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Efficacy of Art Therapy in Reducing Anxiety Among Hospitalized Children: Evidence from a Randomized Control Trial

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Abstract

Background: *Hospitalization has an emotional and developmental impact on children. Art therapy is a distraction strategy to reduce the anxiety and stress level of hospitalized child, improves mood and communication, promote emotional and physical wellbeing.* ***Method:*** *A total of 40 children aged between 3 and 7 years who were admitted to G V Pai and Alvas Health Centre, Karnataka, were selected for the study. True experimental design with a simple random sampling technique was adopted to select samples and divide them as control and an art therapy group (20 in each group). The intervention Art therapy was initiated for 15–20 minutes. Anxiety is the main outcome variable measured using the Self-Structured Anxiety Inventory. Descriptive and inferential statistics were utilized for analysis.* ***Results:*** *The mean percentage of post-intervention anxiety score in the experimental group 27.89% was lower than the pretest anxiety scores 37.02% showing a reduction of 9.12% anxiety. Pretest and posttest mean anxiety scores were statistically significant at 0.05 level of significance Art therapy was found to be effective in significantly reducing anxiety levels in the intervention group. Paired differences of mean anxiety scores among both groups are statistically significant $p < 0.05$, It shows that anxiety levels among the experimental group reduced compared to the control group.* ***Conclusion:*** *The study demonstrated that art therapy proved to reduce anxiety levels among participants in the experimental group than the control group. Therefore, art therapy emerges as a valuable, noninvasive, non-pharmacological, and child-friendly intervention that can be effectively integrated into the care of hospitalized children.*

Keywords: Art therapy, children, anxiety, hospitalization, fear

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INTRODUCTION

Childhood is a complex area in which many things influence children's health and development. Health has a significant impact on children's future, their ability to withstand and meet personal, psychological, and social requirements, as well as to meet life problems. Hospitalization of children is an important part of pediatric healthcare. In 2019, there were around 5.26 million pediatric hospitalizations in the United States, with the majority (88.6%) occurring place in general hospitals [1].

Hospitalizations for children with chronic health issues have increased significantly, particularly those impacting several body systems. It was reported that around 19.2% of children had an increase in hospitalization [2].

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Children are said to fall sick more often and require hospitalization; their families are also involved. Children aged 1–3 years' experience about majority of illnesses per year, whereas children aged 9–10 years' experience four types of illness per year. Every year, almost four million children are hospitalized because of disease [3]. Hospital stay is a traumatic experience for children and their families, resulting in mental distress, sleep disturbances, and discomfort [4]. The strange environment and uncertainty about the child's condition contribute to this stress [5]. A hospital stay is a traumatic experience for children of all ages. During a chronic illness, even elder child needs a parent around them and can only accept their absence for limited periods of time.

Anxiety in hospitalized children is caused by a complex interaction of parental anxiety, personal predispositions, persistent illnesses, and external stressors, the hospital environment, such as routines, strange people, beds, equipment, unfamiliar surroundings, different smell, and strange sounds, in which the children are kept, as well as physical factors such as discomfort and sickness [6]. Hospital routine procedures, like blood testing or even medical examinations, can be stressful for youngsters. Anxiety in children can cause developmental abnormalities and hinder disease recovery. Nurses have a significant part in supporting children with their families in adequately coping with the hospital situation. Nurses and parents use a variety of treatments to help children overcome anxiety and worry, including setting up a pleasant environment, offering support, and explaining things. Children have unpleasant experiences such as anxiety of medical staff; many can control themselves and engage in constructive activities, like sketching and storytelling, to ease stress.

Art can help reduce anxiety by expressing emotion, endorsing mindfulness, promoting calmness, and wellbeing. It fosters a sense of joy and satisfaction [7]. Art therapy seems to be most useful and cost-effective since it is a part of their daily routine activity and raises curiosity among children [8]. Painting allows youngsters to articulate their experiences, which reduces tension and anxiety. Hospitalization may be a stressful experience for children, typically causing increased anxiety due to new surroundings, medical treatments, and separation from family members. Art therapy gives children an innovative opportunity to express their feelings, which may be very helpful in a hospital setting.

Multiple studies have shown that art therapy programs for school-age and preschool children reduce anxiety levels significantly [9]. Nurses should incorporate art therapy as an effective tool for managing anxiety in hospitalized children. Nurses giving art therapy can improve nursing care. It is essential to aid hospitalized children and families to provide quality care.

Art therapy has its own benefits such as easy accessibility at low cost and non-pharmacological [10]. In this study, we are going to explore the efficacy of art therapy in reducing anxiety levels among hospitalized children by providing creative opportunity for emotional expression. Art therapy may assist in relieving the psychological distress often experienced during hospitalization. The purpose of this research is to determine how structured activities might reduce children's anxiety levels and general emotional well-being, hence leading to better care and holistic healing techniques. This study aims to measure the anxiety levels of hospitalized children and to analyze how art therapy can help reduce anxiety levels among children and to determine how demographic variables relate to anxiety levels.

Hypothesis

- *H1:* There will be a significant difference in level of perceived anxiety between experimental and control group after art therapy.
- *H2:* There will be a significant association between pre-level anxiety among children with selected demographic variables.

METHODS

The current study conducted an experimental, randomized control group pretest and posttest design to investigate the effects of art therapy on the degree of anxiety among hospitalized children in

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Moodubidire hospitals from November 1 to November 15, 2019, in India. The study included 40 rehabilitated children who matched the inclusion criteria and were chosen from G.V. Pai Hospital and Alva's Health Centre in Moodubidire. Children have been divided into two groups: experimental (n = 20) and control (n = 20). The samples were named using a simple random sampling procedure (lottery system). Prior to beginning the study, the institutional and hospital ethics panels approved it. The inclusion conditions for children aged 3–7 years are that they be present at the time of data collection, conscious, acquainted, and willing to cooperate. The exclusion criteria were children and parents who were unwilling to share, children who were unable to understand Kannada or English, and children with chronic illnesses (Figure 1).

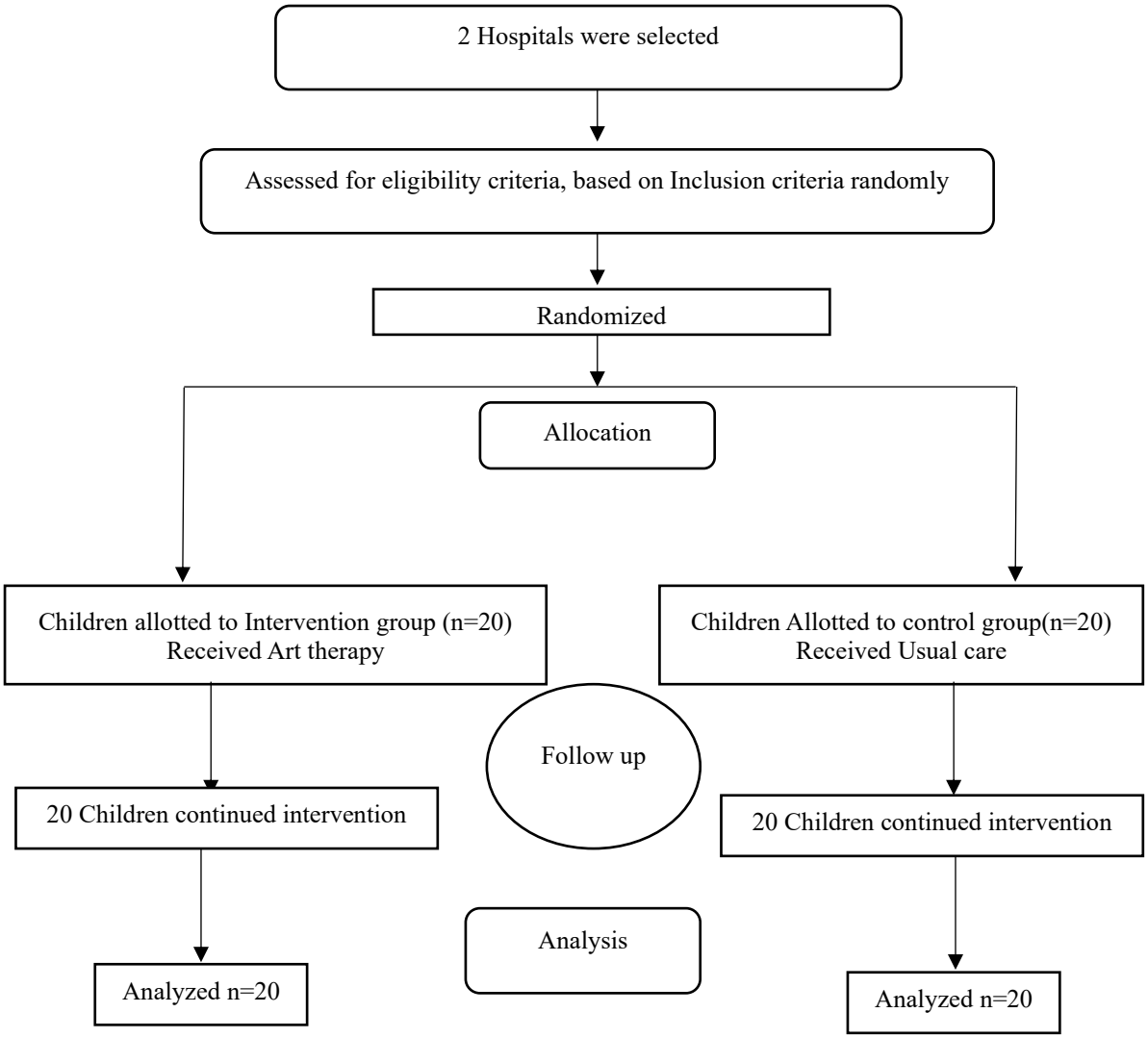

Figure 1. Flow chart of the selection process.

DATA COLLECTION

The data were obtained using sociodemographic characteristics and the Self Structured Anxiety Inventory to evaluate anxiety. The instrument was developed through a study of relevant research, consultation and discussion with experts, personal experience in the community and clinical environment, and validation by nine experts. After receiving clearance from the medical supervisor, the instrument was provided to six hospitalized children. The tool was tested to determine the legibility of the items, the difficulty in understanding them, and the tool's feasibility. The parents stated that all instructions were clear and understandable. Two hospitals in Karnataka, Alva's Health Centre and G.V. Pai Hospital, were chosen. The data collection period lasted from November 1 to 15, 2019. Prior to that,

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approval was acquired from the relevant authorities. Throughout the data collection process, confidentiality was preserved. Before administering the pretest to the individuals, the goal of the study was described following self-introduction, and their agreement was obtained. The interview was conducted in private, and the interviewees were made to feel at ease.

All 40 hospitalized children aged 3–7 years were randomly assigned into two groups: art therapy and a control group, each with 20 participants, based on sample selection criteria. Art therapy was carried out by distributing art papers and drawing sheets, as well as a packet of colored pencils, to the Intervention group. The anxiety levels of the children in both groups were evaluated prior to art therapy. The intervention group children were allowed to draw and color for 20–30 minutes, while the control group received standard hospital care. One week later, the degree of anxiety was assessed using the Self Structured Anxiety Inventory in both the art therapy and control groups.

DEMOGRAPHIC DATA

It includes eleven items for acquiring information such as age, gender, level of education, type of family, number of children, length of illness, previous hospitalization, and place of residence.

SELF-STRUCTURED ANXIETY INVENTORY

A Self Structured Anxiety Inventory was used to gather anxiety scores; it is useful for measuring various feelings such as nervousness, restlessness, difficulty breathing, sweating (not due to heat), and so on. There are 19 items, each rated as Nothing (0 score), Weak (1), Moderate (2), or Strong (3). The total score was obtained by adding the 19 questions, with scores of 0–19 indicating minimal anxiety, 20–34 indicating moderate anxiety, and 35 and higher indicating potentially serious levels of anxiety.

DATA ANALYSIS

The acquired data were analyzed with frequency, percentage, mean, and standard deviation. A paired and unpaired "t" test was used to determine the significance of the mean difference between the pretest and posttest levels of assessment. Data from the samples were analyzed using descriptive and inferential statistics. The data was analyzed using SPSS software with a level of significance of $p<0.05$.

RESULTS

The data in the experimental group shows that most of the children are between the ages of 5 and 7, with a larger proportion of males (65%, n = 13). Approximately 45% (n = 9) of participants were enrolled in play school. Most children (85%, n = 17) live in nuclear families. Many parents had two children, with many of them having previously been hospitalized. Very few parents have experience with art therapy, and over 60% live in rural areas (Table 1).

The data shown in Table 2 indicate that the mean percentage of posttest anxiety score was less than the mean percentage of pretest anxiety score (pretest 37.02% and posttest 27.89%), whereas in the control group anxiety score (mean percentage of pretest anxiety score (34.80%) was greater in posttest score (32.19%). Table 3 shows that art therapy was effective in reducing anxiety in the experimental group. The "t" value computed between mean pretest and posttest anxiety scores was statistically significant at the 0.05 level of significance ($t(Cal) = 6.272$, table value $t(19) = 2.09$, $p < 0.05$). It indicates that art therapy was effective at lowering anxiety levels in the experimental group.

Table 4 compares the effectiveness of art therapy between experimental and control groups and demonstrates that the "t" value computed between paired differences in mean anxiety levels between experimental and control groups is statistically significant. Thus, the null hypothesis was rejected, and the research hypothesis was accepted. It demonstrates that the experimental group experienced much lower levels of anxiety than the control group.

The data presented shows that there was no significant association between pre-test anxiety scores and demographic variables (age, gender, educational status, type of family, birth order, number of

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children, type of illness, duration of illness, previous hospitalization, previous exposure to art therapy, and place of residence). As a result, the null hypothesis was accepted, and the research hypothesis was rejected. The results demonstrate that demographic characteristics had no effect on pretest anxiety scores.

Table 1. Frequency and percentage distribution of subjects according to selected demographic variables (n = 20 + 20).

Variables	**Experimental Group**		**Control Group**		**Total**	
	F	***%***	***F***	***%***	***F***	***%***
Age in Years						
3–4	8	40	11	55	19	47
5–7	12	60	9	45	21	52
Gender						
Male	13	65	15	75	28	70
Female	7	35	5	25	12	30
Educational Status						
Not been to school	0	0	2	10	2	5
Play school	9	45	9	45	18	45
LKG	0	0	**2**	10	2	5
UKG	0	0	0	0	0	0
First Standard	3	15	4	20	7	17
Second Standard	6	30	3	15	9	22
Third Standard	2	10	0	0	2	5
Type of Family						
Joint	3	15	3	15	6	15
Nuclear	17	85	17	85	34	85
Extent	0	0	0	0	0	0
Birth order						
First	7	35	12	60	19	47.5
Second	12	60	7	35	19	47.5
Third	1	5	1	5	2	5
Fourth and above	0	0	0	0	0	0
Number of Children						
One	3	15	5	25	8	20
Two	16	80	14	70	30	75
Three or more	1	5	1	5	2	5
Type of Illness						
Acute	20	100	15	75	35	87.5
Chronic	0	0	5	25	5	12.5
Duration of Illness						
1–3	16	80	20	100	36	90
4–6	4	20	0	0	4	10
7–Above	0	0	0	0	0	0
Previous Hospitalization						
Yes	16	80	11	55	27	67.5
No	4	20	9	45	13	32.5
Previous Exposure of Art Therapy						
Yes	5	25	7	35	19	47.5
No	15	75	13	65	21	52.5
Place of Residence						
Rural	12	60	15	75	27	67.5
Urban	8	40	5	25	13	32.5

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Table 2. Mean, median, mean percentage, and standard deviation of pretest and posttest anxiety scores of experimental and control groups (n = 20+20).

Anxiety Score		Range	Mean	Median	Mean%	SD	Decrease in Anxiety Score (%)
Experimental	Pre	28–15	21.10	20.50	37.02	3.39	9.12
	Post	22–10	15.90	16	27.89	3.46	
Control	Pre	30–9	19.55	20.50	34.30	4.91	2.11
	Post	28–9	18.35	18.00	32.19	4.51	

Table 3. Mean, standard deviation (SD), mean difference, standard deviation difference, and "t" value of pretest and posttest anxiety score of experimental groups (n = 20).

Experimental Group	Mean	Standard Deviation	Mean Difference	S.D. Difference	"t" Value	Remark
Pretest	21.10	3.39	5.200	3.71	6.272	Significant
Posttest	15.90	3.46				

Table 4. Mean, standard deviation (SD), mean difference, and "t" value of experimental group and control group (n = 20 + 20).

Group	Paired Differences		Mean Difference	Std Error Difference	"t" Value	Remark
	Mean	*SD*				
Experimental group	21.10	3.39	1.550	1.335	1.161	Significant
Control group	19.55	4.91				

Note: Table value t (38) = 2.02 p < 0.05.

DATA ANALYSIS

The acquired data were analyzed with frequency, percentage, mean, and standard deviation. A paired and unpaired "t" test was used to determine the significance of the mean difference between the pretest and posttest levels of assessment. Data from the samples were analyzed using descriptive and inferential statistics. The data was analyzed using SPSS software with a level of significance of $p < 0.05$.

DISCUSSION

The art therapy was implemented in this study, providing art papers and drawing sheets along with a pack of colored pencils to the intervention group to reduce anxiety. Children in the intervention group were allowed to color for 20–30 minutes, prior to intervention anxiety level was assessed then week later anxiety level was reassessed post-intervention. The findings revealed significant improvements in reducing anxiety in the intervention group.

Children who receive art therapy as an intervention can experience less stress and free time. Drawing helps a child to link his experience, reducing anxiety [11]. Art therapy significantly contributes to our understanding that anxiety levels were reduced among hospitalized children. As per study, parents reported that 7.1% of general pediatric population had prevalence of anxiety during hospitalization [12]. A study revealed that among 496 hospitalized children, anxiety was reported by 65.6% and was the most common and severe symptom [13]. In this study, 20 hospitalized children were assigned to an art therapy group, and 20 children received routine care. In the intervention group, 55% (n = 11) had Low Anxiety and 45% (n = 9) had moderate anxiety, control group 60% (n = 12) had low anxiety, and 40 % (n = 8) had moderate anxiety.

The study conducted among 60 hospitalized children, Odisha revealed that 75% had moderate anxiety, 20% had severe anxiety, and 5% of children with mild anxiety during hospitalization [14]. Hospitalization seems to be a more threatening and stressful experience, which can have a negative impact on a child's emotions. A study conducted among 304 Chinese hospitalized children aged 3–12 years highlights that play interventions exhibited fewer negative emotions and anxiety compared to children who received usual care. It emphasizes that hospital play can reduce emotional burden, which provides quality and holistic care for children [15]. An observational study conducted among 50

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hospitalized children and 50 nonhospitalized children aged 6–10 years highlights that hospitalized children had higher anxiety than the another group [16].

A quasi-experimental study was conducted among 48 hospitalized preschool children. There were two interventions, such as play therapy along with art therapy, which were implemented. The results revealed that drawing or coloring not only reduces tension but also has a relaxing effect on the body providing emotional stimuli in the limbic system on anxiety responses [11].

In post-intervention among 20 children in intervention group, it was revealed that 95% (n = 19) had low anxiety, and 5% of subjects had moderate anxiety. Mean pretest and posttest anxiety scores were statistically significant at the 0.05 level of significance t(Cal) = 6.272, table value t (19) = 2.09, $p < 0.05$. It shows that art therapy was effective in decreasing anxiety among the experimental group. The findings of the study showed that there was no significant association between pretest anxiety score and selected demographic variables.

CONCLUSIONS

Art therapy can be routinely adopted in hospitals as it aids in reducing anxiety, exploring things. It seems to be cost effective, convenient, requires no complex skills to initiate, and it can help health care providers to serve better. Parents and nurses can play a crucial role in facilitating such activities. Art therapy can help a child to initiate creativity, feel better, and safe.

Conflict of Interest

We declare that no significant competing professional, personal, or financial interests influence conducting this study as described in this study.

Ethical Approval

Approved from Institutional Ethical Committee. Each parent was provided with participation sheet and informed consent was obtained.

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