Paediatrics Section

Effectiveness of Family Centered Art Intervention on Anxiety among Hospitalised Children in a Tertiary Care Hospital, Mangaluru, India: A Quasi-experimental Study

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ABSTRACT

Introduction: Children become fearful, frightened, or unhappy when they attend the hospital. Art intervention can support their capacity to take responsibility and make decisions. It assists children and their families to explore and express their emotional reactions to the hospital admission, which can be difficult to explain.

Aim: To find the effectiveness of family centered art intervention on anxiety among hospitalised children in selected tertiary care hospital, Mangaluru, Karnataka, India.

Materials and Methods: A quasi-experimental study was conducted in Department of Paediatric, Yenepoya Medical College and Hospital, Mangaluru, Karnataka, India, from December 20, 2021, to April 10, 2022. A non probability purposive sampling technique was used to enlist study participants, who were then divided into the intervention (n=35) and control (n=35) groups. The level of anxiety was assessed on the first day of admission. Diversional activities were given to the hospitalised child in interventional group, for the first three days of admission, for a duration of 35-45 minutes per day and control group received routine care. The data was collected using the demographic performa, RMS (Raghavendra, Madhuri, Sujatha) pictorial scale and a parent report on their child's anxiety. A post-test was done each day 30 minutes after the intervention. Analysis of Variance (ANOVA), Bonferroni posthoc test, Independent t-test and Chi-square test were used for statistical analysis.

Results: A total of 70 hospitalised children, aged between four to eight years, were split into two groups. There were 35 participants per group. The majority of the intervention group (25.7%) were seven-year-old, while the majority of the control group (34.3%) were four-year-old. A 60% of the intervention group participants and 74.3% of the control group participants were males, respectively. A comparison of anxiety scores at different points in the intervention group showed a significant decrease from pretest to post-test (p-value <0.05). The control group showed no difference (p-value >0.05), while at all the post-tests, the difference in the anxiety level of children between groups was significant (p-value <0.05)

Conclusion: In present study, family centered art intervention significantly reduced the anxiety among children in intervention group as compared to control group.

INTRODUCTION

A child is a young individual, particularly during the years between infancy and puberty. Children figure out their position in the world throughout these years. They are a part of a social system, a family, and a neighbourhood [1]. Inspite of a number of preventive activities, the children fall sick and many a times may need hospitalisation. For both children and parents, hospitalisation is one of the most stressful experiences. The unfamiliar setting of the hospital makes the child feel the loss of contact with family members, peers, and relatives as well as change in their routine [2]. In an urban context, hospitalisation is most common in children aged between 0.5 to 5 years. Respiratory infections, acute undifferentiated fever, and acute gastroenteritis are the top three reasons for hospitalisation in young children, whereas acute undifferentiated fever, enteric fever, and acute gastroenteritis dominated in older children [3]. During the early period of childhood, they were vulnerable to illness and hospitalisation because of changes in the environment and the limited number of coping mechanisms to resolve stressors. Stressors of hospitalisation include separation from parents and loved ones, fear of an unknown environment, and bodily injury. Reactions of children to hospitalisation are influenced by their developmental stage, previous experience of illness and hospitalisation, their coping skills, the seriousness of the disease, and the people involved in their treatment [4].

Anxiety is defined as "apprehension without apparent cause". It usually occurs when there is no immediate threat to a person's safety or well-being, but the threat feels real [5]. Hospitalisation is one of the most anxiety-provoking experiences for children which also affects the child's physical growth, personality, and emotional needs [6]. During hospital stays and prolonged sickness, the children are concerned with anxiety, imagination, worry, shyness, and privacy. They react to hospitalisation with some defence mechanisms like separation anxiety, regression, negativism, sadness, phobia, obsessive fear, symptoms of denial and separation, and conscious effort of mature behaviour [7].

Art intervention offers them the ability to make choices and be in control. It helps children and families to explore and express their emotional reactions to their hospital stay, which can be difficult to explain in words. Painting, building creatures out of play dough, glittering, and even scrapbooking are all creative methods for a child to express himself and relieve the stress of being in the hospital or being sick [8]. During the clinical experience, the researcher noted that most of the children are afraid of healthcare providers and exhibit signs and symptoms of anxiety due to hospitalisation. The family centered art intervention is one of the advanced therapies for the treatment of anxiety. In the Indian context, the use of family centered art intervention is very minimal in paediatric health set-up. Hence, present study was conducted to evaluate the effectiveness

of family centered art intervention in the reduction of anxiety among hospitalised children.

MATERIALS AND METHODS

A quasi-experimental study was conducted in Department of Paediatric, Yenepoya Medical College and Hospital, Mangaluru, Karnataka, India from 20th December 2021 to 10th April 2022. Approval to conduct study was obtained from University Ethical Committee (Approval protocol number: YEC2/851).

Inclusion criteria: Both male and female children, aged between 4-8 years, who were admitted in the paediatric wards for a minimum of three days and accompanied by parents/care giver were included in the study.

Exclusion criteria: Children who were critically ill and children who were mentally challenged, parents/care takers with physical and mental disability, which hinders them in participating in family centered art intervention were excluded from the study.

Sample size calculation: For an effect size of 0.8 in numerical with 90% power, 5% level of significance, based on the study conducted by Sao K and Maurya A, 35 subjects were calculated in each group and the total sample size was 70. The calculations were done using G* power software [9].

Study Procedure

Permission was obtained from the concerned authority. Subjects were assigned to control and intervention groups. After taking written informed consent, demographic data were collected from the subjects and assessed anxiety after two hours of admission in both groups. The investigator provided diversional activities to the intervention group children, involving the parent or caregiver, to offer activities desired by the child, such as watercolours, crayons, sketch pens or coloured pencils, printed pictures, and craft paper to express their emotions in a creative manner for the first three days of admission for a period of 35-45 minutes per day. A parent or caregiver helps the child to complete this activity. Each day's post-test level of anxiety was assessed 30 minutes after the intervention. Feedback was obtained from parents regarding family centered art intervention on third day of intervention. Children in the control group got routine care, and the post-test was done once daily for the first three days.

Data collection: Data were collected using demographic proforma, RMS pictorial scale [10], parents report on child's anxiety and parents opinionnaire on family centered art intervention.

RMS pictorial scale: It is a 5-point facial anxiety scale. The child is instructed to choose the face that best represents their current feelings about themselves. The scale was scored by giving a value of one to the very happy face and five to the very unhappy face [10].

Parents report on child's anxiety: It is a 24-item checklist that the investigator developed as per the scientific review board advice to assess parents report on their child's anxiety. It has yes or no responses. Yes, answers were scored one point, while no answers were scored zero points. Maximum possible score was 24. Zero is considered no anxiety, scores 1-8 are considered mild anxiety, 9-16 are moderate anxiety, and 17-24 are severe anxiety. The grading is done arbitrarily. Seven experts in the fields of nursing and medicine were given the tool. The tool was found to be acceptable and valid after a critical examination by experts. The reliability of parents report on child's anxiety was tested by establishing the rater inter-rater and the calculated reliability was r=0.93.

Parents opinionnaire on family centered art intervention: It is a 5-point rating scale with four questions that the investigator developed to assess parent satisfaction over family centered art intervention. The maximum possible score was 20. Score <10 is graded as unsatisfied, and ≥10 is graded as satisfied with family centered art intervention. The tool was given to seven experts in the departments of nursing and medicine. After a thorough review by experts, the tool was determined to be appropriate and valid. The reliability of parents opinionnaire on family centered art intervention was tested by Cronbach's alpha method and the calculated reliability was r=0.87.

STATISTICAL ANALYSIS

Data was analysed using inferential and descriptive statistics by using Statistical Package for the Social Sciences (SPSS) version 23.0. ANOVA, Bonferroni posthoc analysis, Independent t-test and Chi-square were used for statistical analysis. A p-value <0.05 was considered to be statistically significant.

RESULTS

Total 70 hospitalised children, aged between four to eight years were divided in two groups. Each group had 35 participants.

In present study, majority 9 (25.7%) in the intervention group belonged to 7-year age group, whereas in the control group, the majority 12 (34.3%) belonged to 4-year age group. Most of the children in the intervention 26 (74.3%) and control 23 (65.7%) groups belonged to the nuclear family. The majority of the children, both in the intervention 19 (54.3%) and control 22 (62.9%) groups, were firstborn children. The majority of children in the intervention group were diagnosed with a genitourinary disorder 8 (22.9%), whereas in the control group the majority were diagnosed with genitourinary 10 (28.6%) and gastrointestinal disorders 10 (28.6%). Most of the children in both the intervention 25 (71.4%) and control 28 (80%) groups did not have a previous history of admission. The study findings revealed that there was a significant difference between both the groups regarding age of the child (p-value=0.002), and previous history of admission (p-value=0.004) [Table/Fig-1].

The 20 (57.1%) children in the intervention group during pretest were unhappy due to hospitalisation; in post-test 1, the majority 20 (57.1%) of them were indifferent; during post-test 2, 17 (48.6%) of them were happy; and in post-test 3, most 18 (51.4%) of them were very happy. The majority 23 (65.7%) of the children in the control group were unhappy in pretest and during post-test 1 23 (65.7%), post-test 2 23 (65.7%), and post-test 3 25 (71.4%) were unhappy due to hospitalisation [Table/Fig-2].

Data collected from the parents revealed that in the intervention group during the pretest 30 (85.7%) and post-test 1 34 (97.1%), a majority of parents reported that their child had moderate anxiety; during post-test 2, a majority 21 (60%) of parents reported that their child has mild anxiety; and during post-test 3, all parents 35 (100%) reported that their child has mild anxiety. The majority of parents in the control group reported that their child had moderate anxiety on the pretest and all three post-tests [Table/Fig-3].

The mean scores of children in the intervention group improved significantly from pretest to post-test 3, whereas in the control group there was no significant difference during pretest to post-test 3 [Table/Fig-4].

There was a significant difference in the change in anxiety scores between pretest and post-test 1 (0.001), pretest and post-test 2 (0.001), pretest and post-test 3 (0.001), post-test 1 and post-test 2 (0.001), post-test 1 and post-test 3 (0.001) and post-test 2 and post-test 3 (0.033) in the intervention group [Table/Fig-5].

The Independent t-test showed a significant difference (p-value=0.001) in the child's anxiety scores between the groups at post-test 1, post-test 2, and post-test 3 [Table/Fig-6].

Demographic variables		Intervention n (%)	Control n (%)	p-value
Age of the child (years)	4	8 (22.9)	12 (34.3)	0.002*
	5	8 (22.9)	5 (14.3)	
	6	2 (5.7)	6 (17.1)	
	7	9 (25.7)	5 (14.3)	
	8	8 (22.9)	7 (20)	
Gender	Female	14 (40)	9 (25.7)	0.721
	Male	21 (60)	26 (74.3)	
Annual income of the family (INR)	<100000	32 (91.4)	32 (91.4)	0.474
	100000-200000	3 (8.6)	3 (8.6)	
Type of family	Nuclear Family	26 (74.3)	23 (65.7)	0.507
	Joint family	9 (25.7)	12 (34.3)	
Education qualification of parents	Primary	9 (25.7)	7 (20)	0.210
	High school	17 (48.6)	16 (45.7)	
	PUC	7 (20)	8 (22.9)	
	Graduate	2 (5.7)	4 (11.4)	
Birth order	First child	19 (54.3)	22 (62.9)	0.290
	Second child	9 (25.7)	8 (22.9)	
	Third child	6 (17.1)	3 (8.6)	
	>Third	1 (2.9)	2 (5.7)	
Diagnosis	Fever	4 (11.4)	2 (5.7)	0.411
	Gastro intestinal disorder	6 (17.1)	10 (28.6)	
	Respiratory disorder	5 (14.3)	1 (2.9)	
	Genitourinary disorders	8 (22.9)	10 (28.6)	
	Endocrine disorder	1 (2.9)	1 (2.9)	
	Oncology	6 (17.1)	5 (14.3)	
	Neurological disorder	2 (5.7)	-	
	Musculoskeletal disorder	3 (8.6)	6 (17.3)	
Previous history of admission	Yes	10 (28.6)	7 (20)	0.004*
	No	25 (71.4)	28 (80)	

[Table/Fig-1]: Frequency and percentage distribution of samples according to demographic variables.
n: Number; %: Percentage; PUC: Pre-university course, Chi square-test; *Significant at (p<0.05) level

There was a significant difference in the change in anxiety scores between pretest and post-test 1 (0.001), pretest and post-test 2 (0.001), pretest and post-test 3 (0.001), post-test 1 and post-test 2 (0.001), post-test 1 and post-test 3 (0.001), post-test 2 and post-test 3 (0.001) in the intervention group [Table/Fig-8].

The independent t-test shows a significant difference (p-value=0.001) in the parent-reported child's anxiety scores between the groups at post-test 1, post-test 2, and post-test 3 [Table/Fig-9].

Feedback collected from parents of intervention group regarding family centered art intervention revealed that all the parents were satisfied with the family centered art intervention [Table/Fig-10].

DISCUSSION

The present study showed that family centered art intervention was effective in reducing anxiety among hospitalised children. Similar findings were reported by Patil P et al., [11]. The aim of their study was to see the effectiveness of art therapy on the level of stress and anxiety among paediatric oncology patients. They reported that the effect of art therapy demonstrated a significant difference in mean stress and anxiety ratings in the post-test (p=0.00069 and p=0.000642). In the post-test comparison of anxiety levels with any form of cancer, the experimental group had a significance of p=0.010 compared to the control group [11].

A similar study was conducted by Nooruzi S et al., to assess the effectiveness of art therapy in decreasing depression and anxiety in preschoolers. The results revealed that the experimental group's mean sadness and anxiety levels decreased significantly in the post-test stage as compared to the control group (p=0.001). The study's findings revealed that painting-based art therapy is beneficial in lowering sadness and anxiety in preschool children [12].

The present study showed that family centered art intervention was effective in reducing anxiety among hospitalised children as reported by their parents (ANOVA test value F=1698.103, p-value=0.001).

A similar study was conducted by Sao K and Maurya A in the Warda district. They found that in the post-test, the anxiety level of the experimental group decreased statistically (p-value <0.05). The

	Intervention group				Control group			
	Pretest	Post-test 1	Post-test 2	Post-test 3	Pretest	Post-test 1	Post-test 2	Post-test 3
Grading	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Very happy	-	-	11 (31.4)	18 (51.4)	-	-	-	-
Happy	-	12 (34.3)	17 (48.6)	17 (48.6)	-	-	-	-
Indifferent	12 (34.3)	20 (57.1)	6 (17.1)	-	8 (22.9)	7 (20)	9 (25.7)	8 (22.9)
Unhappy	20 (57.1)	3 (8.6)	1 (2.9)	-	23 (65.7)	23 (65.7)	23 (65.7)	25 (71.4)
Very unhappy	3 (8.6)	-	-	-	4 (11.4)	5 (14.3)	3 (8.6)	2 (5.7)

[Table/Fig-2]: Frequency, percentage distribution of pre and post-test level of anxiety among hospitalised children.
n: Number; %: Percentage

	Intervention group				Control group			
	Pretest	Post-test 1	Post-test 2	Post-test 3	Pretest	Post-test 1	Post-test 2	Post-test 3
Grading	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
No anxiety	-	-	-	-	-	-	-	-
Mild anxiety	-	1 (2.9)	21 (60)	35 (100)	-	-	-	-
Moderate anxiety	30 (85.7)	34 (97.1)	14 (40)	-	23 (65.7)	23 (65.7)	23 (65.7)	25 (71.4)
Severe anxiety	5 (14.3)	-	-	-	12 (34.3)	12 (34.3)	12 (34.3)	10 (28.6)

[Table/Fig-3]: Pre and post-test parent reported child's anxiety level among hospitalised children in intervention and control group.
n=35+35, f: Frequency, %: Percentage

The mean scores in the intervention group decreased significantly from pretest to post-test 3, whereas in the control group no significant difference was observed in mean scores from pretest to post-test 3 [Table/Fig-7].

estimated t-value of the control group (1.263) was less than the calculated t-value at a 5% level of significance (2.045). There was no significant decrease in anxiety in the control group's post-test at the p-value >0.05 level [9].

Group	Time	Mean±SD	F test (ANOVA)	p-value
Intervention group	Pretest	3.74±0.61	236.248	0.001**
	Post-test 1	2.74±0.61		
	Post-test 2	1.91±0.78		
	Post-test 3	1.49±0.51		
Control group	Pretest	3.89±0.58	2.061	0.110
	Post-test 1	3.94±0.59		
	Post-test 2	3.83±0.57		
	Post-test 3	3.83±0.51		

[Table/Fig-4]: Comparison of child's anxiety scores by using RMS scale in intervention and control group at different time interval.
n=35+35, Test used=ANOVA, F (3,102)=2.694 at 0.05 level, *Significant at (p<0.05) level, **Highly significant (p<0.05), Maximum possible score=5

Study group	Time	Mean difference	Standard error	p-value
Intervention group	Pretest vs Post-test 1	1.0	0.15	0.001**
	Pretest vs Post-test 2	1.83	0.15	0.001**
	Pretest vs Post-test 3	2.26	0.15	0.001**
	Post-test 1 vs Post-test 2	0.83	0.15	0.001**
	Post-test 1 vs Post-test 3	1.26	0.15	0.001**
	Post-test 2 vs Post-test 3	0.43	0.15	0.033*
Control group	Pretest vs Post-test 1	0.57	0.13	1.00
	Pretest vs Post-test 2	0.57	0.13	1.00
	Pretest vs Post-test 3	0.57	0.13	1.00
	Post-test 1 vs Post-test 2	0.11	0.13	1.00
	Post-test 1 vs Post-test 3	0.11	0.13	1.00
	Post-test 2 vs Post-test 3	0	0.13	1.00

[Table/Fig-5]: Pair wise comparison of hospitalised child's anxiety scores within intervention group and control group.
n=35+35, Test used=ANOVA test with Bonferroni posthoc test, *Significant (p<0.05), **Highly significant (p<0.05)

Time	Group	Mean±SD	Mean difference	t-test (Independent t-test)	p-value
Pretest	Intervention group	3.74±0.61	0.14	1.001	0.320
	Control group	3.89±0.58			
Post-test 1	Intervention group	2.74±0.61	1.20	8.351	0.001**
	Control group	3.94±0.59			
Post-test 2	Intervention group	1.91±0.78	1.91	11.726	0.001**
	Control group	3.83±0.57			
Post-test 3	Intervention group	1.49±0.51	2.34	19.202	0.001**
	Control group	3.83±0.51			

[Table/Fig-6]: Comparison of hospitalised child's anxiety scores in between the intervention group and control group.
n=35+35, Test used=Independent t test, *Significant at p (<0.05), **Highly significant (p<0.05)

Group	Time	Mean±SD	F test (ANOVA)	p-value
Intervention group	Pretest	15.26±1.62	1698.103	0.001**
	Post-test 1	11.54±1.56		
	Post-test 2	8.34±1.33		
	Post-test 3	4.51±1.42		
Control group	Pretest	15.63±2.25	2.085	0.107
	Post-test 1	15.60±2.26		
	Post-test 2	15.51±2.24		
	Post-test 3	15.46±2.21		

[Table/Fig-7]: Difference in parent-reported child's anxiety scores within intervention and control group.
n=35+35, Test used=ANOVA, F (3,102)=2.694 at 0.05 level, *Significant at (p<0.05) level, **Highly significant (p<0.05), Maximum possible score=24

Study group	Time	Mean difference	Standard error	p-value
Intervention group	Pretest vs Post-test 1	3.71	0.36	0.001**
	Pretest vs Post-test 2	6.91	0.36	0.001**
	Pretest vs Post-test 3	10.74	0.36	0.001**
	Post-test 1 vs Post-test 2	3.20	0.36	0.001**
	Post-test 1 vs Post-test 3	7.03	0.36	0.001**
	Post-test 2 vs Post-test 3	3.83	0.36	0.001**
Control group	Pretest vs Post-test 1	0.03	0.53	1.00
	Pretest vs Post-test 2	1.11	0.53	0.26
	Pretest vs Post-test 3	1.17	0.53	0.34
	Post-test 1 vs Post-test 2	0.08	0.53	1.00
	Post-test 1 vs Post-test 3	0.14	0.53	0.80
	Post-test 2 vs Post-test 3	0.06	0.53	1.00
	Pretest vs Post-test 1	0.03	0.53	1.00

[Table/Fig-8]: Pair-wise comparison of parent reported child's anxiety scores within intervention and control group.
n=35+35, Test used=ANOVA test with Bonferroni posthoc test, *Significant (p<0.05), **Highly significant (p<0.05)

Time	Group	Mean±SD	Mean difference	t-test (Independent t-test)	p-value
Pretest	Intervention group	15.26±1.62	0.37	0.793	0.430
	Control group	15.63±2.25			
Post-test 1	Intervention group	11.54±1.56	4.06	8.729	0.001**
	Control group	15.60±2.26			
Post-test 2	Intervention group	8.34±1.33	7.17	16.290	0.001**
	Control group	15.51±2.24			
Post-test 3	Intervention group	4.51±1.42	10.94	24.602	0.001**
	Control group	15.46±2.21			

[Table/Fig-9]: Comparison of parent reported child's anxiety scores between intervention and control group.
n=35+35, Test Used=Independent t test, *Significant at (p<0.05), **Highly significant (p<0.05)

Grading	Scoring	Frequency	Percentage
Unsatisfied	0-10	-	-
Satisfied	11-20	35	100

[Table/Fig-10]: Level of parent's opinion on family centered art intervention.
n=35

A similar study was conducted by Dalei SR et al., to see the effect of art therapy and play therapy on anxiety among hospitalised preschool children, and they reported that 75% of the children had moderate anxiety, 20% had severe anxiety, and 5% of the children in the study exhibited mild anxiety. A significant difference in anxiety level was detected between pretest and post-test mean scores in art and play treatment at p<0.0001 [13]. Comparison of similar studies has been done in [Table/Fig-11] [14-19].

A three-group randomised clinical trial with a pretest-post-test design was done by Rezazadeh H et al., one control group and two intervention groups (art and music). Art therapy sessions were done every day for 45 minutes. Anxiety and depression levels were measured before and after the intervention, and it was observed that painting and music therapy helped children to feel less anxious and depressed [14].

In a randomised trial study by Beebe A et al., 26 children with asthma were randomised to active art therapy or a wait-list control

S. No.	Authors name and publication year	Place of study	Number of subjects	Intervention given	Parameters compared	Conclusion
1	Rezazadeh H et al., [14], 2020	Imam Reza Hospital in Mashhad, Iran	60 hospitalised with burns	Art Therapy (Painting and Music)	Anxiety and Depression	Painting and music therapy helped children with burns feel less anxious and depressed.
2	Beebe A et al., [15], 2010	Kunsberg School, located on the campus of National Jewish Health	22 children with asthma	Art therapy	Children with asthma	This study concluded that art therapy provides advantages to children with asthma, such as reducing anxiety and improving quality of life.
3	Lopez-Bushnell FK and Berg M [16], 2018	UNMH General Paediatrics Unit and the Paediatric Specialty Care Unit.	200 hospitalised children	Art therapy	Vital signs	During and after the art activity, the heart rate consistently dropped as the oxygen saturation level rise.
4	Purrezaian H et al., [17], 2020	Iran	5 hospitalised children with cancer	Family based art therapy	Depression and pain anxiety	The findings revealed that family-based art therapy was beneficial in lowering depression and pain-related anxiety feelings in all of the children.
5	Ramdaniati S and Hermaningsih S [18], 2016	Al Islam Bandung Hospital, Indonesia	48 hospitalised preschool children	Art therapy and play therapy	Anxiety	The authors came to the conclusion that art therapy and play therapy can help preschool children cope with the fear of being admitted to the hospital.
6	Dionigi A and Gremigni P [19], 2017	Italy	78 children who are undergoing surgery under general anaesthesia	Art and clown intervention	Anxiety	According to this study an intervention based on art therapy and clown visits improved the impact of midazolam in lowering children's anxiety during preoperative separation from parents.
7	Present study, 2023	Paediatric ward of Yenepoya Medical College Hospital, Mangaluru, India	70 hospitalised children	Family centered art intervention	Anxiety	The score of present study showed that family centered art intervention had a significant effect on reducing anxiety among hospitalised children.

[Table/Fig-11]: Comparison of the findings in present study with contrast studies [14-19].

group. For seven weeks, children in the active art therapy group had 60-minute art therapy sessions once a week for seven weeks. Children in the control group did not receive art therapy intervention. The result of this study revealed that from baseline until the end of art therapy, the active group showed improved problem-solving and affect drawing scores; improved concern, communication, and total quality of life scores; and improved Beck anxiety and self-concept scores as compared to the control group [15]. Lopez-Bushnell FK and Berg M found that there was a continuous reduction in heart rate and a rise in oxygen saturation level. At the time of the exercise, the majority of the children were not in pain [16].

A study was done by Purrezaian H et al., on the development and effect evaluation of a new family-based art therapy on depression and pain anxiety in hospitalised children with cancer and to evaluate its effectiveness on the symptoms of depression and pain anxiety. The findings suggest that family-based art therapy is successful in reducing the psychosocial effects of cancer [17]. A study by Ramdaniati S and Hermaningsih S found that more than half of the respondents did not feel anxiety following therapy, none of the respondents reported severe anxiety. Before the treatment, 52% of the play therapy group reported moderate anxiety, and there was no one who did not have anxiety [18].

A study conducted by Dionigi A and Gremigni P found that an intervention based on art therapy and clown visits improved the impact of midazolam in lowering children's anxiety during preoperative separation from parents [19].

Limitation(s)

This study was limited to one setting hence the generalisation was not possible.

CONCLUSION(S)

The score of present study showed that family centered art intervention has a significant effect on reducing anxiety among hospitalised children. The study found that there was a significant association between age of the child and previous history of admission with anxiety level. The study showed that all the parents in the intervention group were satisfied with the family centered art intervention. The current study will provide important information for future nursing research in family centered art intervention. The outcomes of this study can be used by nurse researchers to

perform more interventional research to determine the anxiety level and explore various measures to reduce it.

Acknowledgement

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