Signed consent forms were obtained from all participants prior to inclusion in the study.

Assessments

Sociodemographic characteristics (age, sex, education, marital status, habitation) of all individuals and clinical properties (lesion side, Functional Independence Measurement (FIM) score) of the patient with stroke were recorded. The FIM scores of the patients with stroke are routinely recorded. The Turkish version of FIM was found to be reliable and valid (17,18).

The level of anxiety was evaluated with State-Trait Anxiety Inventory (STAI) that has been developed by Spielberger 1 hour

before and after one session music therapy (19). It is a self report instrument designed to measure both state (STAI-S) and trait anxiety (STAI-T) that consists of two scales and each scales include 20 items. It is an easy instrument to score and comment. The STAI-S assesses momentary emotional state characterized by strain, concern, nervousness, inner disquiet and fear of future occurrence. The STAI-T is organized to assess individuals' emotions in last 7 days. In this study the STAI-S was used that measures situation related anxiety. To learn whether the participants have anxiety before, we used the answers to the question "do you feel yourself more strained and angry compared to the past" in the above mentioned inventory. The STAI is scored on 4 levels of anxiety intensity from 1 'not at all' to 4 'very much' and with a total score between 20 and 80. A high total score of STAI-S indicates higher levels of anxiety. The validity and reliability of STAI for the Turkish population has been reported (20).

Procedure

The music therapy was applied for one session to the patient groups consisting of 6-8 individuals. The sessions

Table 1: The sociodemographic characteristics of the patients with stroke and healthy control group

	Patients with Stroke N=31 Mean±SD	Healthy Controls N=53 Mean±SD	p
Age (year)	59.9±11.8	56.5±12.8	0.23
Sex (Female/Male)	12/19	26/27	0.36
Education %			0.12
Literacy	2	5	
Elementary	22	29	
High school-University	6	19	
Marital status %			0.32
Single	0	1	
Married	30	50	
Other	1	2	
Habitation			0.7
In Ankara	21	38	
Ankara province	10	15	
Hemiplegia side			
Right	16		
Left	15		
FIM scores			
Total (18-126)	82.30±17.6		
Motor (13-91)	55.23±14.08		
Cognitive (5-35)	27.07±6.54		

SD: Standard deviation; FIM: Functional independence measurement

** p<0.01

* p<0.05

took 50 minutes including 35 minutes of classical music listening. The chosen music starts slowly and then the tempo rises. The therapy is completed with 5 minutes rhythmic respiratory exercises. During the last 15 minutes the patients requested to share their emotions and considerations with each other.

Statistical Analysis

Statistical analyses were performed by using SPSS-9.0 statistic package program. The mean (\pm standard deviation-SD) or median (minimum-maximum) values were given as descriptive statistics. The difference ratio of anxiety levels between pre- and post-therapy were calculated for two groups. The t test was used to compare the differentiation between the groups. $P < 0.05$ was accepted as statistically significant.

Results

Thirty one stroke patients, 19 male and 12 female with a mean age of 59.9 ± 11.8 years and 53 healthy individual, 27 male and 26 female with a mean age of 56.5 ± 12.8 years were included in the study. No significant differences were observed between the groups regarding age, gender, marital status and education ($p > 0.05$) (Table 1). Hemiplegic sides and FIM scores of the patients were given in Table 1.

Before therapy, no significant differences in anxiety levels were detected between the groups ($p = 0.079$). After the therapy, there were significant improvements in anxiety levels in both groups. No significant differences in differentiation ratio of anxiety levels were detected between the groups (Table 2).

Discussion

Music therapy is a well known method with its impacts of stimulating cognitive and memory functions, improving emotional disturbances, ameliorating the relationships between the patient and his/her family, therapy team and other individuals, improving ability of self care, decreasing pain perception and also providing relaxation. Therefore, the effects of decreasing pain in burn and cancer patients, reducing anxiety in patients with myocardial infarct and mechanic ventilation, during sigmoidoscopy and operations and affecting behaviour in autistic children have been reported in various studies (1,8-13, 21-23). Also presence of

musicians during blood tests was found to be effective in reducing distress and pain in children (24).

It is reported that listening to music decreases pain, blood pressure, heart and respiration rate, oxygen consumption and lactic acid level by inducing the release of endorphins and catecholamines (5,8,10,25-27). In the study of Stephano et al., decrease of morphine and IL-6 levels by music was reported. It is said that all of these changes allow the decrease of peripheral blood pressure (3). In accordance with these mentioned alterations, music therapy leads to reduce anxiety which is associated with increases in heart rate and blood pressure (28).

It is known that the prevalence of anxiety increases after stroke. The difficulties during daily activities affect the relations of patients with its family and surroundings and well being badly. The prevalence of moderate to intense anxiety was reported as 21.1%. The frequency of anxiety is higher if there are left hemisphere lesions and cognitive dysfunctions (14).

In this study, the impact of one session music therapy on anxiety in patients with stroke was investigated. The results show that listening to music gives rise to decrease anxiety. These results are consistent with the reports of Purdie et al. In that study, there were significant decreases in depression and anxiety levels of patients with stroke having 12 weeks sessions of music therapy compared to the control group (1). Similarly, in the study of Nayak et al., there were significant improvements in mood of the patients with acute traumatic brain injury and stroke after 10 sessions of music therapy (16). Guetin et al. also reported similar improvements on mood and anxiety in patients with traumatic brain injury with 20 sessions of music therapy (29). Listening to music may be effective on cognitive functions by supporting the regulation of cortical transmission of brain (30). Music affects limbic system of brain by reducing the release of some neurotransmitters. By the way, music increases the releasing of various encephalins and endorphins and then reduction of heart rate, blood pressure, respiration rate and relaxation occur (10). Besides, music therapy increases the communication of individuals with its family, therapy team and other individuals and makes them to be fond of company. This affects individuals participating actively in the rehabilitation program. Therefore, more benefiting from the rehabilitation program supports the independence of the patients in their daily activities and decreases their anxiety levels. The music is considered to reduce anxiety by keeping their minds away from

Table 2: The anxiety levels of the patients with stroke and healthy controls group at pre and posttreatment

	Anxiety levels at pretreatment Mean \pm SD	Anxiety levels at posttreatment Mean \pm SD	Differentiation of anxiety levels, % Mean \pm SD	p
Patients with Stroke	45.4 \pm 8.1	31.2 \pm 7.1	0.29 \pm 0.17	0.000**
Healthy Controls	48.9 \pm 9.2	32.4 \pm 8.4	0.31 \pm 0.19	0.000**

SD: Standard deviation

** $p < 0.01$

* $p < 0.05$

pain and focus on something more pleasant (7,8,24,31). Additionally, it is reported in various studies that the music chosen by the patients is more effective (8,10,26,27).

In some of the studies, music therapy was not applied to the control groups (1, 32). However, in our study music therapy was applied also to healthy control group and significant decreases in anxiety levels were detected. This shows that music therapy increases well being and improves mood in healthy individuals also. Labbe et al., reported similar decreases in negative emotional state after a stressful experience in 56 healthy college students with listening self selected or classical music (33).

The limitation of this study is that the music therapy is applied for 1 session. The music therapy is practiced for 10-15 sessions in similar studies (1,5,16). There is no doubt that studies with more sessions would be more successful, however; results of two studies in which music therapy was applied with brief durations like 1 or 2 sessions, are consistent with our study (10,34). Small sample size is another limitation of this study. Third limitation of this study is applying same music rather than self selected music. We performed rhythmic respiratory exercises and asked for sharing their emotions and considerations with each other at the end of the sessions. These interventions may have contributed to a decrease in anxiety. Finally, we didn't investigate the effects of disease duration, hemiplegic side, FIM scores, age and gender of the patients on anxiety levels. This is another limitation of this study.

Music therapy can reduce anxiety in patients with stroke. This is a safe and cheap method and doesn't require extra manpower, resources and specialized equipment. The improvement in anxiety of the patients supports the patients' participation to the rehabilitation program actively.

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