

The Effectiveness of Playing Therapy: Painting and Colouring on Anxiety Levels Preschool Children before Chemotherapy Procedures in Women and Children Hospital of Harapan Kita Jakarta

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Abstract: Cancer and its treatment will cause anxiety and various effects not only physically but also psychologically. One of the things that matter to reduce anxiety in children is playing therapy: painting and coloring. The purpose of this study is to determine the effectiveness of painting and coloring in reducing the anxiety level of preschool children before undergoing chemotherapy at RSAB Harapan Kita Jakarta. This research is a quasi-experimental research with non-equivalent without control group research design. This study used total sampling technique with 16 preschool age children with cancer. The data measurement tool uses a HARS questionnaire. The results of this study showed that there was an average difference in anxiety levels of children before and after coloring interventions before chemotherapy procedures ($p\text{-value} < 0,000$, $\Delta = -15.00$) and painting and coloring interventions also showed an average difference in children's anxiety levels before and after intervention before undergoing chemotherapy procedures ($p\text{-value} < 0,000$, $\Delta = -13.00$). The giving of coloring interventions is more recommended to be applied as one of the nursing interventions to decrease the anxiety of preschoolers with cancer before undergoing chemotherapy procedures.

1 INTRODUCTION

Cancer is one of the chronic diseases that often occur in children. According to the National Care Institute (NCI) (2014), it is estimated that 1 in 285 children in the US are diagnosed with cancer before the age of 20. Based on data from the International Agency for Research on Cancer (IARC) 1 in 600 children in the world have cancer under the age of 16 years, and 80% of children diagnosed with cancer come from developing countries (IARC, 2014).

According to the International Confederation of Childhood Cancer Parent Organization (ICCCPO, 2014 in IARC, 2014), an estimated 100,000 children worldwide die from cancer each year. According to the American Cancer Society (2016), most cases of cancer in children are leukemia that is as many as 664 cases (27.3%), malignum lymphoma 85 cases (3.5%), retinoblastoma as many as 81 cases (3.3%), rhabdomyosarcoma 53 cases (2.2%) and neuroblastoma as many as 50 cases (2.1%). Based on Indonesian Child Oncology Foundation (YOAI) (2014) an estimated 11,000 children in Indonesia

suffer from cancer yearly, and 650 cases of cancer in children are found in Jakarta. The most common types of cancer in children in Indonesia are leukaemia and retinoblastoma.

Chemotherapy is one of the most effective treatments for cancer in children (Hockenberry & Wilson, 2009). It is not easy for cancer patients to decide on chemotherapy with its uncomfortable side-effects (Bowdeen & Greenberg, 2010). Chemotherapy will have a physical and psychological impact on children.

The psychological impact is anxiety. The anxiety that occurs due to the pain caused, symptoms and side effects of pot cancer treatments (Nikkhahet al., 2014). This anxiety will lead to delayed chemotherapy in children, so much so that nurses should be sensitive to appropriate intervention.

The nurse may provide nursing interventions through atraumatic care. Atraumatic action is one form of a nurse's caring towards clients. The nurse's caring process takes place through how the nurse understands a meaningful event in a person's life that affects feelings and emotions. This is consistent with

the theory of caring pioneered by Kristen Swanson (Alligood, 2014).

During the treatment, the nurse not only meets the physical needs of the child but also meets the psychological and social needs (Jameset al., 2013). One of it is by playing and non-pharmacological intervention.

One of the non-pharmacological interventions is art therapy. Art is a fun and non-threatening activity for children to express the feelings and creativity of children (Rollin,2005). Through art activities, the child will express the idea, feelings that the child can not express verbally. Also, the art also became one of the non-verbal communication media of children. Some fun art activities for children are painting and coloring. Painting is a spontaneous image that gives children the opportunity to communicate and express non-verbal expressions (Rollin, 2005).

Painting can be a tool for children to express emotions, thoughts, and problems. The child will reflect on the perceived part through the drawing experience. A child will draw as a window to describe the emotional state of a sick child and coping strategies, developmental maturity as well as cognitive children. Research conducted by Khadar et al. (2013) shows that art therapy paints lessen symptoms of behavioral disorders in children.

This is in line with research conducted by Koolace et al. (2016) which states that painting therapy affects the decrease of aggression and anxiety in children with cancer. Also, art therapy also has a positive impact on clients. Research conducted by Lin et al. (2012), during art therapy performed, 70% of clients reported feeling more relaxed, and 53.1% of clients feel much better physically.

In addition to painting activities, coloring also gives a positive impact on children who experienced

hospitalization. Research conducted by Wowiling, et al. (2014) got the result that there is the influence of coloring therapy to play image to the level of anxiety at preschool age children who have hospitalization with p-value = 0.000. Through the picture coloring activities will provide a sense of fun for children and basically preschool children are very active and imaginative.

Based on the above problems researchers were interested in researching the effectiveness of play therapy: painting and coloring to decrease children's anxiety with cancer before undergoing chemotherapy.

The purpose of this study was to determine the effectiveness of play therapy: painting and colouring towards the anxiety level of preschool children with cancer before undergoing chemotherapy procedure at RSAB Harapan Kita Jakarta.

2 METHOD

This research is an quasi-experimental research with non-equivalent without a control group (non-randomized without control group pretest-posttest) design. The total sample in this study were 16 children divided into 8 children in the coloring group and 8 children in the group painting and coloring.

The inclusion criteria are children aged 3-6 years, undergoing intravenous chemotherapy procedures.

3 RESULT

3.1 Respondent Characteristic

Table 1. Distribution of frequency of respondents by gender, chemotherapy experience and parent attendance at RSAB Harapan Kita Jakarta May-July 2017 (n=16)

Variable	Frequency	Percentage (%)
1. Gender		
- Colouring		
a. Male	5	62,5
b. Female	3	37,5
- Painting and Colouring		
a. Male	5	62,5
b. Female	3	37,5
2. Chemotherapy experience		
- Colouring		
a. 2	1	12,5
b. 3	3	37,5
c. 4	4	50,0
d. 5	0	0
- Painting and colouring		

a.	2	0	37,5
b.	3	3	37,5
c.	4	3	25,0
d.	5	2	0
3. Parent's presence			
- Colouring			
a.	Yes	8	100
b.	No	0	0
- Painting and colouring			
a.	Yes	8	100
b.	No	0	0

Based on table 1 above explains the characteristics of respondents by gender is obtained from 16 respondents, most of the respondents are male as many as 10 respondents (62.5%), while the experience of chemotherapy, the majority of respondents possess the 5th experience, i.e. 6 participants (37.5%). All respondents in this study

were accompanied by parents i.e. as many as 16 respondents (100%).

3.2 Anxiety Levels before and after Painting and Coloring Interventions

Table 2: Average anxiety levels before and after coloring, painting and coloring interventions at RSAB Harapan Kita Jakarta May-July 2017 (n = 16)

Variable	Mean	SD	Minimum-Maximum	95% CI
Anxiety level before				
a. Colouring				
b. Painting and colouring	25,63	4,104	22-31	22,19-29,06
	24,13	3,137	21-30	21,50-26,75
Anxiety level after				
a. Colouring				
b. Painting and colouring	10,63	4,470	4-14	6,89-14,36
	11,13	7,240	5-25	5,07-17,18

Based on table 2 above the average level of anxiety before given the coloring intervention was 25.63 with SD 4.104. The results of the analysis also found that in the 95% confidence range (95% CI) it is believed the average anxiety level before the intervention is in the range of 22.95 to 26.80. After the coloring intervention, an anxiety level decreased by an average of 10.63 with SD 4.470. The analysis results obtained within the 95% confidence range (95% CI) is believed to average the anxiety level after the coloring intervention is in the range of 6.89 to 14.36.

The average level of anxiety before the painting and coloring intervention was 24.13 with SD 3.137. The results of the analysis also found that within 95%

confidence range (95% CI) it is believed the average anxiety level before intervention is in the range of 21.50-26.75. After the intervention of painting and coloring, there is a decrease in the level of anxiety with an average grade of 11.13, SD 7,240. The analysis results also found that within 95% confidence range (95% CI) it is believed that the average of anxiety level after the intervention is in the range of 21.50-26.75.

3.3 Children's Anxiety Level before and after Intervention Coloring, Painting and Coloring

Table 3: The average difference in anxiety levels of preschoolers before and after coloring, painting and coloring interventions at RSAB Harapan Kita Jakarta

Variable	Mean	SD	95% CI	p-Value	n
a. Colouring					
- Anxiety level before	25,63	3,137		0,000	8

- Anxiety level after			11,370-		
- Difference	10,63	7,240	18,630		
	-				
	15.00				
b. Painting and colouring					
	24,13	3,137	8,531-	0,000	8
- Anxiety level before	11,13	7,240	17,469		
- Anxiety level after					
- Difference	-				
	13.00				

Based on table 3 shows that in the group of children given the coloring intervention decreased the level of anxiety before and after the coloring intervention. The value of the difference between before and after the coloring intervention is -15.00. The result of statistical test obtained p-value = 0.000 with 95% confidence degree (11,370-18,630), it can be concluded there is a significant difference between child's anxiety level before and after given coloring intervention.

The table above also shows that in the group of children with painting and coloring interventions decreased anxiety levels before and after the painting and coloring interventions. The value of the

difference between before and after the intervention of painting and coloring is -13.00. The result of statistical test obtained p-value = 0.000 with 95% confidence degree (8,531-17,469), it can be concluded there is a significant difference between child's anxiety level before and after given intervention of painting and coloring.

3.4 Differences in the Level of Anxiety of Respondents before and after Intervention between Groups Coloring, Painting and Coloring

Table 4: Differences in the level of anxiety of respondents after intervention between coloring, painting and coloring groups at RSAB Harapan Kita May-June 2017 (n = 16)

Variable	Colouring	Painting and colouring	P Value
Anxiety level			
a. Before Mean ± SD	25,36±4,104	24,13±3,137	0,425
b. After Mean ± SD	10,63±4,470	11,13±7,240	0,870
Difference			
Mean ± SD	-15,00±4,342	-13,00±5,345	
P Value	0,000	0,000	

Based on table 4 depicting the average of anxiety level before giving coloring intervention is 25,36 ± 4,104 while mean of anxiety level before giving painting and coloring intervention is 24,13 ± 3,137. This shows that in both intervention groups there was no difference in anxiety levels before the color intervention was given, painting and coloring interventions (p = 0, 425).

After the intervention, the average anxiety level in the group given the intervention coloring fell with a value of 10.63 ± 4.470, while the average level of anxiety in the intervening group of painting and coloring was 11.13 ± 7.240. This shows that in both intervention groups there is no difference in anxiety

level after the color intervention, and painting and coloring intervention (p = 0,870).

4 DISCUSSION

4.1 Gender

The average respondent's gender is male constituted of 10 respondents. The theory indicated that there is no relationship between the gender of the child and the level of anxiety. According to Monks, Knoers, and Rahayu (2006), children experiencing more anxiety and verbal skills are girls, while aggression, activity, dominance, impulsivity, space observation

skills and quantitative skills are more prevalent in males. The child's reaction to the hospital is influenced by gender factors (Hockenberry & Wilson, 2009).

4.2 Previous Chemotherapy Experience

In this study, the average experience of young chemotherapy is between 4 and 5 times. Children who have previous experience will begin to form a coping response compared with children who have not had experience. This is because children who have been treated previously in the same hospital will feel more accustomed than the first timers in care and children will respond to the pain more positively (Hockberry & Wilson, 2009).

This is seen in children who underwent 4th, and 5th chemotherapy are already in the range of moderate anxiety. This is different in the respondents who are undergoing 2nd chemotherapy, where the level of anxiety of the child is still severe, but after the coloring intervention was given 4 times the children's anxiety level decrease to mild anxiety and the children have started wanting to socialize with people around.

4.3 Parental Presence

In this study, all respondents were accompanied by parents, especially mothers. Mother is the person closest to the child. According to Hockeberry & Wilson (2009), preschoolers need and want guidance or support from their parents, so in preschoolers, the most feared is separation from parents. During hospitalization children will show negative reactions such as withdrawing from the nurses, losing interest in hobbies, not wanting to connect with peers, moodier and tearier.

4.4 Colouring Intervention Effectiveness towards Decreased Child Anxiety

The average level of anxiety of the child before the coloring intervention was moderate and after the coloring intervention, there was a decrease in anxiety level with the average anxiety level (no anxiety). From the result of the test of a dependent-t-test indicate that there is a difference of anxiety level of the child before and after giving coloring intervention (p value = 0,000) with $\Delta = -15,00$. The decrease in value is due to coloring is a fun method of diversion for children. Through coloring activities, the child will

divert the feelings of anxiety to the colors and pour into an object image so that the brain will divert anxiety to the object favored by the child.

The presence of anxiety caused the brain to stimulate the autonomic nerves resulting in the release of epinephrine by the adrenal glands. The presence of a pleasurable sensory stimulus causes the release of endorphins that can inhibit anxious stimulus so that the anxious stimulus transmitted to the brain is reduced (Potter & Perry, 2009). The decrease in anxious stimuli transmitted to the brain will enhance the feeling of relaxation and comfort.

In this study, the difference value is -15.00, and when compared with the previous research that is -9.50. This shows that the difference in the value of the difference is quite high in this study because of the time of giving different interventions. In the previous study, the intervention was administered 2 times daily for 3 days while in this study intervention was administered for 4 times with intervention duration 10-15 minutes before the child underwent chemotherapy. It shows that previous research had longer intervention time, but the difference of difference value higher in this research because of another factor.

One of the factors that influenced the decrease of child's anxiety level is the presence of parents where previous research shows that majority of children (40%) are attended by grandparents while in this study all children are accompanied by mothers. Researchers Murniasih and Rahmawati (2007) proved that higher family support would lower the child's anxiety. The existence of a parent will provide support to the child as well as parents' attention is still needed during the child's care, without overriding the needs of the child.

Another factor that affects the decrease in anxiety in this study is the experience of previous chemotherapy. The majority of respondents have previous 4-5 times chemotherapy experience. In children who already have previous experience will establish a coping mechanism of chemotherapy procedures undertaken by children. The same experience will provide an understanding of the child related to the procedure, and the child already has either positive or negative coping of the action to be followed.

Children who are in the midst of anxiety range, the child will probably focus on the important thing and put aside the other (Stuart, 2002). The results of this study were supported by a study conducted by Sari (2012) who stated that coloring therapy is effective in reducing hospitalization anxiety in children ($p = 0.000$). The study was conducted on 20

preschool children (10 control groups and 10 experimental groups).

Playing activities in children can divert the pain to the game and relaxation through fun and games. One suitable game given to preschoolers is coloring (Hockeberry & Wilson, 2009; James & Aswill, 2011). In preschool children have started to like and know the color and recognize the forms of objects around him. Coloring is one of the games that gives children the opportunity to be free of expression and very therapeutic as a healing game (Paat, 2010). Also, in preschoolers are beginning to recognize the colors.

4.5 The Effectiveness of Painting and Coloring Interventions to Decrease Children's Anxiety

The same is true of painting and coloring interventions, where there is a decrease in anxiety levels of children before and after the intervention of painting and coloring. Provision of this intervention is given for 10 minutes for painting and coloring interventions. The value of the decrease in the level of anxiety is quite high. This suggests that this intervention is also effective in lowering child's anxiety levels before undergoing a chemotherapy procedure ($p = 0,000$) with $\Delta = -13,00$.

The majority of children in this intervention group prefer coloring activity and continue it until chemotherapy is complete. Also, children aged 3-4 years like coloring because children begin to express the world through words and pictures. Coloring is also a medium for children to pour all imaginations and inspiration about everything they may have touched or experienced. It shows that coloring activity is more favored by children than painting or drawing activities.

This study is in line with research conducted by Koolaeet al. (2016) which states that painting therapy has an effect on decreasing aggression and anxiety in children with cancer who undergo hospitalization. Through painting therapy will make the child's communication tool to express feelings such as fear, improve aggression management in children as well as emotional perception learning with coping responses, techniques and accurate coping responses and so forth.

The study showed a change in the value of a fairly high difference that is -20.00, when compared with the current study is -13.00. This difference in the difference value is due to the fatigue factor of the child, the age of the respondent, and the time of longer intervention in the previous study. Duration of time of painting in previous research is 11 times with time

2 times a week for 60 minutes and respondents in this study are school age children. The age difference of respondents also influences the results of the research, in which preschoolers have an undeveloped concept of integrity and imaginative thinking. The concept of preschool children's thinking that affects the ability of children in painting so that painting can make the burden on the child.

Art therapy is an act of caring-based atraumatic care, where through this play the nurse will improve cooperative children and children will be more cooperative. According to Swanson (Alligood, 2014), the role of nurses is in the process of becoming, where nurses provide not only medical treatment, but also partners in helping children closer to their goals (well being)

5 CONCLUSIONS AND RECOMMENDATIONS

In this study that there were differences in the anxiety level of the children before and after the coloring intervention ($p = 0,000$, $\Delta = -15,00$), painting and coloring interventions ($p = 0,000$, $\Delta = -13,00$).

It is expected that nurses can apply to play therapy: painting and coloring in lowering anxiety levels of preschoolers before chemotherapy procedures. Painting and coloring therapy can be applied by involving the family and caring concept as one of the atraumatic care acts. Also, for the division of coloring or painting activities, the nurse may consider the child's age as well as the child's interest in the activity.

For further research, it is expected to compare this intervention with other art therapy interventions.

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