

# Impact of the Art Therapy on Anxiety and Depression of Hospitalized Children

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## Abstract

**Background:** The hospital setting itself can be a cause of both hope and distress to the ill children and their families. Prolonged hospitalization and advance medical procedures and care can lead to anxiety or depression. **Aim of the Study:** To assess reactive anxiety and depression level among hospitalized children before and after application of art therapy intervention at pediatric ward. **Material & Method:** A quantitative quasi-experimental, cross sectional design. The study conducted in the medical/surgical inpatient wards at in Tabuk City- *King Salman Military Hospital*. It was consecutive sample, the sample size was 30 child. The researcher used a tool to assess level of reactive anxiety and depression of hospitalized children. **Results:** The study results showed levels of HADS Anxiety for children before test and after, its reported that (23.33%) of children tested in the hospitals their anxiety level is border line pretest and (0%) on the same level after posttest. levels of HADS depression for children before test and after, its reported that (63.33%) of children tested in the hospitals their depression level is border line pretest and decreased to (13.33%) on the posttest. DAP test showed decrease in the anxiety and depression indexes in the posttest compared to the pretest. ANOVA indicated a significant time effect pre and posttest. Thus, there is a significant evidence that there was a change in art therapy.

**Keywords:** School age children, art therapy, drawing, painting, anxiety, depression, hospitalization, hospital environment, chronic illness.

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## INTRODUCTION

Hospitals are not a place for child to be childish, there is no enough space to play, the hospital rigid roles and environment will not allow the children to express themselves freely. There is many stressors that will affect the child during hospital admission, the disease signs and symptoms severity, the medical treatment procedures, the social isolation, the separation from beloved family members, and the high stimuli environment. The hospital setting itself can be a cause of both hope and distress to the ill child and the family. The hospitals offer hope for cure and relief from endure, the medical environment can feel like a foreign place (Malchiodi, 2012a).

Despite increasing evidence of the effectiveness of psychosocial care programs for cancer patients, slight consideration has been given to the arts as tools to address mental health problems and improve quality of life (Bosman *et al.*, 2020).

Art therapy, identified as a non-pharmacological complementary and alternative therapy, it had been used as one of the alternative interventions with clinical efficacy in psych-disorders (Hu *et al.*, 2021).

Expressive arts therapy is uniquely designed to address issues such as method to decrease stress during hospitalization. It is a therapeutic approach that integrates a wide range of arts styles in the service of human growth, development, and healing. This therapy uses imagination, rituals, and the creative process (Siegel *et al.*, 2016).

Public of all ages suffering from negative mental such as anxiety and depression. In previous studies, It was verified that using art therapy as an intervention could help improve of Anxiety and Depression (Whitenburg, Macy E., 2020).

Art therapy benefit in reducing anxiety and depression and improve quality of life in adults with cancer (Bosman *et al.*, 2021).

Meta-analysis study found that art therapy for breast cancer patients had a positive effect on depression but not on anxiety. There seems to be a critical period for art therapy to reduce anxiety and depression in such patients (Xu *et al.*, 2020).

Music therapy, painting therapy, and dance therapy can all greatly relieve the mental stress of college students. Relatively speaking, dance therapy has the most significant effect. Music therapy and painting therapy show a slightly weaker but more stable relieving effect.

Hence, psychotherapies do not only seek at symptom reduction but also have other important aims, such as changes in personality structure, emotional skills and social interaction, improved coping skills or increased self-reflection. Although there is resemblance in symptomatic outcomes between psychotherapy and art therapy, experiences of the art therapy method may vary qualitatively from only verbal therapies and include special working mechanisms which are only connected with artistic interaction and its impacts (Rankanen, 2016).

Art therapists use art methods such as drawing, painting, working with clay, wood or stone. Art therapy in forensic psychiatry aims at creating an art object in which patients' internal processes are externalized into a concrete form (van den Broek *et al.*, 2011).

## RESEARCH METHODOLOGY

### Research Design

A quantitative quasi-experimental, cross sectional design.

### Settings

This study was conducted in Tabuk City, which located at the north western region of Saudi Arabia. The setting is *King Salman Armed Forces Hospital*, in pediatric medical surgical ward.

### Subjects

All children who enrolled in the study were aged from 6-12. Male and female. They are selected based on abnormal finding of reactive anxiety and depression result by using HADS and DAP test. Estimated number of hospitalized children aged form 6-12 years from both sex are 90- 100 child. The following formula (Yamane, 1967) applied to determine the sample Size:  $e = \text{Sqrt} \left[ \frac{(N_m) \times n}{N-i} \right]$ . At 90 % confidence level and margin of error 9.8% , the estimated sample size is 30 child.

### Sample Type

Consecutive non-random sample.

### Inclusion Criteria:

- ❖ Hospitalized children (acute and chronic).
- ❖ Children age between 6 to 12 years old.
- ❖ Children from both sexes (male and female).
- ❖ All nationalities (Saudi and non-Saudi).

### Exclusion Criteria:

- ❖ Children who their parent refuses to participate in the study.
- ❖ Children who are in pain according to pain scale.
- ❖ Children who are immune-compromise.
- ❖ Children who are paralyzed.
- ❖ Children who diagnosed with psychological and neurological problems e.g. General anxiety disorder, Mood disorders, Attention-deficit/hyperactivity disorder (ADHD), Autism, Epilepsy.

### Data Collection

#### Tools of the Study

The researcher uses a tool to assess level of reactive anxiety and depression of hospitalized children with acute and chronic illness.

The tool is composing of three parts as the following:

- **Part One:** The socio-demographic section was developed to collect information about children age, sex. As well as family. Demographic and clinical data were collected from hospital records.
- **Part Two:** (Pre and post assessment) Hospital Anxiety and Depression Scale (HADS). The questionnaire comprises 14 items, seven questions for anxiety and seven questions for depression.
- **Part Three:** (Pre and post assessment) Draw a Person test ( DAP). Participants requested to draw a human figure on a piece of A4 white paper. First, all needing instruments were providing for all participants including A4 paper, pencil, eraser, and a box of colored pencils. No restrictions were applying regarding the use of color, paper orientation, figure size and its gender or age. It takes around 10 minutes to complete. All drawings were gathered and scored based on Machover's criteria to confirm previous tool results.

## RESULTS

### *Socio-Demographic Characteristics for the Family and the Child:*

The researcher explored the data to know that nature of the socio-demographic background for both the child and family of the child to give us a better understanding of the sample and help us answers the questions.

**Table 1: Percent Distribution of Child Socio-demographic information**

Variables	N=30	%
<b>Child Age</b>		
6-7 years	10	33.33%
8-9 years	8	26.67%
10-11 years	6	20.00%
12 years	6	20.00%
<b>Child Gender</b>		
Male	16	53.33%
Female	14	46.67%
<b>Child Education</b>		
First Grade	5	16.67%
Second Grade	6	20.00%
Third Grade	5	16.67%
Fourth Grade	6	20.00%
Fifth Grade	3	10.00%
Sixth Grade	5	20.00%
<b>Child Order</b>		
First Child	3	10.00%
Second - Fourth	12	40.00%
Elder than fourth	15	50.00%
<b>Child illness</b>		
Acute	12	40.00%
Chronic	18	60.00%

From looking at table (1) we saw that Child Age around (33.33%) of children were in the age group 6-7 years , then (26.67%) of the children for which their age group is 8-9 years. Moreover, only (20.00%) of sampled children were in the age group 10-11 years. (20.00%) of sampled children were in the age group 12 years.

Gender showed that (53.33%) of the sample were males and (46.67%) are females.

Child education showed that highest education levels of sample were: second, fourth and sixth grade with (20.00%), then first and third grade with (16.67%). The percentage of fourth grade is (10.00%).

Child Order (50.00%) of the sample elder than fourth .While between second and fourth with (40.00%) of the sample, then comes first with (10.00%).

Child illness were (60.00%) of the children diagnosis as a chronic and (40.00%) were acute.

**Table 2: Percent Distribution of Medical/ Surgical Diagnosis**

Diagnosis	N=30	%
Sickle cell anemia	7	23.33%
Renal Failure	6	20.00%
Leukemia	5	16.67%
Asthma	2	06.67%
Tonsillectomy	1	03.33%
Appendectomy	3	10.00%
Bronchopneumonia	1	03.33%
DM	3	10.00%
Nephrotic Syndrome	2	6.66%

Table (2) showed that the highest diagnosis was SCA (23.33%), and Renal Failure (20.00%).Third was Leukemia with (16.67%). Fourth were Appendectomy and DM with (10.00%). Then asthma with (06.67%).Tonsillectomy, Bronchopneumonia, Nephrotic Syndrome was (6.66%).

The research had three questions as the following:

1. What is status of hospitalized children reactive anxiety and depression?

2. What is the art therapy impact on anxious and depressed hospitalized children?
3. Are there a correlation between impact of art therapy and acute / chronic illness and socio-demographics factors?

The first question in this study that need to be answered was, what is status of hospitalized children anxiety and depression? To be able to answer this question we needed to analyze the children reactive anxiety and depression scales in the questionnaires,

which include multiple items and validated scales, the final score of the children reactive anxiety and

depression will be reported to see the level of children anxiety and depression.

**Table 3: Percent Distribution of Level of HADS depression for children**

Level of HADS depression	PRE TEST		POST TEST	
	N=30	%	N=30	%
Within range of normality	7	23.34%	26	86.67%
Boarder line	19	63.33%	4	13.33%
Abnormal depressed	4	13.33%	0	00.00%

Table (3) Show the levels of HADS depression for children before test and after, it was reported that (63.33%) of children tested in the hospitals their depression level is border line pretest and decreased to

(13.33%) on the posttest. Also, (13.33%) have 11-21 abnormal levels of depression pretest and (00.00%) after posttest.

**Table 4: Percent Distribution of Level of HADS anxiety for children**

Level of HADS anxiety	PRE TEST		POST TEST	
	N=30	%	N=30	%
Within range of normality	17	56.67%	30	100.00%
Boarder line	7	23.33%	0	0.00%
Abnormal depressed	6	20.00%	0	0.00%

Table (4) showed the level of HADS Anxiety for children before test and after, it was reported that (23.33%) of children tested in the hospitals their anxiety

level is border line pretest and (0%) on the same level after posttest. Also, (20.00%) have 11-21 abnormal levels of Anxiety pretest and (0%) after posttest.

**Table 5: Percent Distribution of Level of DPA Anxiety test**

Anxiety Index	PRE TEST		POST TEST	
	N=30	%	N=30	%
→ Using eraser	14	46.67%	12	40.00%
→ Abnormally open arms and hands	7	23.33%	6	20.00%
→ Small and unstable feet	11	36.67%	8	26.67%
→ Adding extra details such as hat or belt to the figure	3	10.00%	7	23.33%
→ Linear and erratic mouth	4	13.33%	3	10.00%
→ Thin and incomplete lines	3	10.00%	2	06.67%

\*answers not usually exclusive

Table (5) illustrated the DPA Anxiety test where item using eraser (46.67%) of the children Positive pretest and (40.00%) answered posttest. Similarly with item abnormally open arms and hands

increase in percentage from pretest compared to posttest, also, all the other indexes either there were an increase from pretest compared to the posttest levels.

**Table 6: Percent Distribution of Level of DPA depression test**

Depression Index	PRE TEST		POST TEST	
	N=30	%	N=30	%
Broad or short arms, or arms attached directly to body	6	20.00%	5	16.67 %
Very small figure	9	30.00 %	5	16.67 %
Small body parts	10	33.33%	5	16.67 %
Omission of mouth	5	16.67 %	0	0.00%

\*answers not usually exclusive

Table (6) illustrated the DPA depression test where item broad or short arms, or arms attached directly to body was (20.00%) of the children, and (16.67 %) answered posttest. In addition, with item very small figure decreased from pretest compared to posttest, also, all the other indexes there were a decreased from pretest levels to posttest levels.

The second question in the study that answered was what is the art therapy impact on anxious and depressed hospitalized children? To be able to answer this question we need to run a repeated measures Anova test, where children were tested in two different times before and after being exposed to the art thereby.

**Table 7: Multivariate tests for effect of art thereby on children depression**

Multivariate Tests <sup>a</sup>									
Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power <sup>c</sup>
Time	Pillai's Trace	.569	38.257 <sup>b</sup>	1.000	29.000	.000	.569	38.257	1.000
	Wilks' Lambda	.431	38.257 <sup>b</sup>	1.000	29.000	.000	.569	38.257	1.000
	Hotelling's Trace	1.319	38.257 <sup>b</sup>	1.000	29.000	.000	.569	38.257	1.000
	Roy's Largest Root	1.319	38.257 <sup>b</sup>	1.000	29.000	.000	.569	38.257	1.000

A one-way ANOVA repeated measures analysis of variance was conducted to evaluate if there was a change in children depression levels when measured before and after the art therapy , the results of

the ANOVA indicated a significant time effect , Wilks' Lambda = 0.43,  $p < 0.05$ . Thus, there was a significant evidence that there was a change after art therapy.

**Table 8: Pairwise Comparisons**

(I) Time	(J) Time	Mean Difference (I-J)	Std. Error	Sig. <sup>b</sup>	95% Confidence Interval for Difference <sup>b</sup>	
					Lower Bound	Upper Bound
1	2	.767*	.124	.000	.513	1.020
2	1	-.767*	.124	.000	-1.020	-.513

Based on estimated marginal means  
 \*The mean difference is significant at the .05 level.  
 b. Adjustment for multiple comparisons: Bonferroni.

Follow up comparison indicated that each pairwise difference was a significant Table (7),  $p < 0.05$ .

There was a significant decreases in depression score over time.

**Table 9: Multivariate tests for effect of art thereby on children Anxiety**

Multivariate Tests <sup>a</sup>									
Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power <sup>c</sup>
Time	Pillai's Trace	.388	18.399 <sup>b</sup>	1.000	29.000	.000	.388	18.399	.986
	Wilks' Lambda	.612	18.399 <sup>b</sup>	1.000	29.000	.000	.388	18.399	.986
	Hotelling's Trace	.634	18.399 <sup>b</sup>	1.000	29.000	.000	.388	18.399	.986
	Roy's Largest Root	.634	18.399 <sup>b</sup>	1.000	29.000	.000	.388	18.399	.986

One-way ANOVA repeated measures analysis of variance was conducted to evaluate if there was a change in children Anxiety levels when measured before and after the art therapy, the results of the

ANOVA indicated a significant time effect , Wilks' Lambda = 0.61,  $p < 0.05$ . Thus, there was a significant evidence that there was a change after art therapy.

**Table 10: Pairwise Comparisons**

(I) Time	(J) Time	Mean Difference (I-J)	Std. Error	Sig. <sup>b</sup>	95% Confidence Interval for Difference <sup>b</sup>	
					Lower Bound	Upper Bound
(I) Time	(J) Time	Mean Difference (I-J)	Std. Error	Sig. <sup>b</sup>	95% Confidence Interval for Difference <sup>b</sup>	
					Lower Bound	Upper Bound
1	2	.633*	.148	.000	.331	.935
2	1	-.633*	.148	.000	-.935	-.331

Based on estimated marginal means  
 \*. The mean difference is significant at the .05 level.  
 b. Adjustment for multiple comparisons: Bonferroni.

Follow up comparison indicated that each pairwise difference was a significant,  $p < 0.05$ . Table (9)

there was a significant decrease in depression score over time.

The third question in this study that answered was, is there a correlation between impact of art therapy and acute / chronic illness and socio-demographics factors?

To be able to answer this question we need to run a chi-square association test between socio-demographics factors and post test results for children anxiety and depression levels.

**Table 11: Correlation between demographic variables and children anxiety and depression level after art thereby**

Demographic variables	HADS Depression posttest $\chi^2$	HADS Anxiety posttest $\chi^2$
Child Age	5.709	9.961
Child Gender	2.3	0.919
Child Education	3.442	9.519
Child Order	1.794	1.958
Sibling Number	21.916	16.119
Mother age	28.487	27.615
Mother Education	11.462	9.802
Mother Working	1.812	0.307
Father age	49.083	24.84
Father Education	9.104	9.959
Family Income	8.33	3.535
Diagnosis	70.2**	48.96*
History of Psychological Disorders	12.24**	12.242**
** Correlation is significant at the 0.01 level (2-tailed).		
* Correlation is significant at the 0.05 level (2 tailed).		

Table (11) showed the results of chi-square test correlate between socio-demographic and post test results, we find there were two significant correlations

between both anxiety and depression results with diagnosis of the child and with the history of psychological disorders.

**Table 12: Correlation between the depression and anxiety levels with the Child acute/chronic condition**

Child acute/chronic condition		Acute		Chronic		P-Value
		No.	%	No.	%	
HADS Depression pre test	Within range of normality	33	50.00%	33	50.00%	0.023*
	Boarder line	15	48.40%	16	51.60%	
	Abnormal depressed	4	50.00%	4	50.00%	
HADS Anxiety pre test	Within range of normality	44	53.00%	39	47.00%	5.36
	Boarder line	3	21.40%	11	78.60%	
	Abnormal anxious	5	62.50%	3	37.50%	

\*Correlation is significant at the 0.05 level

The table above showed the correlation between the depression and anxiety levels with child acute/chronic illness and proved that there was a significant correlation between depression and child acute/chronic condition. However there were no significant correlations with anxiety.

## DISCUSSION

The results of the present study reflect that school age children have a positive reactive anxiety and depression in relation to their hospitalization crises before implementing the art therapy. Hospitalized child's reaction to hospitalization measured with HADS and DAP test.

Around 76.66% of the total sample pretest depression level is between border line abnormal levels of depression its decreases to 13.33% in post-test. In the other hand anxiety have 43.33% between border line and abnormal levels its decreases to 0.00% post-test.

However, the indexes of anxiety and depression are high in the pretest and its deceases in the post test.

Studies have been implemented to assess the child psychological reaction during hospitalization which showed that hospitalization have a negative impact on child socio psychological health (Linda F.Browna, 2010(Janaina M. Moreira & Antônio L .Teixeiram 2015; Lerwick, 2013; MARIA FORSNER, 2005; McCaffrey, 2006; Rokach, 2016),(Sohier Yahia & Ahmad Darwish, 2013).

In 2009 in Saudi Arabia around 545 female students recruited in this study, 73.4% had symptoms of at least one of the 3 studied disorders; 50.1% had at least 2 disorders. The prevalence of symptoms of depression, anxiety and stress was 41.5 %, 66.2% and 52.5% respectively. The majority of symptoms were mild to moderate in severity (Khalid S. Al- Gelban, 2009). In addition, a study show that 66.0% of children experience mild psychosocial effects during hospital

stays. The general results of this study show that there's a significant relationship between the psychosocial impact of hospitalization with frequency and length of hospitalization (Obaid, 2015).

From the perspective of regional related literature a study conducted in 2014 in Ankara, Turkey which obtained to determine the perception of hospital experiences among school-age children's (6–12 years), a descriptive and cross-sectional study was performed in 130 children hospitalized in a pediatric hospital with different diagnoses. The study indicates that the degree of sources of anxiety generating thoughts among kids who were knowing about their hospitalization was higher compared to the children who weren't knowing (Handan Boztepe, 2017).

A study about psychosocial impact of hospitalization on oncology ill children shows that psychosocial impact of hospitalization was about 66% of sample had mild impact while 25% of sample had moderate impact. Moreover, the results showed significant relationships between the frequency of hospitalization and duration of hospitalization (Obaid, 2015).

Anxiety, depression in children with chronic kidney disease of the 56 children enrolled in the study, the CKD patients were referred to mental health professionals more frequently than the controls. Patients exhibited higher scores for separation anxiety and a higher frequency of clinically significant depressive symptoms (Moreira, Bouissou Morais Soares, Teixeira, Simões E Silva, & Kummer, 2015).

Association of Depression and Anxiety with Cancer about 397 patients who screened positive for either pain or depression or both, 135 had co-morbid anxiety and depression, 174 had depression but not anxiety, and 88 had neither (Linda F. Browna, 2010)

In this present study it's obvious that there is a significant decrease in anxiety and depression over time ( $p < 0.05$ ). There is a significant evidence that the cause of change is art therapy, see [Table 12-14]. Researches done and indicate that art therapy can improve the psychological health of the patients (STOECKLE, 2017; Timothy W. Puetz, 2013).

An overview of art therapy interventions for cancer patients of 56 retrieved manuscripts, 17 papers reporting 12 research projects were included. The art therapy interventions differ from each other considerably in their content and structure. A decrease in anxiety and depression was noted in six of these papers (Geue *et al.*, 2010).

In a regional perspective one research findings revealed a significant difference in the level of aggression between pre- and post-intervention scores

among all participants, but no significant difference between anxiety before and after the intervention (Pesso-Aviv *et al.*, 2014).

Shiva Kheibari conducts study in Iran and states that 90 minutes of art therapy effectively decreases anxiety among orphaned children, the mean state anxiety score between pre-activity and post-activity decreased significantly in the expressive art-making group, whereas no difference was found in the control group. Similarly, the mean trait anxiety score between pre- and post-activity in the art-making group was significantly lower, and no difference was observed in the controls (Shiva Zarezadeh Kheibari, 2014).

Painting therapy research findings indicate that there is an impacted of art 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. 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 the experimental group (Anahita Khodabakhshi Koolae, 2016).

In Turkey one study examined the prevalence of psychological symptoms among Syrian refugee children ( $N = 64$ ) and assessed the effect of an art therapy intervention on post-traumatic stress, depression and anxiety symptoms. After the baseline assessment, a five-day art therapy intervention, which is based on Skills for Psychological Recovery, was implemented. Findings of the study indicated that 60.3% ( $N = 35$ ) of Syrian children who participated had high risk to develop post-traumatic stress disorder (PTSD) according to the SLE scale. The 23.4% of the children had PTSD symptoms while the 17.6% showed severe depression symptoms. Moreover, the 14.4% of the children showed severe levels of state anxiety symptoms and the 31.1% showed severe levels of trait anxiety symptoms. Findings of the study indicated that trauma, depression and trait anxiety symptoms of children were significantly reduced at the post-assessment. However, for state anxiety scores, significant differences between pre- and post-assessments did not appear (Nilay Ugurlu, 2016).

The therapeutic intervention reduced children's state anxiety the average age of children was 12.56 years  $\pm$  2.67 and 76.7% were girls. The mean age diagnosis and mean treatment duration were 11.26 years  $\pm$  3.17 and 16.56 months  $\pm$  20.75 respectively. Most of the children (50%) had leukemia and were receiving chemotherapy (66.7%). Scores on the State Anxiety Inventory were significantly lowered indicating lower anxiety-after the intervention ( $p < 0.05$ ) (Naime Altay, 2017).

Determine the effect of group play therapy on separation anxiety disorder in school children 7-9 years old children in Tehran. Sample was 20 children, who were diagnosed as separation anxiety disorder. Experimental group received 9 sessions of group play therapy once a week. The results of covariance analysis showed the significant effect of group play therapy on reduction of separation anxiety disorder in children in post-test and follow up stage ( $p < 0.05$ ) (Z. Bekirogullari, Shoaakazemi, Mehrangiz, Javid, Mehravar Momeni, Tazekand, Fariba Ebrahimi, Rad, Zahra Shamloo, Gholami, Nayereh, 2012).

Anxiety scores in both groups were similar at baseline and decreased significantly over the 3 days. The greatest decrease occurred in the percentage of children in the experimental group with medium-level anxiety scores: baseline ( $n = 61, 75\%$ ), day 2 ( $n = 24, 30\%$ ), and day 3 ( $n = 0, 0\%$ ). This simple, low-cost play intervention implemented by nurses resulted in statistically and clinically significant decreases in the anxiety levels of children in an acute inpatient setting (Naime Altay, 2017).

However, as an international perspective one study examined 60 preoperative school age children in the age of 6-12 years, pretest anxiety was assessed and play intervention (video game) given to the experimental group along with the routine care. The pre-test anxiety scores in both control and experimental group showed that the entire sample had a lot anxious. But in the post-test, anxiety level in the experimental group showed that majority (80%) of the sample experienced medium anxious and 20% little. In the control group majority (90%) was found to have medium anxious and 10% experienced a lot anxious (Nisha K 2013).

In Cyprus study was conducted with elementary school boys after 12 sessions painting therapy shows a significant change of adaptive behaviors and emotions and reducing symptoms of separation anxiety disorder  $p > 0.05$  (Uzunboylu *et al.*, 2013).

Colwell Compare three music therapy strategies (music listening, music composition, and Orff-based active engagement) on physiological (heart rate, blood pressure, oxygen saturation, and pain) and psychosocial (anxiety) behaviors of hospitalized children ( $N=32, 17$  females,  $15$  males, ranging in age from 6 to 17). Pain and anxiety both decreased significantly ( $p=.01$ ) but not differentiated among conditions (Colwell *et al.*, 2013).

Another study of art therapy and music therapy with hospitalized children the researchers found a statistically significant difference between pre and post measures, suggesting that pain does seem to decrease

with both music therapy and art therapy (Einat Metzl, 2016).

This research results show significant correlation between either depression or anxiety with child diagnosis and psychological history. Other significant correlation between depression and acute and chronic illness.

In an international perspective the socio-demographic data of a study conducted in USA about impact of arts Therapy with Hospitalized Children the age was in range 4 to 16 years. 11 were male and 14 female (J. Siegel *et al.*, 2016).

In 2015 one study done in UK to analyze the symptoms of anxiety and depression among school-aged children with active epilepsy, the socio-demographic data as following: Sex: male/female 36/33 (52%/48%) of total sample of 69 child (Reilly *et al.*, 2015).

In Brazil one study found no significant association between clinical or laboratory findings and psychological variables in CKD patients (Janaina M. Moreira & Antônio L. Teixeira 2015).

Studies were done regarding gender difference's in relation with anxiety and depression (McHenry, Carrier, Hull, & Kabbaj, 2014; PICARD, 2015). The two demographic variables of age and gender did not have significant effects on the risk for depression and anxiety (J. Kelly Graves, 2016; Lerwick, 2013). No significant gender difference was found on the variable of depression (Sharma, 2014). Girls are more prone to anxiety as compared to boys (Rehman, 2014).

Lerwick found that sex and age was a risk factor for acute trauma have shown relatively strong outcomes if their social environment has not been severely impaired and if they possess high levels of social support. Additional risk factors include children with limited intellectual ability, sex (female), age (younger), family life (instability), and intense exposure to frightening events (Lerwick, 2013).

The correlation between depression, anxiety, and quality of life were tested by Kelly as were the effects of age, gender, and pain frequency on these variables in children ( $n = 44$ ) and adolescents ( $n = 31$ ) with sickle cell disease. The mean and standard deviation for summary RCADS scores for the majority of participants were below the clinical thresholds of  $T < 65$ , indicating low risk for depression ( $n = 65; 89.3\%$ ) and anxiety ( $n = 70; 93.3\%$ ). Significant negative correlations were found between mean total quality of life scores and symptoms of general anxiety ( $r = -0.51, p < 0.0001$ ), b) depression ( $r = -0.66, p < 0.0001$ ). Age and gender did not have significant effects on risk for



depression and anxiety or poor QOL (J. Kelly Graves, 2016).

### Limitations

Limitations to this study was discussed, the main areas limit this study's findings and applicability to other settings.

- ✧ **First**, the sample was limited by 30 child only because of some barriers such as parents refusal to participate or child discharged so soon. Because the sample size was so limited, the results from this study could not be generalizable.
- ✧ **Second**, there is no control group because there was no enough sample as mentioned before. However, further researches could be done in biggest sample size with control group.
- ✧ **Third limitation** to this study is that some of the children had more time and difficulties to fill up the questionnaire so the researcher had to read and explain the items one by one for them. As well a unique challenge to conducting research within an in-patient setting is coordinating with the clinical team to avoid interruptions that may impact the ability to obtain stable assessments. Despite careful coordination, this is not always possible.
- ✧ **The fourth limitation** is the variability between participants in terms of their diagnoses, reason for admission, medication regimen, and duration of hospitalization.
- ✧ **Fifth limitation** that the mother response to the child needs was not controlled for during the study.

### RECOMMENDATION

Recommendation for further research to utilize larger sample size so the study could be generalized, employing a random selection of participants, expanding age group to 2- to 18-year olds with a variety of symptoms and disorders and use a control group. Also, recommend to mixed qualitative and quantitative designs to explore aspects of the research core. Furthermore, research could be designed to quantify results of three different interventions offered to hospitalized children, such as talk therapy, humor therapy, play, and art therapy. Also, a parental involvement measurement of anxiety and depression versus the child report may introduce more information than what current research presents. Recommendation to use art making activities within the hospital environment in terms of possible modifications of negative impacts and to promote the children psychological health.

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