

**ISSN (print): 2588-5731**

**Research Paper**

***Exploring the Effect of Art Therapy based on Painting on the Anxiety of Fourth-Grade Elementary School Students***

**Abbas Gholtash<sup>1</sup>**

*Received Date: 11/08/2023*

*Accepted Date: 14/12/2023*

**Pp: 1-10**

***Abstract***

**Background:** Stress is a common phenomenon in most children. The educational system should try to reduce children's stress with new and artistic methods. This study was aimed to investigate the effectiveness of art therapy based on painting on the level of anxiety of primary school students in Malayer city.

**Methods:** This study was quasi-experimental research and pre-test and post-test design. The research population includes all male primary school students in the fourth grade of Malayer city who were studying in the academic year 2022-2023. For the purpose of screening, the variable of anxiety was used as screening criteria, and 30 students were selected by purposeful sampling method. Those who had more anxiety were selected and were randomly assigned to two experimental and control groups. The data collection tool was Spence's Children's Anxiety Questionnaire (1988). The covariance test was used for data analysis.

**Results:** The results showed that art therapy based on painting can lead to the reduction of anxiety in fourth-grade male primary school students in Malayer city.

**Conclusion:** Using art therapy based on painting can be used as a teaching-learning method in children's classrooms and become the basis for solving many problems caused by children's stress. Therefore, this method should be introduced in the curriculum guides of the childhood period and teachers should be advised to understand it and use it when appropriate.

***Key Words:*** Art Therapy, Behavior and Behavior Mechanisms, Anxiety, Elementary School, Students

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<sup>1</sup>- Associate Professor, Department of Educational Sciences, Marvdasht Branch, Islamic Azad University, Marvdasht, Iran. (Corresponding Author: [Abbas.Gholtash@iau.ac.ir](mailto:Abbas.Gholtash@iau.ac.ir) ).

### ***Introduction***

Anxiety is very common in children (Anxiety and Depression Association of America, 2014). 10% of children and 20% of adolescents suffer from an anxiety disorder (Essau., Conradt., Sasagawa & Ollendick, 2012). The National Institute of Mental Health estimates the prevalence of severe anxiety disorder between the ages of 13 and 18 to be 25.1 percent and the lifetime prevalence to be 5.9 percent (National Institute of Mental Health, 2016). The presence of anxiety disorders during childhood and adolescence increases the likelihood of developing anxiety disorders in early adulthood (Essau., Lewnsohn., XinLim and Rohde, 2018).

A child who experiences anxiety experiences physical symptoms such as increased heartbeat, shallow and rapid breathing, sweating, and stomach and abdominal discomfort. The presence of these symptoms causes the anxiety to intensify and worsen, and most likely he wants to avoid the situation that causes this unpleasant situation in any way possible, in the short term this behavior works. But when a child repeatedly behaves like this to avoid facing a situation that creates fear and threat, he will never learn the ways of compromise and adaptation (Hill, Waite, and Creswell, 2016). Many of these children suffer from adverse effects on school performance and interactions with peers in their daily lives (Simon and Bogels, 2009). Anxious children are also at risk for suicide, poor academic performance, and increased risk of depression, drug addiction, and lack of academic progress in youth (Hill, Waite, and Creswell, 2016).

Considering the high and stable prevalence of childhood anxiety disorders and their relationship with social and academic performance deficits, timely and effective prevention and intervention programs are very important (Legerstee, Garnefski, Jellesma, Verhulst & Utens, 2010). Several options are available for the treatment of anxiety, including psychotherapy, drug therapy, and combined methods. However, there is uncertainty regarding the relative superiority of efficacy and safety of all treatments for children's anxiety disorders. Meanwhile, the potential advantage of psychotherapy is related to its safety and non-invasiveness (James, Soler & Weatherall, 2009). The use of psychotherapy in the treatment of anxiety and depression disorders in children and adolescents is an effective method (James, James, Cowdrey, Soler & Choke, 2013; Reynolds, Ison, Austin & Hooper, 2012). However, its disadvantages are that its access is limited (White side, Deacon, Beniton & Stewart, 2016), on the other hand, children and adolescents are less likely to seek treatment and do not have the necessary motivation to cooperate.

Art therapy, as a non-pharmacological medical complementary and alternative therapy, has been used as one of medical interventions with good clinical effects on mental disorders. However, systematically reviewed in detail in clinical situations is lacking. Art therapy, is defined by the British Association of Art Therapists as: “a form of psychotherapy that uses art media as its primary mode of expression and communication. Clients referred to art therapists are not required to have experience or skills in the arts. The art therapist’s primary concern is not to make an esthetic or diagnostic assessment of the client’s image. (Hu et al,2021). According to Springham and Huet (2018) art therapy has the capacity to regulate the biological-psychological condition of children in such a way that they show consistent behavior in relation to

their surroundings and avoid irregular behaviors. According to Bruce and Hackett (2021), art therapy causes children's psychodynamics, as it has a significant effect on strengthening their minds and adapts children to the environment in which they live. According to Shavkatovna (2022) art therapy leads to the re-formation of personality elements such that children's behavior is reconstructed based on new mental characteristics and their attitude towards the world around them is improved. In such a case, with the harmonious development of children's personality dimensions, their expression develops to the extent that art therapy allows them to express their imagination freely. According to Durrani (2021), art therapy leads to an emotional relationship through the senses, which both meets the child's needs beyond behavioral corrections and develops children's capacities for further learning activities. According to Andrew Marshall-Tierney (2021) Therapist art making helped reduce anxiety by increasing trust. The ambiguity of the artwork challenged black and white ways of relating to self and others. Therapist art making functioned as a non-verbal form of psychoeducation.

Therefore, the use of art as a type of psychotherapy, which is attractive to them and attracts their cooperation, and indirectly brings them into the cycle of treatment, can be of special importance. Parents also welcome their children to undergo treatment in an attractive environment full of artistic and creative activities.

On the other hand, art provides the possibility for the child to be safely and symbolically exposed to stimuli that are perceived as threats (Malchiodi, 2015). In addition, the artistic process is a relaxing and soothing experience and can reduce arousal, anxiety, and depression (Jiang, Rickson & Jiang, 2016; Malchidi, 2015). During childhood and up to the border of adolescence, most children regularly draw and in this way establish a relationship with reality. They prefer to express their feelings and thoughts through drawing instead of words (Alti, Turner, and Sari, 2017). It seems that it is possible to take advantage of this inherent desire and use artistic concepts as known and purposeful tools to achieve specific goals. On the other hand, children and adolescents rarely seek treatment themselves and do not have the necessary motivation for treatment. In fact, the use of art is one of the few ways by which children's resistance can be overcome and thus create an attractive, fun, and loving environment for treatment (Oster and Kron, 2004).

Researches related to this topic have also been done. Moharram Khani et al. (2023) conducted a study titled "Evaluating the effect of mandala painting on the anxiety of 9 to 14-year-old children with cancer, and the results showed that the average score of anxiety in children with cancer before the intervention, after the intervention and one month after The intervention was respectively ( $84.20 \pm 10.26$ ), ( $57.52 \pm 15.65$ ) and ( $56.62 \pm 16.52$ ). Holding mandala sessions reduced the anxiety of children with cancer after the intervention and one month later. Therefore, mandala painting is recommended as a complementary non-pharmacological treatment to reduce children's anxiety. There was a statistically significant relationship between the mean scores of the time series (P-value 0.001). Bell, Mc Hall, Elliott, and Heaton (2022) conducted a study on the effect of art therapy on anxiety and hope in gynecological cancer patients undergoing chemotherapy, and the results showed that art-based interventions facilitated by a board-certified art therapist, has a positive effect

on two areas in the quality of life of female cancer patients who undergo chemotherapy. Patients' attitude, that is, the willingness to accept art therapy, may affect the outcome of interventions. Abbing and et al (2018) conducted a research entitled the effectiveness of art therapy for anxiety: a systematic review of randomized and non-randomized controlled trials, and the results showed that art therapy had a small effect on reducing students' anxiety. In their conclusion, they stated that the effectiveness of art therapy on Anxiety has rarely been studied, so no strong conclusions can be drawn. This emphasizes the need for high-quality trials to study the effectiveness of art therapy on anxiety. Alti, Turner and Sari (2017) conducted a research titled the effect of drawing and writing on the anxiety of children under cancer treatment aged 9 to 16 years. The results showed that painting, writing and storytelling are techniques that can reduce the anxiety level of children undergoing cancer treatment in the hospital. Yugurlo et al. (2016) conducted a research titled art therapy intervention for post-traumatic stress, depression and anxiety in Syrian refugee children. They first investigated the prevalence of psychological symptoms in 64 Syrian refugee children and then investigated the effect of art therapy intervention on post-traumatic stress, depression and anxiety in children. After evaluating the symptoms, trauma, depression and psychological distress of children had decreased significantly.

As far as the researcher has searched, there has been no research that has investigated the effect of art therapy on anxiety reduction in the target population, so the results of this research can be useful for education agents.

Therefore, according to what has been mentioned, in this research, the researcher seeks to answer the question of whether art therapy based on painting has an effect on reducing the anxiety of fourth-grade male primary school students in Malayer city or not.

### ***Research question***

In this research, the following hypotheses have been proposed and examined:  
Art therapy based on painting has an effect on the level of anxiety of fourth-grade male primary school students.  
Art therapy based on painting has an effect on the anxiety dimensions of fourth-grade male primary school students

### ***Methodology***

The current research was a semi-experimental study of pre-test-posttest type with an experimental group and a control group, the design of which is as follows. Art therapy based on painting was held in school in 12 sessions, each session lasting 90 minutes on Tuesday evenings and Thursday mornings.

Table (1) two-group design with an experimental group and a control group

GROUPS	RANDOM REPLACEMENT	PRE-TEST	INDEPENDENT VARIABLE	POST-TEST
experiment group	R	O	x	O
control group	R	O	---	O

The research population included all male primary school students of the fourth grade of Malayer city in the academic year of 2022-2023. To select the sample, people who met the criteria for entering the research entered the screening stage. In order to screen, first, the anxiety test was performed on about 150 male students of the fourth grade of Malayer city, and 30 students were selected by purposeful sampling method from among those whose anxiety score was higher than the average, and they were randomly divided into two experimental groups and were controlled. The tool for data collection was the Spence Anxiety Questionnaire. The children's anxiety questionnaire was created in 1988 and has two versions for children and parents. The subscales of this questionnaire (in the child form) include: panic and fear of open spaces including questions 13-21-28-30-32-34-36-37-39 and separation anxiety including questions 5-8 - 12 - 15 - 16 - 44 and fear of physical harm including questions 2 - 18 - 23 - 25 - 33 and social fear (phobia) including questions 6 - 7 - 9 - 10 - 29 - 35 and obsession - Practical includes questions 14-19-27-40-41-42 and general anxiety with questions 1-3-4-20-22-24.

The children's version has 45 phrases, 38 of which are scored and 6 of which are positive question phrases including questions 11-17-26-31-38-43 are not counted (Spence, 1997).

It also had an open question that the child answered descriptively. This scale was provided for the ages of 8 to 15 years. The method of scoring the answers was never = 0, sometimes = 1, often = 2, and always = 3, and the maximum possible score was 114. The convergent validity of the Spence children's anxiety scale with the revised children's anxiety scale has a significant correlation ( $r = 0.71$ ). The differential validity of this scale with children's depression questionnaire was low. The internal consistency validity of the scale was also obtained with Cronbach's alpha of 0.92.

The data obtained from this research were analyzed using SPSS software (version 16) and descriptive statistics method including mean, frequency distribution, standard deviation, and inferential statistics including covariance analysis

### **Research Findings**

Before testing the hypotheses, the research variables were checked for normality. For this purpose, the K-S test is a suitable test.

Table 2 shows the results of the Kolmogorov-Smirnov test to check the normality of the data.

Table (2) Kolmogorov-Smirnov test

	<i>group</i>	<i>Variable name</i>	<i>Significance level</i>	<i>statistics</i>
pre-exam	Control	anxiety	0,001	1/236
	the experiment	anxiety	0,098	1/147
After the test	Control	anxiety	0,102	1/620
	the experiment	anxiety	0,471	1/721

The results of the Kolmogorov-Smirnov test in Table 2 show that the significance level for the research variable is greater than 0.05, which means that the distribution in the statistical sample is normal ( $P < 0.05$ ). As a result, the null hypothesis is confirmed.

hypothesis 1: Art therapy based on painting has an effect on the level of anxiety of fourth-grade male primary school students.

Table (3) results of covariance test for hypothesis 1

<i>Variable</i>	<i>Source of changes</i>	<i>sum of squares</i>	<i>Degree of freedom</i>	<i>mean of squares</i>	<i>F</i>	<i>Significance level</i>	<i>Eta squared</i>
<b>anxiety</b>	Pre-test	234/792	1	234/792	99/445	0,000	0,118
	group	46/482	1	46/482	42/579	0,000	0,667
	error	38/587	27	0,956	---	---	---
	Total	218,072	30	---	---	---	---

The results of the above table show the evaluation of the covariance test. The results show that after adjusting the pre-test scores, the difference between the two experimental and control groups was significant at the 0.000 level ( $P < 0.05$ ,  $F_{1,27} = 31.468$ ), so it can be concluded that art therapy based on painting has improved the anxiety of students in the experimental group compared to the control group in the post-test phase. The effect of this therapeutic intervention is 0.53, which means 53% of the variance of the remaining total scores is related to the effect of the therapeutic intervention. Therefore, hypothesis 1 is confirmed.

Hypothesis 2: Art therapy based on painting has an effect on the dimensions of anxiety (physical, worry, sensitivity) of male primary school students in the fourth grade of Malayer city.

Table (4) Covariance test results for hypothesis 2

<i>Variable</i>	<i>Source of changes</i>	<i>sum of squares</i>	<i>Degree of freedom</i>	<i>mean of squares</i>	<i>F</i>	<i>Significance level</i>	<i>Eta squared</i>
anxiety	Pre-test	۲۳۴/۷۹۲	۱	۲۳۴/۷۹۲	۹۹/۴۴۵	۰,۰۰۰	۰,۱۱۸
	group	۴۶/۴۸۲	۱	۴۶/۴۸۲	۴۲/۵۷۹	۰,۰۰۰	۰,۶۶۷
	error	۳۸/۵۸۷	۲۷	۰,۹۵۶	---	---	---
	Total	۲۱۵۰۷۲	۳۰	---	---	---	---

The results of the above table show the evaluation of the covariance test. The results show that after adjusting the pre-test scores, the difference between the two experimental and control groups was significant at the 0.000 level ( $P < 0.05$ ,  $F_{1,27} = 42.579$ ), so it can be concluded that art therapy based on painting It has improved the anxiety of students in the experimental group compared to the control group in the post-test phase. The effect of this treatment intervention is 0.66, which means 66% of the variance of the remaining total scores is related to the effect of the treatment intervention. Therefore, hypothesis 2 is also confirmed.

### *Discussion and conclusion*

In the interpretation of the result of this hypothesis, it can be said that drawing therapy is one of the effective interventions that gives the child the opportunity to express his emotions without embarrassment and in a safe environment; In addition to this, painting provides these children with the opportunity to gain success and enjoyable experiences, explore, imagine, design, invent and communicate; Moharram Khani and et al (2023), Bell and colleagues (2022), Ebbing and et al (2018) and Alti, Turner and Sari (2017) also showed in their research that art therapy has an effect on the anxiety of children with cancer. From this point of view, the findings of this research are in line with the results of these researches. The goal of painting therapy is to provide an opportunity for people to freely express their feelings, emotions, needs and even knowledge through colors and lines; Painting expresses people's feelings and personality and fosters their creativity. Many children who visit treatment centers are involved in a range of emotional problems. These children are usually unable to talk about their concerns and do not answer direct questions due to the fact that they have experienced traumatic experiences. In addition, in review research, the effects of various types of art therapy on anxiety and cognitive problems were shown, which means that art therapy is an effective treatment method in relation to children who, for any reason, such as; Fear, embarrassment, or lack of language skills are not able to speak and express their feelings. Therefore, drawing and visualizing are a reflection of the child's inner thoughts and dissatisfactions with the surrounding environment, which can be used by the child to convey these feelings and project them safely. On the other hand, art therapy can improve emotional perception and anger management through learning correct coping responses, problem-solving techniques and skills, increasing the sense of belonging, and providing non-invasive ways to communicate complex emotions in children.

Based on the findings of this research, it can be said that for many students, the potential of a great opportunity to paint during the day can be a powerful stimulus to actively search for painting subjects outside of the home, and this will be a very good help to reduce anxiety. In addition, the emphasis on familiarity with the painting process and serious pursuit, especially on learning different techniques and applied techniques, expands one's flexibility. Therefore, it is suggested that students should be given opportunities to paint, learn to paint, and find painting subjects in their surroundings. Parents, guardians, and counselors in schools should use art therapy to reduce students' anxiety.

#### **Disclosure statement:**

No potential conflict of interest was reported by the author.

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