Original Article

The Effect of Painting on Depression in Children with Cancer Undergoing Chemotherapy

Abstract

Background: Psychological and social health of children with cancer may be severely affected by the disease and its treatment. Successive drawing by children can help them over time in terms of psychological and social adaptation. This study aimed to investigate the effects of drawing on depression in children with cancer undergoing chemotherapy. **Materials and Methods:** This quasi-experimental study was conducted on 7–12-year-old children with cancer undergoing chemotherapy. After completing Maria Kovacs' Children's Depression Inventory (CDI), 65 children who had obtained scores higher than 12 were chosen as study participants and were randomly divided into two experimental and control groups. The children in the experimental group were engaged in open painting sessions for 6 weeks. After the intervention, the CDI was completed again in both the groups. The obtained data were analyzed using descriptive and inferential statistical methods, such as independent *t*-test, paired *t*-test, and Chi-square and Mann–Whitney tests. **Results:** There was a significant difference between the children's depression scores before and after the intervention in both the two groups ($P < 0.001$). **Conclusions:** The results showed that painting was effective in reducing depression in children with cancer undergoing chemotherapy. Therefore, painting can be used as an easy, cheap, and effective intervention by nurses to help children with cancer undergoing chemotherapy.

Keywords: *Chemotherapy, children with cancer, depression, painting*

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Introduction

Cancer refers to a variety of diseases resulting from uncontrolled proliferation of cells in the body.[1] This disease has become a health issue around the world and fighting against it has become the systems' priority because of the growing number of cases of this disease across the world. Children's age group is one of the subgroups of cancer patients. Research showed that cancer incidence in Iranian children was 1.4%.[2]

With recent advances in the treatment of childhood cancers, many more of these patients will survive,[3] however, its course of treatment is still a very stressful experience.[4] Chemical treatment is used for cancer therapy which aims to destroy the cancerous cells. The procedure is associated with various side effects that reduce the quality of life (QOL) of patients.[5]

Children with cancer are not only at a risk of adverse events resulting from medical procedures but also severe affects on their social and mental health as a result of cancer and its treatment.[6] Depression is one of the most common psychiatric disorders associated with cancer in children and adolescents.[7] Studies showed that the incidence of depression was higher among children with cancer than among healthy children. This psychological disorder can interfere with the disease process and its improvement.[8] Depression is a risk factor for shorter survival in cancer patients and an important factor in the rejection of the treatment.[9]

There are various methods for the treatment of psychological problems caused by cancer. Art therapy is a way of treating psychological problems.[10] Art therapy is a creative method to promote physical, mental, and emotional health in individuals of all ages.[11] Art therapy is a broad field and painting is one of its main branches.[12] Drawing and painting are a wonderful way to express the untold, the children can express their inner feelings and it creates an emotional discharge, thus helping to treat the children's problems.[13] The results of the study by Zarepour *et al*. showed that group play therapy was effective on

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depression in children with cancer.[14] Attari *et al*. reported the impact of teaching painting on the reduction of anxiety in elementary school boys.[15] The results of another study showed that painting reduced anxiety and increased QOL in children with asthma.[16]

Cancer and its treatment often impose a heavy burden of emotional and psychological consequences on children with cancer and depression is a common problem among these children. One of the important tasks of oncology nurses is the prevention and control and treatment of cancer-related complications. No studies have been reported on this topic. Therefore, this study was designed to determine the effect of painting as an easy and inexpensive intervention that is of interest to children undergoing depression in hospitalized children with cancer.

Materials and Methods

This was a quasi-experimental study with two groups (intervention and control) and a pre-intervention and post-intervention design. After explaining the purpose of the research and obtaining informed consents from the parents and children, the study was conducted at Seyed-al-Shohada Hospital in Isfahan, Iran, from 19/08/2015 to 01/11/2015. It should be noted that researchers at all stages of the research paid careful attention to ethical principles.

In this study, the participants were selected through convenient sampling method from among all children diagnosed with cancer and undergoing chemotherapy. Then, using random allocation (by draw) they were assigned to two groups. The study was conducted among 65 children (32 in the intervention group and 33 in the control group). The inclusion criteria for this study included children in the age group of 7 to 12 years (due to the ability to paint and respond to the questionnaire), having one type of cancer, being at least in the third stage of chemotherapy, having the ability to paint, lack of physical and mental retardation, lack of physical problems and anxiety disorders, lack of use of psychotropic drugs or antidepressants, and obtaining a minimum score of 12 in the Children's Depression Inventory (CDI). The exclusion criteria included unwillingness of the children and their families to continue to cooperate, children's lack of ability to cooperate while studying, absence from 2 or more sessions of painting, facing acute stress such as divorce of parents, death of parents or siblings, and change in living location.

The instrument used in this study was Maria Kovacs' CDI which is the most common self-report instrument for ages of 7–17 years. It included 27 items; each item was scored on a 3-point scale ranging from 0 to 2. Higher scores indicated increased severity of depression. Total scores of CDI ranged from 0 to 54. The cut-off point of this questionnaire in clinical situations was 12 to 13.[17] This questionnaire was a standardized and validated instrument, and in most studies its reliability has been reported to be 0.81 and its validity to be 0.83.[18]

Before starting the study, both groups completed the questionnaire verbally. Then, the children who were in the intervention group participated in 6 group sessions of open watercolor painting lasting 25 min[10] in the painting room. After 25 min, all children completed their paintings and explained their paintings to the researchers and other children. All the provided care in the control group was the same as the intervention group with the difference that the painting sessions were not held in this group, however, the children sometimes painted in their rooms.

Immediately after the intervention, the questionnaires were completed again in both groups. Data were analyzed using descriptive statistics such as frequency distribution tables, dispersion, and mean and standard deviation, as well as inferential statistics including independent *t*-test, paired *t*-test, Chi-square test, and Mann–Whitney test in the Statistical Package for the Social Sciences software (version 16, SPSS Inc., Chicago, IL, USA). *P* values of less than 0.05 were considered significant.

Ethical considerations

Researchers at all stages of the research paid careful attention to ethical principles. All the parents and children were given verbal and written information about the purpose and importance of the study. Written, informed consent was obtained from the parents of children before they completed the first questionnaire and they were free to withdraw from the study at any time.

Results

Findings of the present study showed that the mean demographic characteristics of the participants such as age ($P = 0.220$), gender ($P = 0.88$), cancer type ($P = 0.120$), courses of chemotherapy ($P = 0.490$), living location ($P = 0.560$), and parent's education level ($P = 0.690$) no significant difference between the intervention and control groups. Paired *t*-test showed that, in the intervention group, mean depression score after the intervention was significantly lower than that before the intervention ($P < 0.001$). Paired *t*-test showed that, in the control group, mean depression score after painting was significantly higher than that before painting ($P < 0.001$). Independent *t*-test showed that, before the intervention, the mean depression score of children was not significantly different between the two groups ($P = 0.910$). However, independent *t*-test showed that, after the intervention, the mean score of depression in children in the intervention group was significantly lower than the control group ($P < 0.001$). In addition, independent *t*-test showed that there was a significant difference between the mean changes in depression score between the two groups ($P < 0.001$) [Table 1].

Table 1: Mean score of depression in children before and after intervention in both intervention and control groups

	Before intervention		After intervention		Test		Changes	
	Mean	SD	Mean	SD	Paired *t*-test	*P*	Mean	SD
Control group	20.2	4.9	9.9	3.1	15.25	<0.001	−10.2	3.8
Intervention group	20.03	4.4	25.7	3.3	13.44	<0.001	5.6	2.4
Independent *t*-test	0.11		19.65		Independent *t*-test		20.19	
P	0.91		<0.001		*P*		<0.001	

SD: Standard deviation

Discussion

The results showed that, after the intervention, the mean depression score was significantly lower in the intervention group compared to the control group. In the intervention group, depression symptoms in children significantly decreased after the implementation of painting sessions. Nevertheless, in the control group, the severity of depression had increased in children during their hospitalization. Many studies have reported the positive role of painting in health promotion of children. The study by Faramarzi and Moradi showed that art therapy through painting was effective in reducing despair and loneliness in deaf boys.[13] The findings of Beebe *et al*. showed that art therapy, including painting, reduced anxiety and increased QOL in children with asthma.[16] In addition, Karami *et al*. reported the effectiveness of art therapy on reducing aggressive behavior in female students with dyslexia.[11]

The results of this study were consistent with that of the study by Barsela *et al*.[19] They studied the implementation of art therapy sessions (watercolor painting) in 25–72-year-old patients with cancer undergoing chemotherapy. The study results showed that the anxiety and depression levels in patients of the experimental group significantly reduced after the intervention. It should be noted that, in the present study, the open painting sessions were implemented for hospitalized children of 7 to 12 years of age with cancer and undergoing chemotherapy, and this research methodology was different from the mentioned study.[19]

The findings of the present study were also consistent with that of the study by Zareepor *et al*.[14] The results indicated that play therapy was effective in reducing depression in children with cancer ($P = 0.002$) and playing could be used as an effective intervention by healthcare workers to help children diagnosed with cancer.[14] However, in the present study, painting as a method of play therapy was used for children with cancer undergoing chemotherapy.

One of the problems of children with cancer is depression, and if appropriate measures are taken to reduce their psychological problems, they will adapt more easily to their circumstances. Considering the results of this study and previous researches, it was suggested that nurses appropriately implement artistic activities including painting. By implementing this method, they can help the children respond better to treatment through removing emotional barriers and improving their adaptive skills.

Among the limitations of this study was the children's lack of enthusiasm to participate in painting sessions due to the course of the disease and side effects of chemotherapy. The nurses had to give prizes and encourage the children to attend the painting sessions.

Conclusion

The results of this study showed that painting, as an art therapy method, reduced depression in children diagnosed with cancer and undergoing chemotherapy. Thus, nurses can use painting to reduce the psychological problems of hospitalized children. The reduction of depression among children with cancer undergoing chemotherapy through this method could be an effective step toward enhancing the QOL of children.

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Conflicts of interest

There are no conflicts of interest.

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