

# Impact of painting therapy on aggression and anxiety of children with cancer

## Original Article

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## Abstract:

**Background:** Cancer is a major source of distress such as aggression and anxiety. It becomes a traumatic and painful for both children and their family. Therefore, the aim of this study was to investigate the influence of painting therapy on the reduction of aggression and anxiety among hospitalized children with cancer (8-12 aged).

**Methods:** The study was semi-experimental with pretest-posttest and treatment group. Thirty hospitalized children with cancer (8-12 aged), who obtained one score above the mean scores in Spence Children's Anxiety Scale and Children's Inventory of Anger (ChIA) were selected from Shafa Hospital in Ahvaz. Then, they were randomly divided into the control and experimental groups. The intervention group received techniques of painting therapy for 11 treatment sessions (60 minutes for each session, twice per week). Data were analyzed using covariance.

**Results:** The results indicated that there was a significant difference between the pretest and post-test scores in aggression ( $\pm$ SD: 60.9 $\pm$ 13.56, 40.90 $\pm$ 8.52; F=118.79, p<0.001) and anxiety ( $\pm$ SD:15.75  $\pm$  2.97, 10.60 $\pm$ 2.92; F=118.79, p<0.001) in experimental group.

**Conclusions:** Findings indicated that painting therapy impacted on the reduction of the aggression and anxiety in children with cancer. Therefore, it would be considered as the therapeutic interventions for releasing the negative emotion in children with cancer.

**Keywords:** Art therapy, Aggression, Anxiety, Child, Cancer

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## Introduction:

Cancer is the second most common cause of death among children aged 1 to 14 years in the United States and the fourth most common cause of death in the industrialized world <sup>[1]</sup>. According to world health organization, the worldwide incidence of childhood cancer is 175,000 per year in children less than 15 years and more than 60% of children cannot be treated <sup>[2]</sup>. The survival rate for childhood cancers is approximately 80% due to the advances in treatment <sup>[3]</sup>. The causes of childhood cancers include familial and genetic factors (5-15%), known environmental exposures and exogenous factors (<5-10%), and some of them are unknown (75-90%) <sup>[4, 5]</sup>. The growing concerns about cancer in children lead to the major focus of the pediatric oncology researches on childhood cancer over the past years <sup>[6]</sup>. The diagnosis of childhood cancer causes considerable psychological stress in diverse aspects such as physical effects of treatment (feeling sick from treatments), normal and social activity (missing school, disrupted peer relationships), uncertainty about the disease and its treatment (not understanding medical professionals), and fear of death <sup>[7]</sup>. In other words, childhood cancer can influence on mental health and life quality for both children and their family <sup>[8]</sup>.

The statistical reports showed 50-80% of patients with cancer simultaneously suffered from psychological disorders. The recent literature indicated the different distress responses of children including externalizing and internalizing problems which occur in younger and older children, respectively [9].

Anxiety is a common emotional distress among patients with cancer particularly near the time of diagnosis and early in the treatment process [10]. Anxiety influences on diverse aspects of children with cancer during extended treatment, recovery, and survivorship. Anxiety occurs in different forms such as situational anxiety, generalized anxiety, and post-traumatic stress [11]. In addition, anxiety is associated with aggression in children. Gisela et al. (2010) indicated that more childhood cancer survivors (especially women) had increased distress for Global Symptom Index (14.4%), interpersonal sensitivity (16.5%), depression (13.4%), and aggression (16.9%) [12]. Durualp et al. (2012) compared the level of anger between children with cancer and healthy children; they observed that anger and impulsivity are significantly more in the children with cancer [13].

Therefore, the researchers sought to find the treatment to improve the ability of children to cope with the stress of cancer. The previous studies evaluated the medical and psychological interventions like cognitive-behavioral intervention [14], play therapy [15] and art therapy [16]. Art therapy, particularly painting therapy, has been considered as one of the effective treatment for children over recent years. Painting referred to the spontaneous drawing provides opportunities to communication and nonverbal expression [17]. Painting therapy can serve as a tool to express the emotion, thoughts, feelings and conflict. Children reflect a part of them and express their experience through drawing [18].

In other words, drawing provides opportunities for children who do not have the ability to express their thoughts in words to represent naturally themselves [13]. The anxiety symptom of children emerges in metaphorical symbols such as play and painting [19]. According to Katza et al. painting can be served as a language to express emotion like aggressiveness since children have a limited vocabulary to express their emotional experience [20]. A child is drawing acts as a window for ill children's emotional states and coping styles, and cognitive and developmental maturity [13]. How children are adapting to their illness and the strengths and limitations of their personalities can often emerge in their drawings [17]. Drawing is a more

valuable tool to diagnose and treat the maladaptive behavior (e.g. aggressive) in children than mental behaviors and disorder in adults [21]. Several studies indicated the efficacy of art therapy on improving children's performance [22], creativity, self-awareness, and relationship with peers among hospitalized children with kidney disorders [23]. Moreover, Khadar et al. showed that art therapy based on painting therapy reduced the defiant disorder symptoms in children [24]. Recently, the screening and diagnosis of anxiety and mood disorders were completed in patients with cancer in early stages, then, it should be concentrated on appropriate protocol psychotherapy [25].

It is necessary to design the interventional program related to the lack of comprehensive therapy and the prevalence of mental disorder in children with cancer. Therefore, the aim of the current study was to investigate the effectiveness of painting therapy on the reduction of aggressiveness and anxiety among children with cancer.

## Methods:

The present study is semi-experimental research with pretest-posttest and treatment group. The sample group composed all children with Leukemia cancer in Shafa Hospital (n=100) in Ahvaz, 2015. Firstly, 100 children with cancer completed the Spence Children's Anxiety Scale and Children's Inventory of Anger (ChIA). Then, 30 participants were randomly divided into two groups; the control (15 subjects) and experimental groups (15 subjects).

The exclusion criteria were severe mental and/or physical disability, contribution to another psychological intervention and withdrawing from more than one intervention session. Written and oral information about the program was given to the children and their parents. The researcher emphasized the principle of confidentiality of information. Informed consent was obtained before the training started and they were informed that they could interrupt their participation at any point without citing a reason for their decision. Finally, 30 children with Leukemia cancer (8 to 12 years old), who had one score above the mean scores of anxiety and anger were entered into the intervention (n=15) and control group (n=15).

The intervention group received painting therapy (table 1) in 11 sessions (60 minutes for each session, twice per week), but the control group did not receive any intervention. To minimize the confounding effect

of environmental difference on intervention and control groups, a research coordinator instructed the groups and the sessions at the same place. The trainer had master in clinical psychology and worked as an art therapist in Shafa hospital at that time. One week, after the intervention sessions, the post-test was given to the intervention and control groups. Since the children correctly and independently responded to the questionnaires, all questions were loudly read and described by researcher. To follow up, 1 month after completion of the study, both groups completed the questionnaire.

The Children's Inventory of Anger (ChIA) was developed by Nelson et al. (2000) [26] to assess anger provocation and intensity from the child's perspective 6 to 16 years. It contains 39 items rated on a 4-point Likert scale from 1 (I do not care) to 4 (I cannot stand that). This questionnaire has four subscales; frustration, physical aggression, peer relationship, and authority relations. The minimum and maximum scores are 39 and 156, respectively. As Flanagan and Allen (2005) noted, internal consistency reliability for a sample of 1604 youth, are 0.95 for the total scale, and 0.85–0.86 for each of the four subscales, which are impressive values. Test–retest reliability is 0.75 for the total scale, and ranging from 0.65 to 0.75 for the subscales [27]. Kimiaei et al. (2011) [28] carried out the test on 1604 students, Test–retest reliability was 0.65-0.75, reliability for the total scale was 0.92 and internal consistency reliability was 0.85-0.86,

The Spence Children's Anxiety Scale was designed by Spence et al. (2003) [29] to assess the children anxiety symptom. This inventory is a 45-item self-report measure rated on a 4-point Likert scale from zero (never) to three (always). The test-retest reliability

reported by Spence was 0.60, and inter-rater reliability was 0.92 [29]. Mosavi et al. conducted a study on children, in which the questionnaire was translated into Persian and its inter-rater reliability was 0.89 and Cronbach's Alpha was considered 0.85, too [30].

The collected data were analyzed using SPSS-19. Data were compared between these two groups using MNCOVA.

## Results:

The results indicated the demographic characteristics of all children participated in this study. The mean age of children was 10.3 years old. Totally, sixteen and fourteen of them were females (53.34%) and males (46.66%) in each group, respectively. Mean scores of pre-test and post-test in two groups are shown in table 2. In addition, the Leven test was used to verify the equal variances (homogeneity of variance) and the normal distribution.

The results of Leven's test suggested that the assumption of homogeneity of variances was verified; therefore, the variance of intervention and control group was not significant in aggressiveness ( $F= 2.36$ ,  $\text{sig}= 0.13$ ) and anxiety ( $F=3.10$ ,  $\text{sig}= 0.07$ ). Table 3 shows the results of multiple covariance analyses comparing the mean of these two groups by eliminating the effectiveness of pre-test. Accordingly, there was a significant difference between the scores of pretest and posttest in anger ( $F= 118.79$ ,  $p= 0.001$ , Eta Squared=0.77) and anxiety ( $F=41.03$ ,  $p= 0.001$ , Eta Squared= 0.61). Moreover, there was a significant difference between the scores of pretest and follow test in anger ( $F=15.92$ ,  $p= 0.001$ , Eta Squared=0.81) and anxiety ( $F=226.29$ ,  $p= 0.001$ , Eta Squared= 0.86).

**Table -1: Structure of painting therapy**

sessions	Sessions objectives
<b>First session</b>	Initial introduction, declare short objective of sessions
<b>Second session</b>	Collaborative painting among therapist and child: make a closer contact with children
<b>Third session</b>	Technique of children's scribble: reduce resistance and anxiety in children
<b>Forth session</b>	Photo collage: Increase cooperation during the treatment process
<b>Fifth session</b>	Drawing with free issue: emotional discharge
<b>Sixth session</b>	Drawing the atmosphere of hospital and the inpatient portion: express anxiety of children related to atmosphere hospital
<b>Seventh session</b>	Drawing family as animal: evaluate the attitude and relationship of children with family
<b>Eighth session</b>	Anger collage: express children's anger and aggressiveness
<b>Ninth session</b>	Drawing with free issue: express emotion
<b>Tenth session</b>	Evaluate the effectiveness of drawing on aggressiveness and anxiety
<b>Eleventh session</b>	Follow up the session

**Table 2. Mean scores of pre-test and post-test in two groups of participants**

Variable	Groups	Pre-test M(SD)	Post-test M(SD)
Anger	experimental	15.75(2.97)	10.60(2.92)
	control	14.90(2.50)	14.85(1.80)
Anxiety	experimental	60.90(13.56)	40.90(8.52)
	control	57.50(11)	57.20(15.18)

**Table 3- Results of Multiple covariance analysis of life satisfaction and meaning of life between two groups**

Variable	Group	<sup>b</sup> SS	<sup>b</sup> Df	<sup>b</sup> MS	F	P value	Eta Square
anger	test <sub>1</sub>	324.30	1	3243.30	118.79	0.001	0.77
	test <sub>2</sub>	10325.05	1	1032.05	15.92	0.001	0.81
anxiety	test <sub>1</sub>	147.30	1	147.30	41.03	0.001	0.61
	test <sub>2</sub>	874.59	1	874.590	226.29	0.001	0.86

<sup>b</sup>SD, Standard Deviation; df, degree of freedom; SS, Sum of Square; MS, Means of Square; test<sub>1</sub>: Posttest; test<sub>2</sub>: Follow up test

## Discussion:

The present study investigated the effectiveness of painting therapy on anger and anxiety of hospitalized children with cancer. The results showed that painting therapy decreased the level of anger among children with cancer. This finding is consistent with the results of previous studies on this subject. Mousavi et al. found that art therapy has influence on reducing the anger in aggressiveness children [31]. Also, the prior studies have indicated that painting therapy decreases the level of aggressiveness among children with mental disorder [21,32]. Additionally, in a practice-based research, Smeijsters et al. illustrated the influence of diverse art therapies on anger, aggressive behavior, and stress among children [33]. Karami et al. indicated that painting was effective on reducing aggressive behaviors of female students with dyslexia [34].

Painting therapy is an invaluable tool to communicate with children who cannot express their feelings with any reasons such as; fear, humiliation and so on [35]. Drawing permits the children to convey their thoughts and dissatisfaction with environment related to the hospital, and they express their emotion in safe atmosphere. In other words, drawing improves anger management and emotional perception with learning the accurate coping response, the techniques and problem-solving skills, and provides the non-invasive way to communicate in a complex emotional situation [36].

In addition, the research finding showed that the painting therapy decreased the level of anxiety among hospitalized children with cancer. This finding is

consistent with previous studies which have suggested that the painting therapy and music therapy could be useful to reduce the anxiety and pain of sickness [37, 38, 39]. Moghadam Zade et al. utilized art as a projective activity including beautiful elements which cause the release of fears, feelings and emotions. They showed music and painting reduced the anxiety in children [40]. Jangi et al. showed that art therapy based on painting therapy was an effective way to reduce anxiety of children with stuttering [41].

Attari et al. found the efficiency of teaching painting on anxiety reduction among the elementary-school boys [42]. In addition, Rezaee et al. found that painting therapy reduced the externalizing behavior like anxiety and anger in elementary-school children [43]. Studies in all types of art therapy suggest that art elements can be applied for both of evaluation and treatment of patients with anxiety and aggression disorders because it can help them to have better perception of themselves, change the mental image and to integrate their ego [40, 43, 44].

The studies indicated that art therapy impacted on other factors such as self-esteem in children [45], interpersonal skills (anger management) [46] and happiness in preschool children [47]. It seems that these factors are related to the reduction of the anxiety and anger in children. It means that certain of painting techniques has assisted children to express their feeling about illness and to release their tension, inner conflict and stress and consequently this process leads to express emotion with non-verbal tool (drawing). Obviously, this research faced some limitations. First, the results of the present study should be warily

generalized since the sample size was small and the second one was related to the type of sickness and period of medical treatment. Because children with leukemia cancer need special medical, nursing, and mental caring, absent and delay of participants in painting therapy sessions were the key problems which took place in these during the study.

Painting therapy plays a vital role to reduce anxiety and anger. It leads to express negative emotion in non-verbal form. This process is an invaluable tool for children with cancer to convey their feelings and thoughts related to harsh treatment. It is recommended that the diverse kinds of art therapy should apply to decrease the level of negative emotion in patients (children and adults) with cancer.

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