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Effectiveness of art therapy on level of stress and anxiety among oncology patients

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Abstract
Background: Diagnosing with cancer is very upsetting and difficult situation for the young children and their families. Stress and anxiety is common in cancer and it occurs at various points throughout the disease.
Objectives
1. To assess the existing level of stress and anxiety among the children of experimental group and control group.
2. To evaluate effectiveness of art therapy on stress and anxiety among children on experimental group.
3. To compare the effectiveness of art therapy on the level of stress and anxiety among children of experimental group and control group.
4. To associate pre-test level of stress and anxiety with selected demographic variables among children with cancer.
Methods: The quantitative study was conducted at cancer treating hospitals from selected cities in Maharashtra, India. 30 school age children (15 in control group and 15 in experimental group) were included using non-probability convenience sampling technique and quasi-experimental pre-test, post-test research design was used. Data was collected by using a perceived stress scale-children (stress) and HAM-A scale (Anxiety). Art therapy including drawing, painting and ceramic art given to only experimental group. Data calculated by using descriptive and inferential statistics.
Result: The major findings of the study were, Maximum samples 8 (53.33%) belong to age group of 10 - 12 years whereas 6 (60%) belong to age group 7 - 9 years as experimental and control group respectively. In both group majority sample 9 (60%) and 11 (73.33%) were male. Maximum 11 (73.33%) and 10 (66.67%) from Hindu religion in both groups. Maximum 9 (60%) and 8 (53.33%) parents were working in private or government sector as well as 9 (60%) and 10 (66.67%) had their monthly income more than 15000 per month in experimental and control group. In experimental group Majority 7 (46.67%) samples had their duration of illness 1 - 2 year whereas in control group 7 (46.67%) had their duration of illness < 1 year. Maximum 5 (33.33%) and 6 (40%) received chemotherapy in both groups. In experimental group 6 (40%) samples selected ceramic art and 6 (40%) samples selected painting in the control group. There were no any significant associations found between stress score with socio- demographic characteristics of the samples. There was significant association found between score of anxiety and demographic variable of Hindu religion (0.0002) at <0.05.
Conclusion: Nurses, will be play important role to demonstrate and participate in art therapy for promoting relaxation, reducing stress and anxiety among the children with cancer.

Keywords: Effectivenes, stress, anxiety, children with cancer, art therapy

Introduction
Cancer has a serious impact not on patient only but on society also. Defining the cancer accurately is quite difficult because there are so many types of cancers affects people in different way. Simple meaning of cancer is abnormal growth and division of cell tissues it can also invade in nearby tissues of the body [1, 2]. Generally in cancer two types of tumors identified one is benign and another is malignant. A benign tumor does not fatal for patient always it localized and develops slowly opposite to benign there is one another type i.e malignant also called as cancerous tumors it develops rapidly and for patients they are fatal or more dangerous [3].
In recent periods cancer incidences have increases. This is mostly due to changes in lifestyle, population explosion, industrialization with urbanization. The Indian Council of Medical Research has recently predicted that India may be looking at over 17 lakh new cases of cancer also near about 8 lakh deaths by the year 2020. It is reported by ICMR. (Feb 21, 2017) [4]. Pediatric cancers which occurring <15 yrs. age have shown different features than those

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cancers occurring in adults. Incidences of cancers are rare in pediatrics but it is leading cause of death. Maximumi.e. 80% cancers are arising among low and middle income countries [5]. In childhood cancer most commonly types are leukemia, brain cancers, lymphomas and also solid tumors like neuroblastoma and Wilms tumor [6]. In short in India near about 50,000 cases registered per year. A disturbing accounts, is that only around 1 in 10 of children with cancer complete their therapy. Cure rate in India is unsatisfactory i.e. around 30% [7]. According to April 2016, India's state Uttar Pradesh is declared for the maximum cancer cases obviously the maximum number of mortality due to cancer [8]. The incidence of childhood cancer in Maharashtra is 4,000 to 6,300 per year. According to this statistics Maharashtra stands third after Uttar Pradesh and Bihar. India needs to focus much more on raising awareness and improving treatment option for childhood cancer [9]. The chronic strains such as pain, visible side effects like hair loss, weight gain or loss, physical disfigurement, and absenteeism in school. Pediatric cancer patients experience: severe anxiety, withdrawn behavior and behavioral problems, somatic complaints, intense stress, post-traumatic stress disorder (PTSD), difficulties in academics and frustration, facing difficulties with maintaining peer relationship, and tensed about the future in relation to career and also relationships [1]. ome time it is normal but if the people again and again experienced same then it may be problematic to everybody in form of mental or physical [11]. They may help the children to cope with symptoms caused by the cancer and their side effects.[12]Through creating art and reflecting on the art products and processes, people can increase awareness of self and others cope with symptoms, stress and traumatic experiences; enhance cognitive abilities; and enjoy the life-affirming pleasures of making art. (The American Art Therapy Association, 2007) [13].

In India survival rate for childhood cancer is 30 to 40% low as compared to survival rate for adult reasons behind that are lack of information and awareness about cancer, less cancer treatment centers for children who providing good quality care as well as support and also stigma on cancer in society. These all are work as a barriers sometimes between continuous treatments of cancer [15].

Research methodology
Quantitative approach used in this study to find out the effectiveness of Art Therapy on the level of Stress and Anxiety among children with cancer. The research design used in this study was Quasi-experimental pretest posttest control group design which is represented below. The independent variable of this study was Art Therapy (Which included arts like Drawing, Painting and Modeling with ceramic). The dependent variable of this study was level of Stress and Anxiety among children with cancer. Extraneous variables:

The demographic variables which used in this study were age of child, gender, religion, type of family, education of child, education of parent, parent occupation, and family income, duration of illness, treatment modalities and art liked by respondent. This study was conducted at selected cancer treating hospitals from various cities like Kolhapur, Satara, Karad etc. in Maharashtra, India. These hospitals conveniently sorted out on the basis of availability of selected population and theses hospitals provide chemotherapy, radiation, surgery or combined therapy to child who suffering with cancer. Population of present study were 7 to 12 year children suffering from cancer and taken treatment under cancer hospitals which situated at different cities from Maharashtra in India. 30 children (15 in control group and 15 in experimental group) having age between 7 to 12 years and who were diagnosed by cancer and also receiving treatment for that from the cancer treating hospitals situated in selected cities of Maharashtra in India. The researcher was used non-probability convenient sampling technique in the present study. Inclusive Criteria were Both male and female children having age between 7 yrs. to 12 yrs., Children who hospitalized with diagnosis of any type of cancer, Children and parents understand Marathi or Hindi language and Willingness of the parents and the children. Exclusive Criteria were Children who are unconscious and Children with physically or mentally handicapped.

Tool is the instrument used by the researcher to collect data. On the basis of objectives of the study the tools were prepared or select. The instrument used in this study was, Structured questionnaire for demographic data, Standard questionnaire to assess the level of stress (Perceived Stress Scale – Children) and Standard questionnaire to assess the level of anxiety (HAM-A) Opinion taken from experts of pediatric department, psychiatric department and nursing department.

Data analysis plan
This plan of data analysis and interpretation was established under the guidance of guide and the statistician. Gathered data first organize on the master sheet. Descriptive Statistics: To analyze the demographic variables frequency and percentage distribution were used. Mean and standard deviation were used to analyze the level of stress and anxiety in pre-test and post-test. Inferential statistics: Paired 't' test and unpaired 't' test were used to analyze and interpret effectiveness of the art therapy on level of stress and anxiety among pediatric oncology patients. Unpaired 't' test was used to find out association of demographic data on stress and anxiety level.

Analysis and interpretation of data
Section A: Distribution of frequency and percentage of samples according to demographic variables in experimental and control group

Table 1: Distribution of frequency and percentage of children with cancer in experimental and control group

Demographic Variables	Experimental Group		Control Group	
	Frequency	Percentage	Frequency	Percentage
Age				
7 - 9 Years	7	46.67%	9	60%
10 - 12 Years	8	53.33%	6	40%
Gender				
Male	9	60%	11	73.33%
Female	6	40%	4	26.67%
Religion				
Hindu	11	73.33%	10	66.67%

Other	4	26.67%	5	33.33%
Type of family				
Nuclear	8	53.33%	7	46.67%
Other	7	46.67%	8	53.33%
Education of child				
1st - 4th	10	66.67%	12	80%
5th - 7th	5	33.33%	3	20%
Education of parent				
Primary to Middle school	4	26.67%	5	33.33%
Higher Secondary and More	11	73.33%	10	66.67%
Occupation				
Own Job	6	40%	7	46.67%
Job Private or Govt. Sector	9	60%	8	53.33%
Family income				
< 15,000	6	40%	5	33.33%
≥ 15,000	9	60%	10	66.67%
Duration of Illness				
< 1 Year	6	40%	7	46.67%
1 - 2 Year	7	46.67%	5	33.33%
> 2 Year	2	13.33%	3	20%
Treatment modality				
Chemotherapy	5	33.33%	6	40%
Radiotherapy	4	26.67%	3	20%
Surgery	1	6.67%	2	13.33%
Surgery & Radiotherapy	1	6.67%	2	13.33%
Surgery & Chemotherapy	4	26.67%	2	13.33%
Art				
Drawing	4	26.67%	4	26.67%
Painting	5	33.33%	6	40%
Ceramic Art	6	40%	5	33.33%

Maximum (53.33%) sample belongs to age group 10 - 12 years, 9 (60%) were male child, majority of children 11 (73.33%) from Hindu religion and 8 (53.33%) belonged to joint family, 10 (66.67%) were studying in 1st - 4th standard, majority 11 (73.33%) parents were completing their higher secondary education, 9 (60%) parents were working in private or government sector, majority 9 (60%) children family had family income more than 15,000 and 7 (46.67%) had their duration of illness in between 1 – 2 year, majority 5 (33.33%) were receiving chemotherapy, 6 (40%) children were given choice for ceramic art as favorite one.

Whereas in control group majority findings were ; maximum number of 9 (60%) sample belongs to age group 7 – 9 years, 11(73.33%) were male child, majority of sample 10 (66.67%) from Hindu religion and 8 (53.33%) belonged to other family such as joint or extended, 12 (80%) were studying in 1st – 4th standard, majority 10 (66.67%) parents were completing their higher secondary education, 8 (53.33%) parents were working in private or government sector, majority 10 (66.67%) children family had family income more than 15,000 and 7 (46.67%) had their duration of illness less than 1 year, majority 6 (40%) were receiving chemotherapy, 6 (40%) children were given choice for painting as favorite one.

Table 2: Frequency and percentage of pre-test and post-test according to level of stress among samples in experimental group.

N = 15

Stress	Mild		Moderate		Severe	
	Frequency	**Percentage**	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Pre-test	1	7%	12	80.00%	2	13.33%
Post-test	9	60.00%	6	40.00%	0	0

Above table revealed distribution of stress level by using frequency and percentage on basis of pre-test and post-test. In experimental group researcher provided art therapy intervention for 5 days next day and next-day post-test taken. Therapy provided for 30 min per day 5 consequent day and freedom provided to select their favorite art. In pretest majority 12 (80%) had moderate stress, 2 (13.33%) had severe stress and 1 (7%) experienced mild stress. Whereas in post-test majority 9 (60%) samples had mild stress and 6 (40%) had moderate stress. None of them experienced severe stress after intervention.

Table 3: Frequency and percentage of pre-test and post-test according to level of stress among samples in control group.

n = 15

Stress	Mild		Moderate		Severe	
	Frequency	**Percentage**	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Pre-test	4	26.67%	8	53.33%	3	20%
Post-test	5	33.33%	7	46.67%	3	20%

Above table explained frequency and percentage of pretest and posttest of stress in control group. Samples received only

routine care provided by health team. On 1st day pre-test taken after 5 day of routine care 7th day post-test conducted from samples. Findings of pre-test shown majority 8 (53.33%) had moderate stress level, 4 (26.67%) had mild and 3 (20%)

experienced severe anxiety. Whereas in post-test majority 7 (46.67%) had moderate level stress, 5 (33.33%) had mild stress and 3 (20%) experienced severe level stress.

Table 4: Frequency and percentage of pre-test and post-test level of anxiety among respondent in experimental group.

n = 15

Anxiety	Mild		Moderate		Severe	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Pre-test	3	20%	8	53.33%	4	26.67%
Post-test	10	66.67%	5	33.33%	0	0

This table described frequency and percentage according level of anxiety in pre-test and post-test from samples of experimental group. Here researcher conducted pre- test on 1st day before intervention. In intervention researcher provided art therapy in form of drawing, painting and modeling with clay 5 consecutive day for 30 min on 7th day post-test was collected and on basis of scoring this distribution table prepared. In pre-test Majority 8 (53.33%) samples having moderate anxiety whereas 4 (26.67%) samples suffering with severe anxiety and 3 (20%) had mild anxiety. After providing intervention post-test taken this finding showed majority 10 (66.67%) had mild anxiety whereas 5 (33.33%) had moderate anxiety and none of them showed any evidence of severe anxiety in experimental group after art therapy.

Association between pre-test stress score of control and experimental group with their selected Socio-demographic variables.
The findings from above table describes that there were no any significant association between stress score of respondent with socio-demographic characteristics of samples that means children with cancer.

Association of pre-test anxiety score among samples of control and experimental group with their selected socio-demographic variables.
The above table shows that there was a statistical significant association between score of anxiety with demographic variable of Hindu religion (0.0002) at $p < 0.05$. And none of other variables had shown statistical significant association with pre-test anxiety score of samples suffering with cancer from control and experimental group.

Discussion and findings
In present study majority of samples 9 (60%) and 11 (73.33%) were male in experimental and control group respectively. These findings similar to study done by Alves D et al. (2013) on Stress related to care: the impact of childhood cancer on the lives of parents where in his study majority children 52 (51.5%) were male [16].
In present study, Majority 8 (53.33%) had moderate anxiety, 4 (26.67%) had severe anxiety found within exp. Group another hand cont. group showed maximum 6 (60%) had moderate anxiety with 3 (30%) had severe anxiety. Accordance with these findings investigator discovered similar study which done by Abdelaziz MT et al. (2017). For this researcher selected 50 children (6 – 12 yrs.) who diagnosed and treated in the pediatric Oncology Unit, at El Nasser pediatric hospital in Gaza city. Findings represents 31 (62%) children had symptoms of anxiety [17].
In present study in experimental group computed result revealed that, pre-test and post-test mean and SD score of

anxiety among respondents were (21.6±4.469, 16.466 ± 4.086) these values found statically significant at $p < 0.05$ and control group (21±3.964, 20.8 ±3.913) these values not found statically significant at $p < 0.05$. The similar findings noted by Mr. S. Bibin Raj (2016) [18]. to assess the effectiveness of art therapy on anxiety level among 60 hospitalized children aged (7 -12 yrs.) in selected hospital, Chennai, Study result showed that in experimental group mean score of anxiety was (pre- test 3.56 ± 0.50 and for post-test 0.70±0.46). The calculated paired 't' value of t = 1.409 not found to be significant. It evidently says that no difference found in anxiety among hospitalized children in the control group.[19] The similar findings were noted by Kamini P. Sao et. al (2015)[20] Mojtaba G et al. (2013) [21]. S. Bibin Raj imental group 0.70± 0.46 and in control group 3.43 ± 0.50. Unpaired 't' test used value was found to be statistically significant at p<0.001 [22].
In experimental group result shows mean SD stress score of pre-test and post-test (18.867 ± 5.208, 14.6 ± 4.154 it found statistically significant at p<0.05. Here precisely prove that art therapy (drawing, painting and ceramic art) was effective to reduce the intensity of stress among samples who suffering with cancer.
There was one study noted by Abdulah DM et al. (2018) [23]. in Iraq on topic of Effectiveness of group art therapy on quality of life in pediatric patients with cancer. The effectiveness of painting- and handcrafting-based art therapy on the various dimensions of health- related quality of life. For that an experimental randomized controlled trial used a total of 60 children aged 7-13 years. The patients in the experimental group participated in painting and handcrafting. Result noted that children had fewer stressful feelings (P = 0.004) and had better overall health status (P < 0.001). They concluded that findings of the study suggest that exposure to painting- and handcrafting-based art therapy improves the overall health-related quality of life in children with cancer [24]. No another similar study were found to support or contradict the findings of present study. So, this study may be the review for future studies related to present study.

Conclusion
It concluded that art therapy is effective to reduce stress and anxiety among children suffering with cancer. So nurses can used this therapy as alternative therapy during care providing. In short the art therapy is effective, practical and cost effective method to reduce stress and anxiety among pediatric clients suffering from cancer. So nurses, will be play important role to demonstrate and participate in art therapy for promoting relaxation, reducing stress and anxiety among the children with cancerous condition and this help to promote the co-operation of children with nurses.

Nursing implementation
Nursing implications
The inferences of this study had their impact on various aspects of nursing care i.e., nursing practice, nursing administration, nursing research and education.

Nursing practice
1. Art therapy can be introduced as an expressing mode of intervention by the nurses for promoting relaxation among the children suffering from various illness.
2. Nurses should play a vital role in understanding the psychological problems of the terminally ill clients like cancer.
3. Art therapy can be given for staff nurses working in multi-specialty units to reduce the level of stress and anxiety.
4. Nurses can teach the family members about art therapy and its benefits in order to reduce the stress and anxiety in the home.

Nursing education
1. Nurse educators must be specially trained to teach art therapy.
2. Nurse educators can effectively teach the purposes and benefits of art therapy and it helps the nursing students to gain knowledge regarding art therapy.
3. Staff development programme can be arranged, so that the nursing students also know to perform art therapy when they are overwhelmed with stress and anxiety.
4. The nursing students who are specializing in their masters in the field of mental health and child health can be trained specially to give complementary and alternative therapies.
5. The nurse educator can create awareness about an art therapy to the family members of terminally ill.

Nursing research
1. Motivate the nurses to proper utilization of this intervention at the time of managing level of stress as well as anxiety.
2. An inference of study helpful to the health professionals, paramedical persons and researchers in identifying different sources of increasing level of stress and anxiety among terminally ill, chronically ill children in Indian perspective.
3. Studies related to art therapy are very rare in nursing profession. So it will help nurses to administer this therapy as a part of nursing care and carried out studies. Also it will be help the nurses as an aspect of Evidenced Based Practice.
4. After completion of study it is documented correctly. Afterword communicate this findings through conferences, seminar. Also publishing this in various journals.
5. On account of current study researcher can encourage the nurses to perform more study to reducing stress, anxiety level among children as well as their parent by involving them into study or conducting separate research on them.

Nursing administration
1. The nurse administrators can motivate nurses to assess the level of stress and anxiety among the family members of chronically ill children.
2. The nurse administrator should arrange for continuous nursing education programme to disseminate the research findings and emphasis about the benefits of art therapy.
3. The Nurse administrator can prepare skilled nurses who can spend time with people in solving psychological and physiological problems in children.
4. Nurse administrator can make arrangements for the practice of art therapy in hospital, So that the staff nurses can provide calm, quiet, clean and safe environment to the patients to practice.

Recommendations
On the basis of conclusion of research, the researcher prefer some recommendation as follows;
1. A similar study can be recreated by gathering data of vast sample size within various settings which will different from each other so it helps in generalized study result.
2. A longitudinal study to be able to performed on the basis of different interval of time period of gathering data. That time period will be started at the time of diagnosis cancer, 6 months after diagnosing, 1 year and after 2 years.
3. A similar study can be conducted among patients with other chronic illness and other psycho physiological disorders.

Limitation
1. Cancer found rarely in children due to that reason investigator unable to conduct study on large population.

Summary
The present quantitative study conducted to assess effectiveness of art therapy on level of stress and anxiety among pediatric oncology patients. By using nonprobability convenience sampling technique 30 (15 in experimental and 15 in control group) were selected. It was concluded that art therapy was effective strategy to reduced level of stress and anxiety among oncology patients.

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