

The Effect of Music Therapy on the Anxiety Level of Children with Thalassemia Major under Blood Transfusion

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Abstract

Introduction: Children are the future makers of society and ensuring their growth and health is one of the main concerns. Children with thalassemia face a lot of stress throughout their lives. The aim of this study was to investigate the effect of music therapy on anxiety in children with thalassemia major under blood transfusion.

Methods: The present study was performed quasi-experimentally on 30 children with thalassemia major. The samples were randomly divided into two groups: music therapy and control group. Data collection tool was a demographic questionnaire and behavioral anxiety assessment that was completed before the intervention. Then the music was performed for 45 minutes for the intervention group through the MP3 device and the control group received routine care. At the end of the music therapy intervention, the anxiety level of the units in the two groups was assessed and recorded as in the pre-intervention stage.

findings:

The results showed that there was a statistically significant difference in the music therapy group compared to the control group before and after the intervention ($p < 0.001$). While in the control group there was no statistically significant difference ($p < 0.005$).

Conclusion: Performing music therapy interventions reduces anxiety in children with thalassemia major after receiving the interventions. Therefore, it is recommended that nurses use this model as a non-invasive, safe, complication-free and independent intervention.

Keywords: Music Therapy, Anxiety, Thalassemia Major, Blood Transfusion

INTRODUCTION

Thalassemia is a common form of inherited anemia in the world that occurs due to a defect in the synthesis of one of the globin chains in hemoglobin [1]. Thalassemia is one of the most common genetic diseases in Iran and the world. There are about 300 million thalassemia patients worldwide, 55 million of whom live in Southeast Asia [2]. The prevalence of this disease in Iran is about 3 to 4% of the total population. There are more than 20,000 thalassemia major patients in the country, and between 1,000 and 1,500 patients are added to this statistic each year [3]. Iran is one of the countries on the thalassemia belt in the world and the highest prevalence is observed in Mazandaran, Fars, and Khuzestan provinces, respectively [2]. 9.7% of the population of Sistan and Baluchestan carry a mild thalassemia gene, which is 6.2% in Sistan [4]. In thalassemia patients, the precious iron major is caused by increased absorption of iron from the gastrointestinal tract and frequent and chronic blood transfusions. Excess iron deposition in tissues can cause serious damage to vital organs, especially the heart, liver, and endocrine glands [5]. Today, with the help of existing therapies and the use of new drugs to improve iron overload control and timely initiation of treatment, the disease has become a chronic disease and life expectancy in these patients has increased. However, repeated blood transfusions and long-term use of iron-chelating drugs affect

other aspects of these patients' lives and significantly affect their general health, mental health, and quality of life, and their families. Data and causes problems in the country's health care system [6].

Children with thalassemia major experience a lot of stress and anxiety throughout their lives. Successive blood tests for fatigue, fatigue from successive blood transfusions, and subcutaneous injections of iron chelators, in addition to the body, irritate the souls of these patients. So much so that most of these patients also have mental disorders [7]. In his study, Brown described the fear and anxiety caused by injections in these children as the most difficult aspect of

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their illness ^[8].

Anxiety is an unpleasant feeling, anxiety or pressure that exists in various areas of human life and is a deterrent, destructive and reducing factor in patients' resistance to the treatment process, which increases the serious consequences of the disease. As a result, the severity of anxiety, which usually occurs during routine care interventions such as blood vessels and blood transfusions, should be minimized ^[9]. Physiological changes occur when a person is threatened with illness, trauma, or stress. The physiological response to the stressor in the cardiovascular system increases blood pressure, changes the number of pulses and respiration, increases oxygen saturation, and increases the risk of arrhythmias ^[10]. Therefore, it is very important to find an effective solution that is also cost-effective for clinical use ^[11].

Unlike pharmacological treatments, complementary therapies in addition to cost effective, have no serious side effects or drug interactions, they are easy to perform, and well accepted by the patient ^[12]. It is important to pay attention to additional therapies in the sense that they can be performed by nurses without the need for a doctor's prescription, as well as to pave the way for nurses to gain professional independence ^[13].

One of the non-pharmacological methods used to reduce anxiety is music therapy. Music therapy can be defined as the prescribed and organized use of music or its activities to change the maladaptive state in order to help clients achieve therapeutic goals. Music reduces anxiety by distracting and reducing a person's focus on anxious stimuli ^[14].

Numerous studies have examined the effect of music therapy on reducing anxiety levels and vital signs. Bradt and colleagues found that music can lower heart rate, deepen breathing, reduce anxiety and depression in patients ^[15]. MirbagherAjorpaz et al. reported in 2009 that listening to music before surgery can reduce anxiety and control vital signs ^[16]. Non-pharmacological interventions such as the use of therapeutic music to reduce the risk of anxiety in patients with thalassemia by physicians can be used to reduce the risk of anxiety in patients undergoing treatment with the possibility of further treatment. Due to the fact that therapeutic music has no side effects in these patients, in addition to this, it is easy, cheap, and safe and can be accepted by the client. Therefore, the present study was conducted with the aim of evaluating "the effect of music therapy method on the level of anxiety in children with thalassemia major under blood transfusion".

METHODOLOGY

This is a semi-experimental study with two groups: test and control. His research environment was the Center for Special Diseases of Zabol. Based on the study of Najafi ^[17], the sample size was selected to be 30 individuals. Based on this, 15 people in two control and test groups were evaluated

with a 95% significance test and 5% were selected and random sampling was selected to select patients. The variable assessment tool included a demographic information questionnaire containing information such as (age, gender, level of education, place of residence, number of injections per month), and a behavioral anxiety assessment questionnaire.

In order to determine the scientific validity and validity of the demographic information questionnaire, the content validation method was used in such a way that the initial questionnaire was designed and made available to several professors. Their corrective and suggested comments were applied.

Behavioral Anxiety Questionnaire is a standard scale that has been used many times in various studies and has had good validity and reliability ^[18]. Sadat Hosseini et al. confirmed the content validity of OSBD-R and also used simultaneous scoring by a researcher and a research colleague on ten offensive candidates to measure the reliability of the instrument ^[19]. This form has eight items and its overall score is between 0 and 4. In this way, in each item, if the observed behavior is observed, the score is 0.5 and if the behavior is not observed, the score is zero. The instrument observes eight behaviors, including crying, shouting, physical resistance, verbal resistance, asking for help from the mother, requesting information, predicting pain, and tapping hands and feet. The total score of one and less (without anxiety), 1.5 to 2 (mild anxiety), 2.5 to 3 (moderate anxiety), and 3.5 to 4 (severe anxiety) is considered ^[20].

The study was performed in such a way that in the pre-intervention stage, the demographic information questionnaire was completed by referring to the patient's file and also asking the parents. The behavioral anxiety questionnaire was also completed by the researcher by observing the children's behavior during a blood transfusion. Then in the music therapy group to intervene in Arendt Stein's soft and non-verbal music from Top-His zumEntspannen Vol. Headphones were used to play music. Headphones can reduce ambient noise. Therefore, the effect of the intervention is clearer. In order to prevent the transmission of infections caused by the use of headphones for patients, the headphones were disinfected after each use. This intervention was performed by an MP3 player for 45 minutes and immediately after the end of the intervention, the level of anxiety in both groups was examined and recorded as before the intervention ^[21]. The control group also received only routine care.

In the descriptive statistics section, the mean, standard deviation, and in the inferential statistics section, Shapirovik, Anova, and T-test were used. All statistical operations were performed with SPSS version 20 software. And P-value of less than 0.05 was considered significant.

FINDINGS

In this study, 30 children with thalassemia major who referred to the Center for Special Diseases of Zabol city were present as participants in the study, of which 9 (60%) boys and 6 (40%) Girl in the music therapy group, respectively. In the control group, 8 people (53.3%) were boys and 7 people (46.6%) were girls. In this study, by sex, both music therapy and control groups were male. In terms of the level of education, in the music therapy group, 12 people (80%) were in the primary school and 3 (20%) in the first secondary school, respectively, and in the control group, 14 people (93.3%) were in the primary school and 1 person (6.7%) in the first grade. Most of the units surveyed (80% <) were in the elementary school in terms of the education level. In terms of the number of blood transfusions per month, in the music therapy group, 7 people (46.7%) twice a month and 8 people (53.3%) three times a month and in the control group, 6 people (40%) twice a month and 9 people (60%) three times a month had blood transfusions. Most children with thalassemia major (50%) had blood transfusions three times a month.

Frequency of the residence of research units: 5 people (33.3%) in Zabol, 1 person (6.7%) in Zahak, 1 person (6.7%) in Nimroz, 1 person (6.7%) in Hamoon, and 7 people (46.7%) Hirmand were in the music therapy group. Also, 5 people (33.3%) in Zabol, 2 people (13.3%) in Zahak, 1 person (6.7%) in Nimroz, 1 person (6.7%) in Hamoon, 1 person (6.7%), and 6 people (40%) in Hirmand were in the control group. Most of the units surveyed (40%) were from Helmand city.

Table 1: Intermediate and Intermediate Framework of the Anxiety Scale of Children with Thalassemia Major in the Intervention and Control Groups, Before and After the Intervention

Anxiety	Average (95%)	Difference (95%)	Difference in average	Sig.
Music (Control group)	0.42 (0.1, 0.73) 2.83 (2.51, 3.14)	-	-	<0/001

According to Table 1, the Mann-Whitney test did not show a significant difference between the mean variables of behavior in the two music and control groups before the intervention (P <0.02). However, after the intervention, there was a significant statistical difference between the variables of behavior in the music and control groups (P <0.001). Also, Mann Whitney's test showed a significant difference between the two groups, music-control (P <0.001).

Table 2: Comparison and 95 confidence limits of the anxiety behavior scores of children with thalassemia major in the music and control groups, before and after the intervention

Anxiety	Before intervention		After intervention	
	Mean	Sig.	Mean	Sig.
Music (Control group)	3(2) 3(1)	0/421 Z=1/73	0(1) 3(1)	<0/001 Z=30/53
Music (Control group)	-	-	-	<0/001

According to Table 2, the Mann-Whitney test showed a statistically significant difference in the mean of anxiety behavior between music and control groups (p <0.001).

DISCUSSION

The findings show that therapeutic music has been shown to reduce anxiety in children with thalassemia major. Regarding the effect of music on the level of anxiety, the studies conducted by Pao-Yuan et al. [22] and the Salkhordeh and colleagues [23] also showed similar results. Music by increasing the threshold stress and eliminate negative emotions, adjust internal processes, create a state of relaxation, boost immunity, and help to psychosocial integrity and And psychological stability in reducing anxiety through music. Also Najafi [17] examined the effect of music on the anxiety of patients with esophageal echocardiography, which reduced the anxiety of patients and is consistent with the present study.

In another intervention study, Lin et al. (2018) conducted a systematic study entitled “Effect of music interventions on anxiety during labor” and showed that music significantly reduces anxiety and physiological indicators during labor, which is consistent with the results of the present study [24].

In an experimental study (2019) conducted by Packyanathan et al. entitled: “The effect of music therapy on anxiety in a patient undergoing dental surgery”, the results showed that music is a psychological method for controlling anxiety and hemodynamic indicators such as blood pressure and heart rate [25].

David Evan et al. (2012) conducted a systematic study on the impact of music as a nursing intervention on hospitalized patients. The results of the study showed that music had no effect on pain and anxiety in patients who had surgery for sigmoidoscopy or spinal anesthesia [26]. The reason for this study is different from the present study when pre-bronchoscopy, sigmoidoscopy, or spinal anesthesia were performed, while in the present study the intervention was performed simultaneously with blood transfusion.

Also, Seif et al. in 2016 conducted a study comparing the effect of Benson's muscle relaxation method and nature's sound on the anxiety of patients with heart failure. The results showed that the interventions did not affect the anxiety of patients with heart failure [27]. Perhaps, the reason for the inconsistency of this study is the anxiety caused by hospitalization and heart failure, which in the present study;

this anxiety is due to the procedure. Therefore, nurses are advised to use non-pharmacological methods to relieve anxiety, such as music therapy, along with other treatment methods, as a non-invasive, safe, and without complications and to improve the quality of hospital services and better care of their patients.

Research limitations

The study had its limitations; including: the study population was selected from a medical center that may not be generalizable to other patients. Therefore, it is recommended that future studies be performed on a larger sample of patients in multiple centers.

CONCLUSION

The use of music has the advantage of easy access, low cost, and non-invasive for patients compared with pharmacologic therapy, therefore, So it can be used in accelerate the improvement of the health of their patients. Therefore, the authorities in the hospital recommended other non-pharmacological methods to relieve anxiety, such as music therapy, along with other therapies to improve the quality of hospital services and better care of patients.

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