

# Effect of Storytelling on Preoperative Anxiety and Fear among Children Undergoing Surgery

Hoda Wahid Amer<sup>1</sup>, Hussein Mohamed Magdi Fakhreldin Mohamed<sup>2</sup>, Safaa Abdelazem Osman Ali<sup>3</sup>, Nagwa Ahmed Mohamed Souilm<sup>4</sup>, Donia Elsaïd Fathi Zaghmir<sup>5</sup>

(1) Lecturer of Pediatric Nursing, College of Nursing, Misr University for Science & Technology, Egypt

(2) Lecturer of Psychiatric and Mental Health Nursing, Faculty of Nursing, Beni-Suef University

(3) Assistant Professor of Psychiatric and Mental Health Nursing, Faculty of Nursing, Suez Canal University, Egypt

(4) Assistant Professor of Psychiatric and Mental Health Nursing, Faculty of Nursing, South Vally University, Egypt

(5) Lecturer of Pediatric Nursing, Faculty of Nursing, PortSaid University, Egypt

## Abstract

**Background:** Children who are faced with surgical operations may experience anxiety, panic and fear before surgery and they are needed to both physical and psychological preparation. **Aim of the study:** Evaluate the effect of storytelling on preoperative anxiety and fear among children undergoing surgery. **Design:** Quasi-experimental research design was utilized in the current study. **Subjects:** 100 children from 4-8 years were equally and randomly assigned into two groups, the first was the control group and the second was storytelling intervention group. **Setting:** The current study was conducted at the General Pediatric Surgical Unit at Cairo University Specialized Pediatric Hospital (CUSPH). **Tools:** an Interview Structured Questionnaire was developed by the researchers, State-Trait Anxiety Inventory for Children, and Children's Fear Scale was utilized for collecting the data. **Results:** Preoperative anxiety scores and fear were lower among children after storytelling intervention than before. Highly statistically significant differences were detected between the total mean score of anxiety scores and fear in the pretest and posttest before surgery ( $P=0.000$ ). **Conclusion:** Storytelling method is an effective distraction technique for reducing preoperative anxiety and fear among children undergoing surgery compared to children in the control group who received routine hospital care. **Recommendations:** Application of the storytelling technique as non-pharmacological management beside routine hospital programs for children undergoing surgery is recommended among nurses who care children in order to reduce preoperative anxiety, panic and fear level.

**Keywords:** Storytelling, preoperative anxiety, fear, children, surgery, distraction.

## Introduction

Surgical operations for children are causing anxiety, panic and fear for them, these feelings are generally incur harmful effects on the children' body and mind, causes negative behaviors and increases pain scores after surgery and reflected in form of anger, parental separation, pain, loss of control, a strange environment, and unknown environmental conditions (Aytekin *et al.*, 2016). Children may experience these feelings because of limited cognitive capacities, experience deficiencies, the need for other people's support, failure in recognizing the meaning of the surgery, fear from physical injury, pain, mutilation, or death and communicating with strangers in the absence of family, mistrust in adults, fear of the unknown, insecurity about the limitations and

acceptable behavior and loss of independence or control (Sekhavatpour *et al.*, 2019).

Non-pharmacological interventions have been asserted to reduce preoperative anxiety and fear (Markman, 2002). Children enjoy listening to stories. Stories induce motivation and fun. Children can become personally involved in a story (Scott, 2010). Distraction interventions such as watching cartoons, playing therapeutic games or video games, listening to stories or music according to the age group of the child, will be useful in reducing the intensive anxiety and fear experienced by children in the preoperative period (Khngoshra *et al.*, 2017).

Anxiety and fear cause children to resist against and not to cooperate in the pre- and post-operative care. Therefore, reducing child anxiety is one of the important nursing tasks.

Ways to reduce anxiety in children is their physical, emotional and cognitive preparation before performing care procedures as well as listening to short stories is effective technique used with the preschool child (*El Sayed et al., 2019*). Meanwhile, storytelling can be effective in reducing children's anxiety as it is desirable for them, appropriate for their cognitive, growth, and mental development needs, and creates a cheerful environment for them (*Tunney and Boore, 2013*).

It is essential for nurses to have knowledge about children's experiences of surgery related fears and anxiety. In order to be able to support children, it is important that nurses have an understanding of what fear and anxiety stands for, and how children communicate their fears. Children can express their fear in different ways, such as not talking much, or withdrawing, but also describing their fears in some detail (*van Dijk, 2017*). Previous studies show that children in all age groups are worried prior to a medical procedure, but that younger children experience a more diffuse fear and feeling of uneasiness (*Aydin et al., 2016*).

#### Significance of the study:

Surgery is considered one of the most frightening procedures for children. About 30% of children are hospitalized at least once during childhood, and more than 5 million children undergo surgery among whom 50% to 75% experience considerable fear and anxiety before surgery (*Perry et al., 2012*).

Hospital admissions can cause anxiety in many children undergoing surgery that in turn can cause negative outcomes on the children's physical, psychological, behavioral, cognitive and academic development. Reducing the anxiety level in children undergoing surgery can be seen as an investment on the child's health to limit the negative effects in their later life.

**Chow et al (2015)** showed the efficiency of audiovisual interventions in reducing preoperative anxiety among children undergoing elective surgery, and **Aminabadi et al (2011)** showed that visual storytelling had a statistically significant effect on reducing

pain and anxiety among children who visited a dentist.

There is a lack of studies which discuss the importance of storytelling as types of distraction technique on children undergoing surgery, so that the current study aimed to evaluate the effect of story-telling on reducing the preoperative anxiety and fear among children undergoing surgery.

#### Aim of the study:

To evaluate the effect of storytelling on preoperative anxiety and fear among children undergoing surgery

#### Research hypothesis:

Children who listen to storytelling will experience level of anxiety and fear lower than those not exposed to storytelling.

#### Materials and method:

##### Research design:

A quasi-experimental research design was utilized in the current study.

##### Setting:

The study was conducted at the General Pediatric Surgical Unit at Cairo University Specialized Pediatric Hospital (CUSPH).

##### Subjects:

**Sample size:** All children undergoing surgery in the previously mentioned setting within six months, who were equally assigned into two groups; study group (50 children) and control group (50 children).

##### Sampling technique:

Purposive sample technique was used to collect data. The studied sample was divided randomly into study and control groups. The coin was used in selecting the sample where the face of writing is selected for study group and the face of king is selected for control group.

##### Inclusion criteria included:

- (1) Children aged from (4 – 8) years.
- (2) Conscious children.
- (3) Children in the preoperative period (the day before surgery).

**Exclusion criteria included:**

- (1) Children with chronic and neurological health problems.
- (2) Children with mental problems

**Tools of data collection:**

**Tool I: An Interview Structured Questionnaire:** was developed by the researchers after reviewing the related literature; it included two parts:

**Part I:** Demographic characteristics of the child as: Age, sex and residence.

**Part II:** Clinical data it includes child's diagnosis, medical history about surgery such as: Date of admission, and previous hospitalization times.

**Tool (II): State-Trait Anxiety Inventory for Children (STAIC):** was developed by *Spielberger (1970)* to measure transitory anxiety state in children their ages from 6 to 14 years. The scale consists of 20 statements that ask children how they feel at a particular time. Scale statements are categorized under five subscales (sadness, worry, fear, uncertainty, and anxiety). Children were instructed to respond according to how they felt about their surgeries. Children respond to the STAIC by selecting one of the three alternatives (rarely, sometimes, and often). Response categories were assigned values of one, two, and three.

**Scoring system:**

The total scores are a summation of the item scores; the total scores were 60. For statistical purposes, scores ranged from 20 to 30 were considered low anxiety, 30–40, indicating average; 40–50, indicating above average; and 50–60 suggesting a very high level of anxiety. The scale was translated into Arabic, and then back-translated into English. The translation was judged and tested for its content validity by nine experts in Pediatric Nursing and Psychiatric Nursing fields.

**Tool III: Children's Fear Scale (CFS):** was adapted from the Faces Anxiety Scale (*McKinley et al., 2011*) to measure fear in children undergoing painful medical procedures. It consists of five faces representing varying degrees of fear. Researchers select the face that represents how

she/he feels and the ordered faces are scored from 0 to 4.

**Tools validity and Reliability:**

Content validity of the tools was tested and was submitted to a panel of five experts in Pediatric Nursing and Psychiatric Nursing with more than ten years of experience in the field. Modifications of the tools was done according to the panel judgment on clarity of sentences, appropriateness of the content, sequence of items, and accuracy of scoring and recording of the items.

Tools reliability was tested using internal consistency methods (Alpha Cronbach's test first tool, its result was 0.89 which indicates good reliability of the tool; the reliability coefficients'  $\alpha$  between items of STAIC was 0.86.

Children's Fear Scale, The CFS has shown good evidence of test-retest ( $r_s = 0.76$ ,  $p < 0.001$  and inter-rater ( $r_s = 0.51$ ,  $p < 0.001$  reliability as well as construct validity among children (*McMurtry et al., 2011*).

**Pilot study:**

It was carried out on 10% of children (10 children) to test the clarity and applicability of the tools and estimate the time needed for data collection. Based on the result of the pilot study no modification was done in the tools, the children in the pilot were included from total sample.

**Procedure:**

Before starting this study, administrative approval was taken from the directors in the setting. The researchers first introduced themselves to the children's mothers and then explained the purpose of the study at the beginning of the interview, so the mothers were reassured that all gathered information was confidential. After obtaining oral permission from the children for data collection, the children were interviewed by the researchers where full explanation of each tool was given.

Data collection was conducted from May to November 2019. Data collection was done during the routine work of the hospital. The interview was conducted in two days through the week from 9-11 am. The participants took

about 25-30 minutes to fulfill the questionnaire. Tool II and III was used by the researchers as pre and post-intervention.

Children received routine information care, the day before surgery. It included pre and postoperative care and information regarding fasting time, hygiene, vital signs, control of losing teeth, dressing and wound care, using analgesic drugs to relieve pain post-surgery. Storytelling intervention one day before the surgery was received plus the routine care.

Story telling for intervention group included two phases, the first phase includes telling story that took about thirty minutes by using a fun and educational story type, which consisted of pages with colorful and attractive graphics and one line or one sentence per page while telling the story and make the child repeat it. The second phase includes discussion about the story with the child. Evaluation was done through storytelling on decreasing preoperative anxiety and fear among children by using State-Trait Anxiety Inventory for Children and CFS.

The data collection in the current study included two phases: preoperative assessment (pre-intervention) and the day of surgery before operation (post-intervention before operation). On the day of operation, anxiety scores and fear scores of children were collected; using the state anxiety level and CFS again was assessed before operation.

#### **Ethical considerations:**

Informed consent was obtained from the mothers of children after the aim of the study was explained to the mothers and their children. The researcher informed the participants that, the study was voluntary, they were allowed to not participate and they had the right to withdraw from the study at any time. Moreover, they were assured that their information would be confidential and used for research purposes only.

#### **Statistical analysis:**

Data entry and data analysis were done using SPSS version 19 (Statistical Package for Social Science). Data were presented as number, percentage, mean, median and

standard deviation. Chi-square test and Fisher exact test were used to compare qualitative variables. Mann-Whitney test was used to compare quantitative variables between two groups. P-value considered statistically significant when  $P < 0.05$ .

#### **Results:**

Table 1: showed demographic data of intervention and control groups. Regarding to the age, more than half (55%) of children in the intervention group and half of children in the control group were aged 5>6 years with mean  $\pm$ SD (4.34  $\pm$  0.65 and 4.50  $\pm$  0.92 respectively). Males were most prominent in intervention and control groups 56% and 51% respectively, 61% of them living in urban in the intervention group and 53% in the control group.

Table 2 illustrated in the intervention group that the highest percentage of the studied children (47%) were undergoing appendectomy, followed by those undergoing splenectomy, cholecystectomy, and renal stone removal (15, 18, and 16%, respectively), while in the control group, the highest percentage of the studied children (43%) were undergoing appendectomy, followed by those undergoing splenectomy, cholecystectomy, and renal stone removal (16, 15, and 11%, respectively).

Figure (1): illustrates that the highest percentage of studied children (70%) in intervention group had no history of previous hospitalization, while in control group highest percentage of studied children (87%) had no history of previous hospitalization.

Table (3): showed that the total mean score of STAIC among the studied children before storytelling was 47.3 $\pm$ 2.1 and decreased to 25.5 $\pm$ 1.3 in the intervention group compares to 39.73 $\pm$ 5.06 in the control group after storytelling. A highly statistically significant difference was detected between the total mean score of STAIC in the pretest and after the storytelling in the intervention group and in the control group ( $P=0.0001$ ).

Figure (2): Showed that 20% of the studied children in the pretest intervention group had high anxiety on STAIC, whereas the level changed to low anxiety level among 63% of them after storytelling.

Table (4): highlighted that the total mean score of CFS among the studied children before storytelling intervention was 2.4±1.3 and decreased to 1.2±1.4 in the intervention group compare to 2.3±1.5 in the control group after

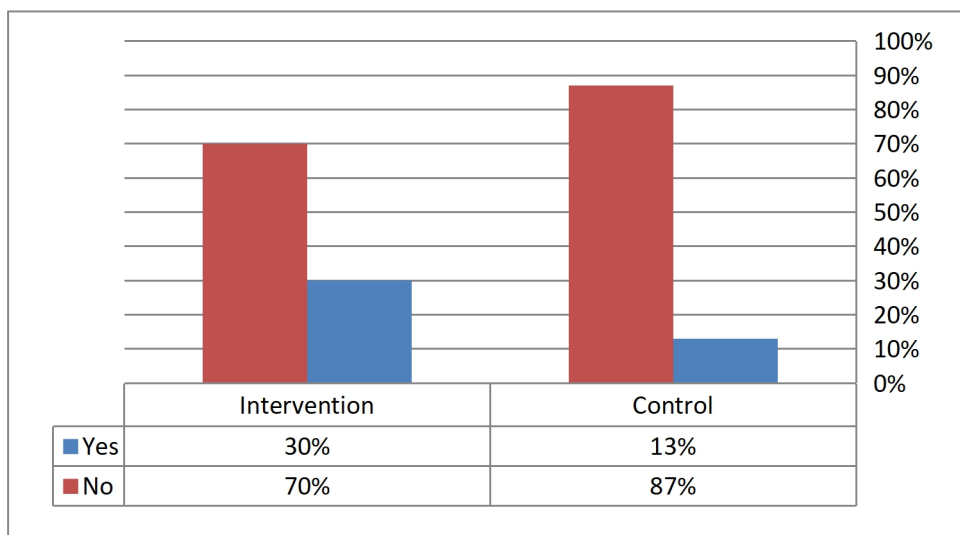
storytelling. A highly statistically significant difference was detected between the total mean score of CFS in the pretest and after the storytelling intervention in the intervention group and in the control group (P=0.0001).

**Table (1):** Personal data of children in intervention and control groups

	Intervention group(n= 50)		Control group(n= 50)		P-value
	No	%	No	%	
<b>Age: (years)</b>					
4 - < 5	3	(6.0%)	3	(6.0%)	0.515
5 - < 6	28	(56.0%)	25	(50.0%)	
6 – 8	19	(38.0%)	22	(44.0%)	
Mean ± SD	4.34 ± 0.65		4.50 ± 0.92		0.328
<b>Sex:</b>					
Male	28	(56.0%)	26	(51.0%)	0.673
Female	22	(44.0%)	24	(49.0%)	
<b>Residence:</b>					
Urban	30	(61.0%)	27	(53.0%)	0.087
Rural	20	(39.0%)	23	(47.0%)	

**Table (2):** Medical diagnosis of children in the intervention and control groups undergoing surgery

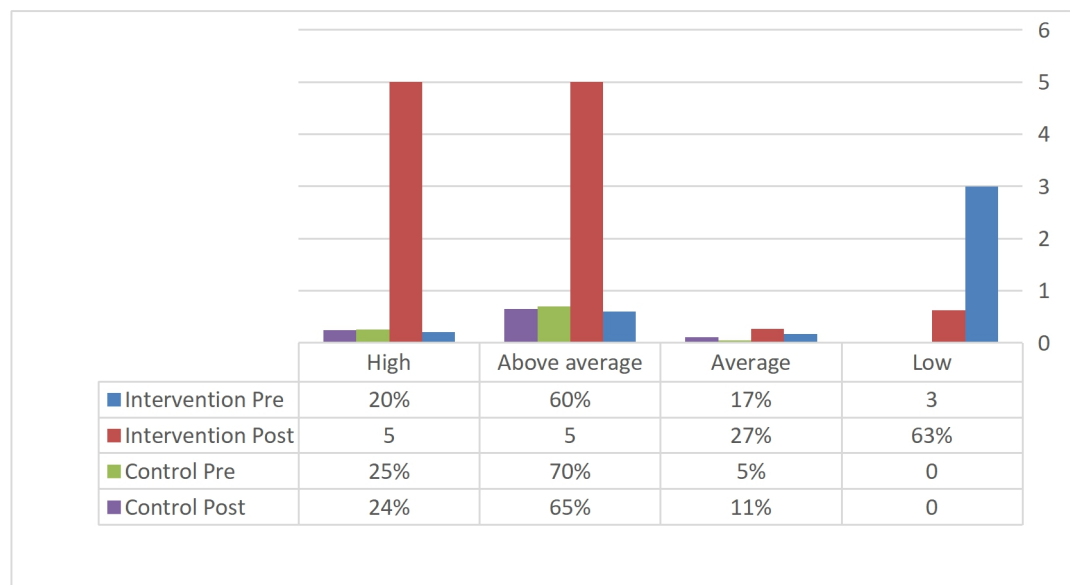
Medical diagnosis	Intervention group(n= 50)		Control group(n= 50)	
	No	%	No	%
Appendectomy	24	(47.0%)	21	(43.0%)
Splenectomy	8	(15.0%)	8	(16.0%)
Cholecystectomy	9	(18.0%)	8	(15.0%)
Renal stone removal	8	(16.0%)	6	(11.0%)



**Figure (1):** Medical history about surgery among children in intervention and control groups

**Table (3):** Comparison of Mean anxiety scores in the intervention and control groups' pre and post storytelling

State-Trait Anxiety Inventory	Intervention group (50)	The control group (50)	P-value
The total mean score of STAIC before story-telling	47.3±2.1	45.07±3.43	P<0.001**
The total mean score of STAIC after story-telling	25.5±1.3	39.73±5.06	



**Figure (2):** Percentage distribution of anxiety among children in intervention and control groups pre and post storytelling.

**Table (4):** Comparison of Mean fear scores in the intervention and control groups pre and post storytelling

Children Fear Scale	Intervention group (50)	The control group (50)	P-value
The total mean score of children fear scale before story-telling	2.4±1.3	3.2±0.7	P<0.001
The total mean score of children fear scale after story-telling	1.2±1.4	2.3±1.5	

**Discussion:**

Interventions to reduce anxiety level and negative psychological effects in children and their parents before surgery are very important. These interventions included prescribing a sedative before surgery, providing psychological support and appropriate informative preparation programs and the presence of parents during the whole process of surgery and anesthesia (*Kain et al, 2007*). Hence, the study aimed to evaluate the effect of

storytelling on preoperative anxiety and fear among children undergoing surgery.

A study by *Moura et al, (2016)* showed 42.0% of the children hospitalized for elective outpatient surgery, in 2013–2014, in Goiania, Brazil, had preoperative anxiety that was related to their age and socioeconomic status.

Concerning diagnosis, the present study findings reported that in the intervention group, the highest percentage of the studied children were undergoing appendectomy, followed by those undergoing splenectomy,

cholecystectomy, and renal stone removal. This result is in the same line with a study conducted by *Sabaq and El-Awady (2012)* in Egypt to evaluate the effect of preoperative preparation program and mothers presence during induction on anxiety level and behavior change among 153 young children undergoing elective surgery in Zagazig University Hospital. They found that 80% of children had appendicitis in study group and 83.3% in the control group. The same results also, are reported by *Hosseinpour and Ahmadi (2016)* who conducted a study in Iran about emergency abdominal surgery in infants and children, and stated that the differential diagnosis of surgical acute abdomen from 6 to 11 years was appendicitis, cholecystitis, and pancreatitis.

The present study findings reported that the highest percentage of studied children in intervention group had no history of previous hospitalization, also, in control group; highest percentage of studied children had no history of previous hospitalization. These findings are agreed with *Potasz et al. (2013)* who conducted a randomized clinical trial to explore the effect of play activities on stress in 53 hospitalized children in Brazil and found that the highest percentage of children had no previous experience of hospitalization.

The present study findings reported that, the total mean score of STAIC among the studied children before storytelling was  $47.3 \pm 2.1$  and decreased to  $25.5 \pm 1.3$  in the intervention group compares to  $39.73 \pm 5.06$  in the control group after storytelling. This reflected the importance and positive effect of storytelling in reducing anxiety and fear among children undergoing surgery. These results is supported by *Noronha and Shanthi (2015)* at Mangalore who found in their study about Effectiveness of picture book on preoperative anxiety among children (6–12 years) in selected hospitals that 80% of the children in the experimental group had severe anxiety and 60% of the control group had moderate to severe anxiety in pretest and during post-test, more than half (53.33%) of children in the experimental group had mild to moderate anxiety as compared with the control group. The mean post-test anxiety level ( $24.8 \pm 2.98$ ) was lower than the pretest anxiety level

( $32.86 \pm 3.29$ ). The mean post-test level of anxiety in experimental group ( $24.8 \pm 2.98$ ) was significantly lower than the mean post-test anxiety level of the control group ( $30.07 \pm 2.96$ ). Hence, it is attributed to picture book is found to be effective in reducing preoperative anxiety among children.

The present study findings reported that one fifth of the studied children in the pretest intervention group had high anxiety on STAIC, whereas the level changed to low anxiety level among 63% of them after story-telling. This may be attributed to storytelling could be a valuable tool for children and their parents for reducing anxiety, panic and saving counseling time. This result is consistent with *Fincher et al. (2012)* and *Ko et al. (2021)* who reported that it is estimated that around 50–70% of hospitalized children experience severe anxiety and distress before surgery. The same result was mentioned by *Nisha and Umarani (2013)* who studied effect of play intervention in the reduction of anxiety among preoperative children and emphasized that children are more vulnerable to anxiety. This is may be due to their lack of knowledge of procedures and a lack of control.

The present study findings highlighted that the total mean score of CFS among the studied children before storytelling intervention was  $2.4 \pm 1.3$  and decreased to  $1.2 \pm 1.4$  in the intervention group compare to  $2.3 \pm 1.5$  in the control group after storytelling. From the researcher point of view, this is related to that distraction has the ability to separate the connection between child and his/her emotional pain that decreases the fear level and reflected the positive effects of telling story. Similarly, an earlier quasi-experimental study by *Cavender et al. (2004)* on 43 children, aged from 4 to 11 years, concluded that the experimental group showed significantly lower fear compared with the control group. An Egyptian study carried out by *Mohamed (2011)* to evaluate the effect of selected distractors (paly materials) on the intensity of pain and fear among 50 children undergoing painful procedures in the pediatric surgical ward concluded that 52% of children experienced severe fear during painful procedure in the pretest, whereas 66% of them saw venipuncture as just fearful procedure in

the post-test, which suggests reduced experienced fear level in the post-test.

The results of *Hatipoglu et al (2018)* and *Cooper et al (2019)* showed that providing visual and auditory information before anesthesia in children was very effective in reducing preoperative anxiety, one week after discharge. The study by *Aminabadi et al (2012)* also showed that illustrated stories caused a significant reduction in pain perception and situational anxiety during dental treatment and improved the children's interaction with the dentist. A study by *Gonçalves et al (2017)* showed that visual storytelling reduced aggression in primary school children, and *Moghimian et al (2019)* stated that visual storytelling reduced the anxiety of patients before open-heart surgery. Additionally, the study done by *Perry et al (2012)* about preoperative interventional teaching strategies to reduce preoperative anxiety in children using age-appropriate educational interventions is in line with the present study and showed that psychological preparation of children before surgery is a great way to reduce preoperative anxiety and postoperative behavioral disorders.

*Tabrizi et al (2015)* also evaluated the effect of preoperational education on reducing anxiety among children aged 8–10 years and showed that storytelling for children significantly reduced separation anxiety during anesthesia. Another study by *Zarei et al (2013)* and *Sekhvatpour et al., (2019)* about the effectiveness of storytelling on physiological anxiety, worry, and social anxiety in hospitalized school-age children suggests that storytelling could reduce all sub-scales of anxiety (RCMAS). These results emphasized on introduced storytelling are an effective, inexpensive method and the child's favorite non-pharmaceutical intervention.

These results also agree with *Mohammed (2006)* who indicated that story telling reduced anxiety. This could be due to distraction induced by storytelling. This findings also, was similar to *Danhauer et al., (2008)* who found that children who experienced the telling story group had reduced of the side effects of care, This result was in the same line with the result conducted by *El Dein et al., (2015)* who

mentioned in his study that, approximately all children who receive telling story in the study group had low intense of nausea and vomiting than children in control group. This could be due to children's attention was occupied by distraction task activation which reduced in the areas of the brain that were responsible for the occurrence of nausea and vomiting such as thalamus , insula , and the anterior cingulated cortex (*Martin, 2010*).

### Conclusion:

The present study concluded that, children who were exposed to storytelling had experienced low anxiety and fear scores compared to children in the control group who received routine hospital care only.

### Recommendations:

In the light of the findings obtained from the current study, the following recommendations were suggested:

1. Parents' education and nurses about telling story as non-pharmacological management for reducing anxiety and fear among children.
2. Further research should be done on the effect of combination of other non-pharmacological methods and telling story as a management for reducing anxiety and fear among children.

### References:

- Aminabadi, N. A., Vafaei, A., Erfanparast, L., Oskouei, S. G., & Jamali, Z. (2011).** Impact of pictorial story on pain perception, situational anxiety and behavior in children: a cognitive-behavioral schema. *Journal of Clinical Pediatric Dentistry*, 36(2), 127-132.
- Aminabadi, N. A., Vafaei, A., Erfanparast, L., Oskouei, S. G., & Jamali, Z. (2011).** Impact of pictorial story on pain perception, situational anxiety and behavior in children: a cognitive-behavioral schema. *Journal of Clinical Pediatric Dentistry*, 36(2), 127-132.
- Aydin, G.B., Yüksel, S., Ergil, J., Polat, R., Akelma, F. K., Ekici, M., and Odabas, Ö. (2017):** The effect of play distraction



- on anxiety before premedication administration: a randomized trial. *Journal of Clinical Anesthesia*, 36, 27-31. <http://dx.doi.org/10.1016/j.jclinane.2016.04.044>.
- Aytekin, A., Doru, o., & Kucukoglu, S. (2016).** The effects of distraction on preoperative anxiety level in children. *Journal of PeriAnesthesia Nursing*, 31(1), 56-62.
- Cavender, K., Goff, M. D., Hollon, E. C., & Guzzetta, C. E. (2004).** Parents' positioning and distracting children during venipuncture: Effects on children's pain, fear, and distress. *Journal of Holistic Nursing*, 22(1), 32-56.
- Chow, C. H., Van Lieshout, R. J., Schmidt, L. A., Dobson, K. G., & Buckley, N. (2016).** Systematic review: audiovisual interventions for reducing preoperative anxiety in children undergoing elective surgery. *Journal of pediatric psychology*, 41(2), 182-203.
- Cooper, K., Hatfield, E., & Yeomans, J. (2019).** Animated stories of medical error as a means of teaching undergraduates patient safety: an evaluation study. *Perspectives on medical education*, 8(2), 118-122
- Dahmani, S., Delivet, H., & Hilly, J. (2014).** Emergence delirium in children: an update. *Current Opinion in Anesthesiology*, 27(3), 309–315.
- Danhauer, S. C., Marler, B., Rutherford, C. A., Lovato, J. F., Asbury, D. Y., McQuellon, R. P., & Miller, B. E. (2007).** Music or guided imagery for women undergoing colposcopy: a randomized controlled study of effects on anxiety, perceived pain, and patient satisfaction. *Journal of lower genital tract disease*, 11(1), 39-45.
- El Dein, N. Z., Khalifa, M., & Hassan, G. (2015).** Effect of guided imagery relaxation session and story-telling on the intensity of nausea and vomiting among children undergoing chemotherapy. *Pediatrics*, 135 (Supplement 1), S10-S11.
- El Sayed, S. A. E. N., Ibrahim, H., Mohamed, N. T., & Ahmed, M. M. (2019).** Effect of Story-Telling on Reducing the Intensity of Nausea and Vomiting among Children Undergoing Chemotherapy. *Assiut Scientific Nursing Journal*, 7(17), 164-172.
- Fincher, W., Shaw, J., & Ramelet, A. S. (2012).** The effectiveness of a standardised preoperative preparation in reducing child and parent anxiety: a single-blind randomised controlled trial. *Journal of clinical nursing*, 21(7-8), 946-955.
- Gonçalves, L. L., Voos, M. C., Almeida, M. H. M. D., & Caromano, F. A. (2017).** Massage and storytelling reduce aggression and improve academic performance in children attending elementary school. *Occupational therapy international*.
- Hatipoglu, Z., Gulec, E., Lafli, D., & Ozcengiz, D. (2018).** Effects of auditory and audiovisual presentations on anxiety and behavioral changes in children undergoing elective surgery. *Nigerian journal of clinical practice*, 21(6), 788-794.
- Hosseinpour, M., & Ahmadi, B. (2016).** Emergency Abdominal Surgery in Infants and Children. *Actual Problems of Emergency Abdominal surgery*.
- Kain, Z. N., Caldwell-Andrews, A. A., Mayes, L. C., Weinberg, M. E., Wang, S. M., MacLaren, J. E., & Blount, R. L. (2007).** Family-centered preparation for surgery improves perioperative outcomes in children: a randomized controlled trial. *The Journal of the American Society of Anesthesiologists*, 106(1), 65-74.
- Khoshrang, H., Haddadi, S., Farzi, F., & EBRAHIMPOUR, N. (2016).** Comparing the effect of premedication with intra-nasal Dexmedetomidine and intra-nasal Midazolam on sedation and anxiety level in children undergoing elective surgery.
- Ko, Y. C., Chou, A. H., Wu, C. F., Chen, J., & Chen, C. Y. (2021).** Using Guided Imagery to Relieve the Anxiety of Preschool Children Undergoing Dental Procedures. *Journal of PeriAnesthesia Nursing*, 36(1), 18-23.
- Markman, M. (2002).** Progress in preventing chemotherapy-induced nausea and vomiting. *Cleveland Clinic journal of medicine*, 69(8), 609-10.
- Martin, C. G., Rubenstein, E. B., Elting, L. S., Kim, Y. J., & Osoba, D. (2003).** Measuring chemotherapy-induced nausea

- and emesis: Psychometric properties of a quality of life questionnaire. *Cancer: Interdisciplinary International Journal of the American Cancer Society*, 98(3), 645-655.
- McMurtry, C. M., Noel, M., Chambers, C. T., & McGrath, P. J. (2011).** Children's fear during procedural pain: preliminary investigation of the Children's Fear Scale. *Health Psychology*, 30(6), 780.
- Moghimian, M., Akbari, M., Moghaddasi, J., & Niknajad, R. (2019).** Effect of digital storytelling on anxiety in patients who are candidates for open-heart surgery. *Journal of Cardiovascular Nursing*, 34(3), 231-235.
- Mohamed, S. A. (2011).** The effect of selected-distracters on intensity of pain and fear in children undergoing painful procedures. *Egyptian Journal of Nursing*, 1(3), 76-87.
- Mohamed, W. (2006).** Impact of nursing management protocol on selected side effects of chemotherapy in cancer patient. Unpublished Doctoral. Faculty of nursing, Cairo University.
- Moura, L. A. D., Dias, I. M. G., & Pereira, L. V. (2016).** Prevalence and factors associated with preoperative anxiety in children aged 5-12 years. *Revista latino-americana de enfermagem*, 24.
- Nisha, K., & Umarani, J. (2013).** Effect of play intervention in the reduction of anxiety among preoperative children. *International Journal of Current Research and Review*, 5(11), 104-8.
- Noronha, J. R., & Shanthi, S. (2015).** Effectiveness of picture book on preoperative anxiety among children (6-12 years) in selected hospitals at Mangalore. *Asian J Nurs Educ Res*, 5(4), 523-525.
- Perry, J. N., Hooper, V. D., & Masiongale, J. (2012).** Reduction of preoperative anxiety in pediatric surgery patients using age-appropriate teaching interventions. *Journal of PeriAnesthesia Nursing*, 27(2), 69-81.
- Potasz, C., Varela, M. J. V. D., Carvalho, L. C. D., Prado, L. F. D., & Prado, G. F. D. (2013).** Effect of play activities on hospitalized children's stress: a randomized clinical trial. *Scandinavian journal of occupational therapy*, 20(1), 71-79.
- Sabaq, A. G., & El-Awady, S. (2012).** The effect of pre-operative preparation program and mothers presence during induction on anxiety level and behavior change in young children undergoing elective surgery.
- Scott, D. W., Donahue, D. C., Mastrovito, R. C., & Hakes, T. B. (1986).** Comparative trial of clinical relaxation and an antiemetic drug regimen in reducing chemotherapy-related nausea and vomiting.
- Sekhavatpour, Z., Khanjani, N., Reyhani, T., Ghaffari, S., & Dastoorpoor, M. (2019).** The effect of storytelling on anxiety and behavioral disorders in children undergoing surgery: a randomized controlled trial. *Pediatric health, medicine and therapeutics*, 10, 61.
- Shoja, M., Heshmati Nabavi, F., Ramezani, M., & Saki, A. (2018).** Effect of a preoperative preparation program on anxiety in school-age children undergoing surgery using a factorial design. *Evidence Based Care*, 7(4), 30-37.
- Spielberger, C. D. (1970).** Manual for the state-trait anxiety inventory (Self-evaluation questionnaire). Consulting Psychologists Press.
- Tabrizi, J. S., Seyedhejazi, M., Fakhari, A., Ghadimi, F., Hamidi, M., & Taghizadieh, N. (2015).** Preoperative education and decreasing preoperative anxiety among children aged 8-10 years old and their mothers. *Anesthesiology and pain medicine*, 5(4).
- Tunney, A. M., & Boore, J. (2013).** The effectiveness of a storybook in lessening anxiety in children undergoing tonsillectomy and adenoidectomy in Northern Ireland. *Issues in comprehensive pediatric nursing*, 36(4), 319-335.
- Van Dijk, L. (2017).** Interventions reducing anxiety in hospitalized children: A systematic literature review from 2010 to 2017.
- Zarei, K., Parandeh, M., Z., Seyedfatemi, N., Khoshbakht, F., Haghani, H., M. (2013).** Impact of storytelling on physiological, worry and social anxieties in hospitalized school-aged children; 6 (4), 319-335.