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The Effectiveness of Passive Music Therapy on Emotion Regulation and Self-Control Strategies of Children Hospitalized in Psychiatric Wards

Parisa Kouhnavard[1], Jamileh Mohtashami[2]*, Fatemeh Behzadi[3], Katayoon Razjooyan[4]

[1] Ms Student, Department of Nursing, TeMS.C., Islamic Azad University, Tehran, Iran.
*[2] Associate Professor, Department of Nursing, TeMS.C., Islamic Azad University, Tehran, Iran.**(Corresponding author)***
[3] Lecturer, Department of Nursing, TeMS.C., Islamic Azad University, Tehran, Iran.
[4] Associate Professor of Child and Adolescent Psychiatry, Department of Psychiatry,School of Medicine, Imam Hossein Hospital,Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Abstract

Background and Aim: Children hospitalized in psychiatric centers face emotional challenges for reasons such as pain, separation anxiety, and unfamiliar environments. Passive music therapy offers a non-invasive approach to address emotional challenges. This study aims to investigate the effectiveness of passive music therapy on emotion regulation and self-control strategies of children hospitalized in psychiatric wards.

Materials and Methods: This quasi-experimental study was conducted with a pre-test/post-test design at Imam Hossein hospital, Tehran, Iran in 2024. Through convenience sampling, 50 eligible children with psychiatric disorders were selected and randomly assigned to two groups of intervention and control. The intervention group received 8 sessions of passive music therapy. The Emotion Regulation Questionnaire for Children and Adolescents (ERC-CA) and the Brief Self Control Scale (BSCS) were used to collect the data. Data analysis was performed through SPSS software version 24.

Results: The mean score of emotion regulation strategies in the pre-test phase in the intervention and control groups was 21.28 and 19.40, respectively (p<.347), which changed to 26.44 and 19.20 after the intervention, respectively (p<.001). Also, in the pre-test phase, the mean score of self-control in the intervention and control groups was 163.48 and 169.72, respectively (p<.229), which changed to 124.12 and 171.16 in the post-test phase, respectively (p<.001). Results of the analysis of covariance indicated the effectiveness of passive music therapy in improving emotion regulation and self-control strategies of children (p<.005).

Conclusion: Passive music therapy has a positive effect on emotion regulation and self-control strategies of children hospitalized in psychiatric wards. Therefore, the use of this intervention in the aforementioned wards is recommended to improve the psychological state of hospitalized children.

Keywords: Emotion regulation, self-control, music therapy, children, psychiatry**.**

Corresponding author: Jamileh Mohtashami, ORCID ID: 0000-0001-6604-9702. Email: Beh@iau.ac.ir, **Received**: Febraury 2024, **Accepted**: May 2024, **ePublish**: Spring 2024. **Citation**: Kouhnavard P, Mohtashmi J, Behzadi F, Razjooyan K, The Effectiveness of Passive Music Therapy on Emotion Regulation and Self-Control Strategies of Children Hospitalized in Psychiatric Wards, Knowledge of Nursing Journal. 2024;2(1):23-38.

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Introduction

Children are the future of any society and a large share of the world's population, especially in developing countries [1]. The health status of children plays a major role in determining the health profile of society in the future, and therefore special attention should be paid to the prevention and treatment of their mental diseases and disorders [2]. Psychiatric disorder in childhood is a serious issue [3]. The most common psychiatric problems in childhood include anxiety disorders, attention-deficit/hyperactivity disorder (ADHD), depression, and developmental disorders [4]. According to statistics from the Scientific Association of Psychiatrists in Iran, 50.0% of mental disorders begin before the age of 14, and estimates show that about 22.0% of Iranian children and adolescents have psychiatric disorders. According to a report by the Ministry of Health and Medical Education (MOHME), the prevalence of psychiatric disorders among Iranian children and adolescents is about 22.0% to 23.0% [5]. Psychiatric disorders in children and adolescents are closely related to their physical and general health and that of their families [6]. Also, clinical experiences show that children hospitalized in psychiatric wards suffer from numerous problems in life that have been ignored [7]. Children in the early years of their lives are more vulnerable to crises caused by hospitalization due to limited adaptation mechanisms. This age group is susceptible to crises caused by disease and hospitalization [8]. How children react to these crises depends on their age, previous experience of disease or hospitalization, adaptive skills, severity of the disease, and existing support systems [9]. Emotion and emotion regulation are considered adaptive skills in children, and their effects on decision-making and other variables have attracted the attention of cognitive psychologists, because emotion regulation at any moment affects physiological responses, social interactions, and mental processes such as attention, decision-making, and memory. It also helps people choose adaptive responses to opportunities and problems in life [10]. Beginning in the preschool years, children acquire the ability to coordinate their emotions to receive better support from the environment [11]. Emotion regulation is correlated with factors such as functioning, including social competence, peer acceptance [12], and social communication [13].

Emotion regulation can be defined as the ability to initiate, maintain, and modulate emotional arousal to achieve individual goals, meanwhile it facilitates adaptation to the social environment [14]. On the other hand, one of the challenges facing the study of emotion regulation is finding a way to organize the infinite number of emotion regulation strategies [15]. In this regard, self-control is considered a major strategy, because it shows how each strategy can be distinguished from each other during the time when emotional responses are occurring [16]. The term self-control refers to the ability to control impulsive states, and an individual with self-control is the one who can manage his or her immediate impulses and emotions [17]. Self-control is the ability of an individual to recognize and use his/her talents to control feelings and emotions, behavior,

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and needs in relation to oneself and society [18]. Emotion regulation and self-control are closely related constructs, as both involve managing internal states and aligning behavior with long-term goals. Emotion regulation refers to adjusting one's emotional responses through strategies like cognitive reappraisal or suppression, while self-control entails overriding immediate urges, including emotional impulses, to prioritize desired outcomes. Thus, emotion regulation is often considered a specific form of self-control, with both sharing foundational mechanisms rooted in exerting deliberate control over thoughts, feelings, or actions [19].

Failure to address and treat a disorder in a child in a timely manner will cause anxiety, depression, and even motor and neurological complications. It also causes the child to suffer from developmental trauma or continuation of treatment for a long time [20]. On the other hand, psychiatric treatment services in medical facilities are very expensive and are not covered by insurance organizations. Also, the cost of hospitalization and healthcare services by specialists and medical staff in a psychiatric hospital or psychiatric ward for more than 57 days (chronic patients) cannot be reimbursed by insurance companies according to the insurance law in Iran. Therefore, paying attention to the financial and emotional-physical problems caused by this issue is very important. In this regard, clinical and interventional services can be an effective step in reducing these problems and improving the condition of patients [21].

One of the non-pharmacological interventions is music therapy, which can improve cognitive and motor abilities without any side effects [22]. Music therapy programs and methods are diverse and tailored to the needs of individuals. The main axes of music therapy programs include listening to soothing music, solo music play or in regular groups, and singing songs individually or in groups [23].

Listening to music makes people share a common experience. Also, an attention that arises from group listening does not arise in solitude. Listening to music is very effective in expressing children's emotions and projecting their imaginations. In addition, it increases children's attention to auditory stimuli through strengthening hearing [24]. Music therapy can affect mental health and stabilization of vital signs as well as on anxiety, stress, aggression, trauma, emotion regulation, creativity and relaxation. Passive music therapy is a type of music therapy where a patient listens to music selected by a music therapist to evoke physiological, psychological, and emotional effects, promoting relaxation, stress reduction, and improved mood. Unlike active music therapy, the patient in this method is a recipient of musical experience rather than an active participant in creating it [25].

Regarding passive music therapy, the greatest effect of the performance is in the direction of emotion arousal and mental reactions. Meanwhile in the active music therapy method, which is based on playing, singing and rhythmic movements [26], various emotional, mental, physical and motor reactions are stimulated and aroused [27].

Among the research conducted in this regard, we can mention the study of Akhshabi and Dortaj (2022) on identifying mediating

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variables in the relationship between music therapy and individual creativity [28]. Regarding the effects of music therapy on aggression, we can refer to the study of Zanganeh in 2022 [29], and regarding the effectiveness of music therapy on reducing feelings of loneliness and emotional inhibition, the study of Bahramifar (2022) can be mentioned [30]. In the study of Frank (2024), the effectiveness of music therapy in the treatment and improvement of mental disorders has been confirmed [31]. The study of Soltani Nejad et al. (2020) showed that musical-motor activities can be suggested as a suitable motor therapy intervention to improve the dexterity of the hands in children with autism [24]. Also, a systematic review and meta-analysis conducted by Li et al. (2019) discussed how music therapy is used in the treatment of diseases, while examining the impact of passive music therapy on general and specific aspects of human senses at different levels [32].

Music therapy may support emotion regulation and self-control by reducing negative emotions and increasing positive mood through its communicative and affective properties. It also provides a means to manage anxiety and increases emotional resilience. listening to pleasant music can positively alter emotional states, and music therapy offers a structured approach to strengthening emotional self-regulation skills, which contributes to resilience and overall well-being, something hospitalized children with psychiatric disorders desperately need [31,32]. So, given the limited research available regarding the effects of passive music therapy on children, this study was conducted to investigate the effect of passive music therapy on emotion regulation and self-control strategies of children hospitalized in psychiatric wards.

Methods

A quasi-experimental study with a pre-test and post-test design was conducted in 2024 on the children and adolescent psychiatry wards of Imam Hossein hospital in Tehran, Iran.

The statistical population in this study included all children hospitalized in psychiatric wards. By using the required values from a previous study [14], the sample size was estimated to be 22 people. However, considering a sample dropout rate of 10%, 25 people were considered as samples for each group. The inclusion criteria for the study included the child's and parents' willingness to participate in the study, no history of physical illness or acute conditions, the ability to participate in the music therapy program, and the age between 7 and 18 years. Unwillingness to continue cooperation during the intervention period and missing more than two sessions of passive music therapy were considered as exclusion criteria. Children meeting the inclusion criteria (50 out of 72 children who were initially assessed for eligibility) were assigned to two intervention and control groups using a random table of numbers. Before the intervention, questionnaires were completed for both the experimental and control groups. In this study, the passive music therapy intervention was conducted over eight sessions (each lasting about 45 minutes) in the evenings on alternate (odd-numbered) days of the week according to the protocol [33]. Participants listened to selected

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compositions by Arnd Stein (including peace of mind, light-hearted feelings, balanced mood, easy walk, sound of soul, emotionen, and kerzenschein), delivered through a personal speaker in a psychiatric therapy room, while seated comfortably. The sessions aimed to provide a structured, soothing auditory experience without active involvement of the participants, fostering relaxation and emotional regulation.

While passive music therapy was performed for the intervention group, the control group received only usual care. A post-test was carried out at the end of 8 music therapy sessions. The completion of the study instruments was done by a combination of clinical record review, observation, and interviews with parents and children by the principal investigator (P. K). The data collection method was the same for all participants. After the end of the study, to comply with ethical standards and with the consent of the children and parents, music therapy was also performed for the control group. Ethical considerations in this study was approved by the Ethics Committee of Islamic Azad University, Tehran Medical Sciences (IR.IAU.TMU.REC.1402.260).

A three-part questionnaire (demographic, emotion regulation, and self control) was used to collect data at two stages of pre-test and post-test. *The Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA)* was developed by Gross (2003). This 10-item questionnaire is used to assess two general emotion regulation strategies, namely reappraisal (6 items) and suppression (4 items). Participants respond to questions on a 7-point Likert scale from never (with a score of 1) to always with a score of [7]. The total score of this tool ranges from 10 to 70, and the classification of the results includes poor emotion regulation (score between 1 and 10), average (score between 10 and 40), and good (score above 40). In Gross's study, the internal correlation for reappraisal and suppression was found to be 0.79 and 0.73, respectively [34]. In regard to the Persian translation of this questionnaire, Lotfi et al. (2019) reported a Cronbach's alpha coefficient of 0.81 for the total instrument in a study conducted on 412 children and adolescents in Tehran, and this value was estimated to be 0.79 and 0.68 for reappraisal and suppression, respectively [35].

The self-control scale was developed by Kendall and Wilcox at the University of Minnesota in 1979. This questionnaire consists of 33 questions, 10 of which are related to self-control, 13 to impulsivity, and 10 to both (self-control and impulsivity). This scale was completed by the researcher and the observer of children's actions. The scale's questions are scored directly and inversely on a seven-point Likert scale, in a way that a score of 1 in the positive questions indicates maximum self-control and a score of 7 indicates minimum self-control. In the reverse questions, the range of scores is from 33 to 231, and the closer the child's score is to 231, the less self-control he/she has. The reliability coefficient of this scale was calculated using the Cronbach's alpha method (0.98) and the test-retest method (0.84), [36]. In Iran, the content validity of the Persian version of this scale has been approved by Behpajouh et al. (2007). The reliability of this scale was also calculated by them to be 0.98 using the Cronbach's alpha

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method on a sample of 100 students in Tehran [37].

In this study, the reliability of the instruments was measured through internal consistency (Cronbach's α) by completing them among 20 participants, and the Cronbach's α coefficient for the emotional regulation questionnaire and the self-control scale was found to be 0.81 and 0.79, respectively. Participants in this part (investigation of instrument reliability) were excluded from the study.

SPSS software version 24 was used to analyze the data. The Kolmogorov-Smirnov test was used to investigate the normality of data distribution and its results indicated a normal distribution of the research variables. For this reason, the parametric tests were used in tis study. The Chi square test (Fisher's exact test if needed) was used to evaluate differences between groups regarding qualitative variables. An independent t-test was also used to examine the differences in mean of quantitative variables between groups and the mean of study variables in the two intervention and control groups in the pre-test and post-test stages. Also, paired t-test was used to compare the mean study variables in each of the two intervention and control groups in the pre-test and post-test stages. Analysis of covariance (ANCOVA) test was used to examine the effectiveness of passive music therapy on emotion regulation and self-control strategies. The significance level in all tests was considered to be 0.05.

Results

Overall, 50 children participated in the study of whom, all 50 (100 %) received their allocated treatment and completed post-test (Figure 1). The results of the Kolmogorov-Smirnov test (Table 1) indicates a normal distribution of the research variables.

Table 1: The Kolmogorov-Smirnov test results to examine the distribution of research variables

Variable	Group	Stage	*p*-value
Emotion regulation	Control	Pre-test	.200
		Post-test	.008
	Intervention	Pre-test	.200
		Post-test	.065
Self-control	Control	Pre-test	.083
		Post-test	.185
	Intervention	Pre-test	.200
		Post-test	.179

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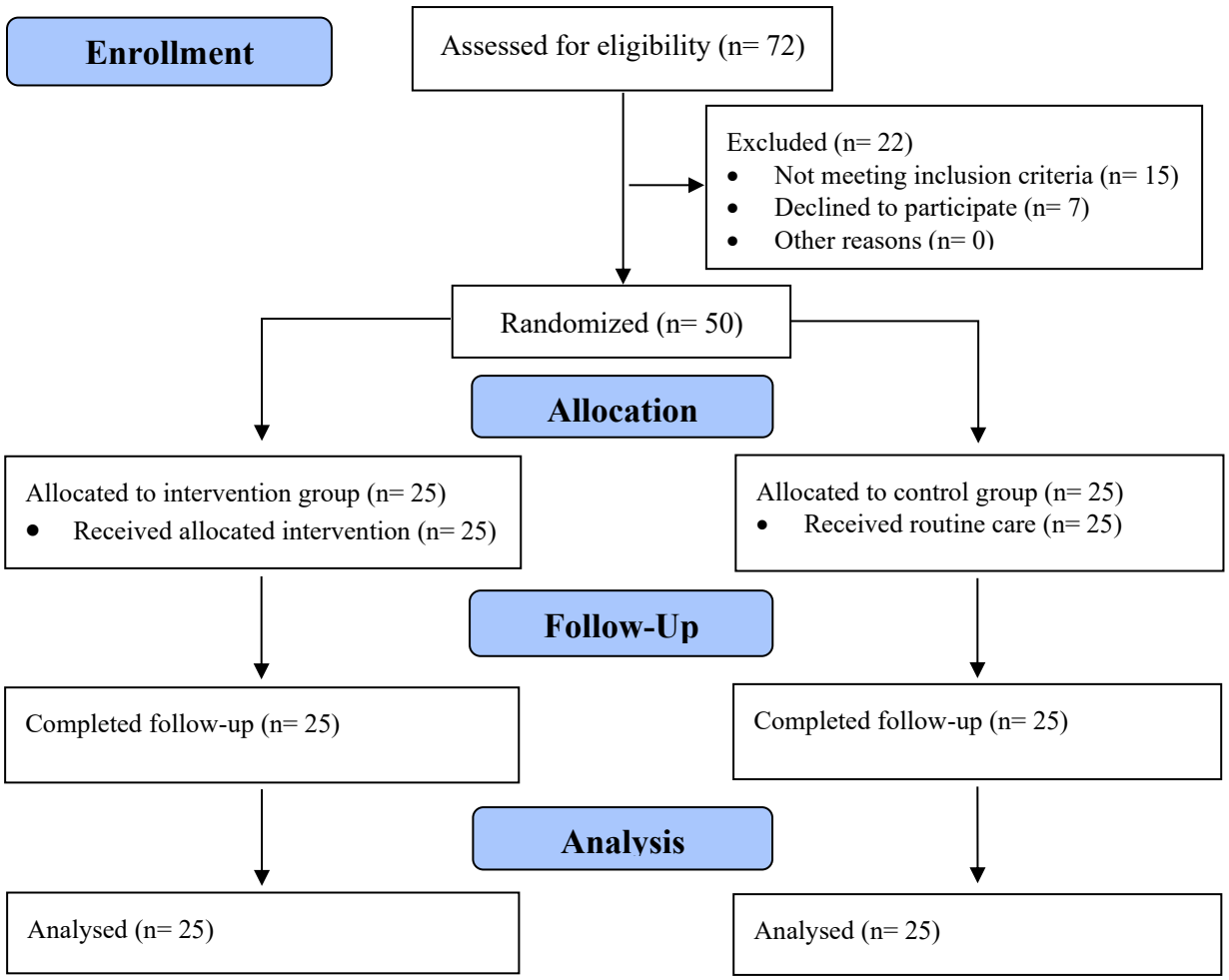


Figure 1. CONSORT flowchart showing the study profile and patient disposition

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The minimum and maximum ages of the participants were 8 and 18 years, respectively, and the mean age of all participants was estimated to be 14.38 years with a standard deviation of 2.32. The descriptive indicators related to qualitative demographic variables are shown in Table 2.

Table 2: Descriptives of demographic variables among participants

Variable		Control		Intervention		*p*-value
		F	%	F	%	
Gender	Female	13	52	15	60	.388
	Male	12	48	10	40	
Having an underlying disease	Yes	11	44	10	40	.500
	No	14	56	15	60	
Father's education level	≤ Diploma	23	92	21	84	.111
	Bs	2	8	0	0	
	≥ MSc	0	0	4	16	
Mother's education level	≤ Diploma	23	92	18	72	.068
	Bs	1	4	6	24	
	≥ MSc	1	4	1	4	
Father's job	Unemployed	7	28	5	20	.335
	Clerk	2	8	3	12	
	Daily rate worker	4	16	3	12	
	Self-employed	11	44	13	52	
	Retired	1	4	1	4	
Mother's job	House keeper	23	92	17	68	.155
	Clerk	0	0	5	20	
	Daily rate worker	1	4	0	0	
	Self-employed	0	0	3	12	
	Retired	1	4	0	0	

Regarding the status of psychiatric disorders, the findings showed that out of the 50 children studied, 1 person had depressive disorder, 31 had bipolar disorder, 1 had an eating disorder, 2 had intellectual disability, 5 had substance abuse, 12 had oppositional defiant disorder, 28 had hyperactivity, 8 had autism, and 4 had obsessive-compulsive disorder. Given that some participants had more than one of the aforementioned disorders at the same time, the frequency presented in relation to the disorders has been reported to exceed the number of participants (n= 50). There were no significant differences between the two groups in terms of demographic variables and types of psychiatric disorders (p>.05), Therefore, the two groups were homogeneous in terms of demographic variables.

The research findings including the mean and standard deviation of participants' scores on emotion regulation and self-control variables are presented by group before and after the intervention, as shown in Tables 3.

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Table 3: Descriptives of emotion regulation and self-control among participants

Variable	Group	Stage	Dimension	Mean	S.D
Emotion regulation	Control	Pre-test	Reappraisal	12.32	4.07
			Suppression	7.08	2.39
			Total	*19.40*	*5.36*
		Post-test	Reappraisal	12.08	3.76
			Suppression	7.12	2.22
			Total	*19.20*	*5.84*
	Intervention	Pre-test	Reappraisal	13.92	3.87
			Suppression	7.36	3.63
			Total	*21.28*	*5.56*
		Post-test	Reappraisal	17.72	4.63
			Suppression	8.72	4.77
			Total	*26.44*	*7.63*
Self-control	Control	Pre-test	Self-control	52.56	6.35
			Impulsivity	63.40	7.37
			Self-control, impulsivity	53.76	7.49
			Total	*169.72*	*19.60*
		Post-test	Self-control	52.71	6.21
			Impulsivity	63.38	6.95
			Self-control- impulsivity	55.07	7.34
			Total	*171.16*	*20.02*
	Intervention	Pre-test	Self-control	47.12	7.54
			Impulsivity	63.84	14.70
			Self-control, impulsivity	52.52	7.77
			Total	*163.48*	*26.34*
		Pre-test	Self-control	37.68	7.65
			Impulsivity	48.56	9.06
			Self-control, impulsivity	37.88	7.65
			Total	*124.12*	*22.40*

According to the information presented in table 3, the mean score of emotion regulation in the intervention and control groups in both stages were at moderate level (score between 10 to 40).

The findings from the independent t-test showed that in the pre-test phase, there was no significant difference between the intervention and control groups in terms of the mean score of emotion regulation (p=.229) and the two groups were homogeneous in that regard. However, after the intervention, a significant difference was observed between the two groups in terms of the mean score of emotion regulation (p<.001). Also, in the pre-test phase, there was no significant difference between the intervention and control groups in terms of the mean score of self-control (p=.347) and the two groups were homogeneous in that regard. However, after the intervention, a significant difference was observed between the two groups in terms of the mean score of self-control strategies (p<.001).

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In the next step, the mean scores of emotion regulation and self-control in each of the two intervention and control groups at pre-test and post-test stages were compared using a paired t-test (Table 4).

Table 4: Comparing the mean scores of studied variables among groups

Variable	Group	Stage	Mean	t	*p*-value
Emotion regulation	Control	Pre-test	19.40	0.490	.629
		Post-test	19.20		
	Intervention	Pre-test	21.28	-3.329	*.003*
		Post-test	26.44		
Self-control	Control	Pre-test	169.72	-1.520	.141
		Post-test	171.16		
	Intervention	Pre-test	163.48	7.973	*<.001*
		Post-test	124.12		

Based on the findings presented in table 4, the mean score of emotional regulation in the intervention group increased significantly after the intervention compared to the pre-test stage (p=.003), while such a significant change was not observed in the control group (p=.629). Also, the mean score of self-control in the intervention group decreased significantly after the intervention compared to the pre-test stage (p<.001), while such a significant change was not observed in the control group (p=.141).

To determine the type and extent of impact of passive music therapy on emotion regulation and self-control, a univariate covariance test was used. First, the assumptions of the analysis of covariance, including the homogeneity of variances, were examined using the Levene's test. The findings obtained in relation to the emotion regulation and self-control variables showed that the p of the Levene's test was greater than 0.05 and no significant difference was observed in that regard. As a result, the variances were homogeneous and the data from the table of between-subjects effects test was used. The findings from the analysis of covariance showed that passive music therapy had a positive effect on the emotion regulation strategies of children hospitalized in psychiatric wards. The partial eta squared of the group was 0.324, indicating the impact extent of passive music therapy on the emotion regulation. Also, passive music therapy had a positive effect on the self-control strategies of children hospitalized in psychiatric wards. The partial eta squared of the group was 0.250, indicating the effect of passive music therapy on self-control.

Discussion

In this study, the effect of passive music therapy on emotional regulation and self-control was investigated. Descriptive statistics showed that the mean score of emotion regulation of the control group in the pre-test was 19.40 and in the post-test was 19.20. Also, the mean score of emotion regulation of the intervention group in the pre-test was 21.28, while it changed to 26.44 in the post-test.

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The results of statistical test showed that passive music therapy had a positive effect on the emotion regulation of children hospitalized in psychiatric wards. The partial eta squared was 0.324, indicating the impact extent of passive music therapy on the emotion regulation of children hospitalized in psychiatric wards. In this regard, and in line with previous research such as the studies of Frank (2024) and Eshaghi Farahmand et al. (2020), these results are consistent with other studies on the use of music therapy and emotion regulation [31, 38]. Previous studies have shown that music can improve the quality of life, enhance emotion regulation and act as an effective factor in reducing stress and anxiety. International studies such as those by Porter et al. (2017) and Randall et al. (2022) have shown that music is effective as a tool for regulating emotions and improving problem solving ability in connection with behavioral and social problems [25,39]. This is in line with the results of present study. This alignment with other studies adds to the validity and generalizability of our findings, and shows that music can be used as an effective and practical intervention in the field of children's mental health.

Overall, the findings of present study confirm that passive music therapy cannot only be used as an effective method for emotion regulation, but also is a cost-effective and easy-to-use intervention [40]. These findings generally confirm that passive music therapy can strengthen children's emotion regulation strategies, and can be considered as one of the effective and practical tools in psychological interventions for hospitalized children. This may be important because this intervention is not only non-invasive, but also does not require special skills or active participation of children. Music therapy has also been recognized as an effective method for children who have limited ability to express their emotions [25,41].

Understanding the importance of passive music therapy and its impact on emotion regulation among hospitalized children is particularly important due to the limitations of inpatient environment. Hospitalized children cannot easily regulate and manage their emotions due to limitations in communication and daily activities, as well as experiencing stress and anxiety caused by the hospital environment and condition. Passive music therapy, as a non-invasive and sound-based intervention, can help these children better cope with their negative feelings and emotions through a soothing emotional experience and even, in some cases, emotional discharge [42].

The findings suggest that music can play the role of “emotional reservoir”, where the child can reflect on their feelings and regulate their emotions without the need for deliberate effort or active participation. The long-term effects of music therapy on children’s lives, especially for children in inpatient and outpatient settings, may extend beyond improving emotion regulation. By creating positive and enjoyable experiences in the inpatient setting, music therapy can help reduce negative experiences and frustration in these children. This, in turn, can lead to increased morale, improved outlook on treatment, and even improved overall treatment outcomes in these children [43].

The findings of present study also showed that the mean score of self-control in the

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control group in the pre-test was 171.16, and in the post-test it changed to 169.72. The mean score of self-control in the intervention group in the pre-test was 163.48 and changed to 124.12 in the post-test. The test results showed that passive music therapy had a positive effect on the self-control of children hospitalized in psychiatric wards.

According to the descriptive indicators, the mean score of self-control in the intervention group decreased after the intervention, indicating that passive music therapy had a positive effect on the self-control of children. The partial eta squared of the group was found to be 0.250, indicating impact of passive music therapy on the self-control of children hospitalized in psychiatric wards. Some related studies, including the study of Soltani Nejad et al. (2020), have also shown that music can have an effect on improving children's cognitive and motor skills [24]. Improving these skills can have positive effects on self-control, as these abilities help children to have more control over their reactions in difficult situations.

Also, the consistency of our results with the findings of Mesghali (2021) study that found music therapy reduces impulsivity and improves self-control [27], indicates that music therapy can act as a deterrent for impulsive reactions and unpredictable behaviors, while helping children to have appropriate and controlled behaviors when faced with provocative situations. Music as an influential factor in self-control (as shown in previous studies) can be included as a practical and effective method in children's treatment and health care. In this regard, the research of Khanjani and Khaknezhad (2016) has shown that music can help regulate children's behavior and self-control [44]. This in line with previous findings emphasizes that music therapy can be used as a practical and non-invasive tool to strengthen self-control skills and help children to show more measured and controlled behaviors in difficult and stressful situations.

As a result, passive music therapy is not only considered an effective psychological intervention, but also, due to its low cost and ease of implementation in inpatient settings, it can be used as an effective tool in increasing self-control and improving children's behavior regulation [40]. These results highlight the importance of non-invasive methods, such as music therapy, in improving self-control skills in hospitalized children. Children hospitalized in psychiatric centers, due to the specific conditions of treatment environment, need strategies that help them manage their emotions and behaviors. Passive music therapy, by creating a calm and non-threatening atmosphere, can act as an effective tool in regulating emotions and strengthening self-control in these children [42].

Music therapy can also be considered as a practical and low-cost tool to enhance self-control skills in therapeutic settings. These findings suggest that music as a calming tool, while affecting children psychologically, can help them control their impulsive behaviors and display behaviors appropriate to the situation [45]. The positive effects of music therapy on the mental health and self-control of hospitalized children are also important from a psychological perspective. In fact, this intervention helps to reduce anxiety and tension caused by the hospitalization

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environment, and considering that music is a non-verbal experience, children will be able to experience their emotions without the need to express themselves verbally. This unique feature of music therapy plays an effective role in regulating their emotions and behaviors, especially in therapeutic and hospital environments where children may not be able to easily express their emotions due to communication limitations [43]. Analysis of the indirect effects of music on self-control also shows that this method can help hospitalized children to develop more adaptive and predictable behaviors by developing self-control skills [40, 45].

This study represents one of the first quasi-experimental investigations into the effect of passive music therapy on emotion regulation and self-control of children hospitalized in psychiatric wards. It also offers valuable insights into a non-invasive and low-cost intervention that can be feasibly implemented in clinical settings. The use of validated instruments, randomized group allocation, and ethical follow-up with the control group, strengthen the methodological rigor and ethical integrity of present study. However, several limitations should be acknowledged. First, the relatively small sample size and single-center design of this study may limit the generalizability of its findings to broader populations or different cultural contexts. Second, the reliance on self-report measures and observer ratings introduces potential bias, particularly in a psychiatric population where emotional expression may be constrained. Third, the short duration of the intervention and absence of long-term follow-up restrict conclusions about sustained effects of the intervention over time. Additionally, the lack of blinding and potential influence of environmental factors within the hospital setting may have affected the outcomes. Future studies with larger and more diverse samples, multi-center designs, and longitudinal follow-up are recommended to validate and expand upon these promising results.

Conclusion

Considering the findings of this study, we can argue that passive music therapy has a positive effect on emotion regulation and self-control of children hospitalized in psychiatric wards. Considering that this intervention is non-invasive and no specific side effects have been reported in relation to it, and it can also be implemented by members of the care team, the use of this intervention in psychiatric wards to improve the psychological status of hospitalized children is highly recommended.

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Conflict of interest

The authors declare that they have no conflicts of interest in conducting and publishing the findings of this study.

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