



Original Article

Surveying children's anxiety in the waiting room of surgery after watching the puppet show and animation

Mostafa Roshanzadeh¹; Ali Tajabadi²; *Somayeh Mohammadi³

¹Assistant Professor, Department of nursing, Shahrekord University of Medical Sciences, Shahrekord, Iran.

²Ph.D. Student, Department of Medical Emergency, Faculty of Paramedical, Sabzevar University of Medical Sciences, Sabzevar, Iran.

³Instructor of Boroujen Nursing faculty, Department of nursing, Shahrekord University of Medical Sciences, Shahrekord, Iran.

Abstract

Introduction: Negative results of anxiety in the process of surgery and recovery of children undergoing surgery require the use of non-prescriptive methods. Therefore, the present study aimed to measure children's anxiety in the surgical ward after the puppet show and watching animation.

Materials and Methods: This clinical trial study was performed on 90 children aged 3-6 years undergoing tonsillectomy surgery at Birjand University of Medical Sciences in 2015. The children, along with their parents, watched 15 minutes of animation and puppet shows. Research instrument included demographic form and Yale Anxiety questionnaire. Data analyzed by descriptive and analytic statistical tests through SPSS software version 16.

Results: Based in the findings, children's anxiety reduced significantly after intervention ($P=0.02$). Also, children who watched puppet show had lower scores in anxiety test compared than animation group ($P<0.001$). Comparing anxiety before and after the intervention did not show a significant difference between the two genders.

Conclusion: According to the results, visual deviant techniques can have an effective role in reducing children's anxiety before surgery.

Keywords: Animation, Anxiety, Children, Surgery

Please cite this paper as:

Roshanzadeh M, Tajabadi A, Mohammadi S. Surveying children's anxiety in the waiting room of surgery after watching the puppet show and animation. *Journal of Fundamentals of Mental Health* 2020 Sep-Oct; 22(5):285-291.

Introduction

Anxiety is a state of mental distress (1), and exposure to unfamiliar conditions such as medical settings can cause anxiety (2,3). Anxiety-related reactions vary according to factors such as age and past experience. Children are more likely to be affected by stressful conditions in an unfamiliar operating environment due to their physical and psychological development (4,5). More than

two million children undergo different surgeries each year (2). About 30% of children have undergone surgery at least once, and about 5% of them experience surgery repeatedly (6). More than 50% of these children report preoperative anxiety (4-6) that 29% manifest severe anxiety while 19% have hidden severe preoperative anxiety (7). Anxiety before surgery in children can have different effects (8) such as increase postoperative pain, delayed

*Corresponding Author:

Department of nursing, Boroujen nursing faculty, Shahrekord University of Medical Sciences, Shahrekord, Iran. s.mohammadi.nfc@gmail.com

Received: Dec. 21, 2018

Accepted: Feb. 13, 2020

and prolong recovery, and prolonged hospital stay (9-13). Studies have shown that identifying the factors affecting preoperative anxiety and eliminating it can minimize anxiety (11).

Medications are commonly used today to reduce anxiety in the operating room. In addition to medication, non-medication methods such as visual and auditory distractions can also reduce anxiety.

The purpose of unorthodox methods is to make people pay attention to something other than the stressful condition and better adapt to stressful situations. The child's age indicate different emotional and adaptive conditions in children should be considered guides for the nurse in providing pre-surgical care (4,12,14-16). Playing is a way to reduce anxiety in children (17). The purpose of playing in the hospital is to help the child adapt to unreasonable situations and to reduce fear and anxiety. Studies in this area show that children who spent preoperative waiting time in the playroom were significantly less anxious and showed a better condition (18-20). Another way to reduce anxiety is to watch animations and movies. Studies have shown that animations and movies effectively reduce anxiety if it is based on children's psychological needs (1). Various studies have shown the effects of different methods to reduce anxiety in children undergoing surgery. Jeongwoo also studied the effect of animation on anesthesia in children and suggested that this method could have an influential role in reducing anxiety (21). In a study on preoperative anxiety in children and parents, the nurse of the operating room who wears fun and colorful clothes admitted children. The results indicated that the effect was more significant than midazolam to reduce stress (14). Memarzadeh et al. also investigated the effects of play on preoperative anxiety in 2-6 year-old children and stated that the intervention children experienced lower level of anxiety compared to the controls (22). Also preoperative psychological preparedness in children can significantly reduce the level of anxiety before transplantation in children (23).

A review of various studies reveals that various ways of thinking distraction, such as playing, watching animations, and playing with dolls, can have an influential role in reducing anxiety and unpleasant emotional states in children. However, comparisons between watching animation and puppet show in children undergoing surgery have been less

well-studied in previous studies. This study aimed to compare the effect of puppet show and animation watching on preoperative anxiety in children.

Materials and Methods

This clinical trial was carried out in the operating room of Vali-e-Asr teaching and learning center in Birjand University of Medical Sciences January-March 2015. The study population consisted of all children aged 3-6 years who were candidates for tonsillectomy. Sample size for the present study was 95% power and alpha 0.05 according to the sample size formula in the interventional studies, $[n=(Z(1-\alpha/2)+Z(1-\beta))^2(sd1^2+sd2^2)/d^2]$ and with respect to the parameters $(Z(1-\alpha/2)=2.32, Z(1-\beta)=1.88, sd1=1.37, \beta=0.1, \alpha=0.01)$ as well as previous studies (7,9,12), 27 patients were considered for each group and 30 patients were considered for each group. So, 90 cases were selected. The children were selected by their parents and entered the study in the morning. Finally, 90 patients entered the study and were randomly assigned into two interventional groups and one control group. Inclusion criteria included: aged 3-6 years, children candidates for tonsillectomy, not experiencing past surgery, and accompanying first-degree parent (23-26). Exclusion criteria included: having history of mental illness (epilepsy, Down Syndrome, mental retardation, attention deficit disorder, etc.) and lack of co-operation during the study (22,25). The binomial permutation blocks were used for random allocation. Since both interventions were not possible in one day, it was randomly assigned to the puppet show on Saturday and Monday. Sunday and Tuesday were scheduled for animation watching intervention. After entering the operating room, children and their parents were assigned to the intervention and control groups, respectively.

Research instrument

A) *Demographic questionnaire*: Including age, sex, occupational status, and educational level of parents.

B) *Yale Preoperative Anxiety Scale*: The questionnaire includes five domains of activity, talking, expressing emotions, apparent arousal, and parenting that reflect many of the behaviors observed in children's anxiety. Each domain also contains five response options ranging from zero to 4, which the researcher completes

according to the individual's observed behavior in each domain. The method of scoring the whole questionnaire was from 0 to 20. Its reliability was reported in the study of Proczkowska-Bjorklund et al. by Cronbach's alpha method of 0.83. Also, its reliability was estimated to be 0.86 by agreement between observers in the study of Kain et al. (27,28). Its validity was also expressed in this study through content validity (CVI) method (29). Due to the lack of validated version of this instrument in Iranian studies, the researchers translated this tool into a two-way method and validated it. The content validity index was 0.81 in this questionnaire. Cronbach's alpha reliability was calculated at 0.80. One researcher completed the questionnaires for all children and was completed by observing the child's condition according to the questionnaire. A playroom was used to interfere with the puppet show (through Red Cap puppet). The children watched the puppet show with their parents and researcher for 15 minutes. A specialist ran the puppet show in the field, and there was the same predetermined scenario for all children. The playroom designed to display the puppet show was created in the reception of operating room equal to 2 x 3 meters with curtain designs. The animation watching room was similar to the playroom, but the child exclusively watched the animation with a

parent for 15 minutes without the most exciting and popular audience in age group of 3-6 years, was played on a laptop. In the control group, the intervention was not performed, and the child and his/her parents were taken to the waiting room before surgery for 15 minutes. After watching the puppet show and the animation, the children and their parents were transferred to the preoperative waiting room. Written consent was obtained from all parents. The participants assured about volunteer participation, confidentiality information, the anonymity of the questionnaires, and safety of the interventions. Data were analyzed by SPSS software version 16 using descriptive statistics (frequency, percentage, mean, and standard deviation) and inferential statistical tests (Mann-Whitney, Kruskal Wallis, Wilcoxon, etc.).

Results

In the present study, 56 males and 34 females were participated. The demographic characteristics presented in Table 1.

In term of parents, 97% of children were accompanied with their mothers.

The three groups were matched for sex, age and parental education, and occupation using Chi-square and t-test. There were no significant differences between the groups (Table 2).

Table 1. Frequency distribution of the units under study by gender

Variable	Animation Frequency (%)	Puppet show Frequency (%)	Control Frequency (%)	Significance level
Gender	Female	12 (40)	13 (43)	0.7
	Male	18(60)	17(57)	
	Total	30 (100)	30 (100)	
Occupational status of parents	Unemployed	6 (20)	4 (13.5)	0.1
	Employed	16 (53.34)	12 (40)	
	Personal job	8 (26.66)	14 (46.5)	
	Total	30 (100)	30 (100)	
Level of Education	High school	1 (1.33)	5 (16.66)	0.09
	Diploma	5 (16.66)	10 (33.33)	
	Associate degree	8 (26.68)	4 (13.33)	
	Bachelor	15 (50)	9 (30)	
	M.A	1 (3.33)	2 (6.68)	
	Ph.D.	0 (0)	0 (0)	
	Total	30 (100)	30 (100)	

The mean scores of anxiety of children in three groups were not different significantly in pre-test phase ($P=0.7$) while, there was a significant difference between the groups after the intervention ($P= 0.02$). The lowest anxiety level after the intervention was observed in the puppet show group (Table 3). Also, the mean score of anxiety before and after the intervention was significantly different

between the groups (Table 3). Comparing the mean score of anxiety before and after intervention based on demographic characteristics in different groups showed no significant difference between different groups (Table 4). The relationship between the mean age and anxiety score in the participants before and after the intervention showed no significant relationship (Table 5).

Table 2. Mean and standard deviation of age of the studied units in different groups

Variable	Control	Puppet show	Animation	Significance level
	Mean ± SD	Mean ± SD	Mean ± SD	
Age (Year)	5.35 ± 1.46	4.13 ± 0.4	4.94 ± 1.1	$P=0.09$ F=4.18

Table 4. Comparing anxiety before and after intervention

Variable	Control		Puppet show		Animation	
	After intervention	Before intervention	After intervention	Before intervention	After intervention	Before intervention
	Female	3.6±10.33	2.7± 8.33	2.1±9.22	2.17±11.3	4.8± 10.62
Male	4.8±12.92	4.3±10.71	2.55± 9	2.11±12	2.2±8.5	±10.5
Mann-Whitney	$P=0.9$	$P=0.3$	$P=0.09$	$P=0.3$	$P=0.1$	$P=0.7$

Table 5. Relationship between mean age and anxiety in different groups before and after the intervention

Variable	Control		Puppet show		Animation	
	After intervention	Before intervention	After intervention	Before intervention	After intervention	Before intervention
	Age	$r=0.2$ $P=0.1$	$r=0.1$ $P=0.3$	$r=0.3$ $P=0.1$	$r=0.53$ $P=0.1$	$r=0.1$ $P=0.1$

Discussion

The primary purpose is to compare the effects of puppet shows and animation watching on anxiety the of children in the waiting room before surgery. This study showed that both visual distraction and puppet watching had a significant effect on reducing Anxiety of children under intervention with their parents in the preoperative waiting room.

Meanwhile, the average Anxiety in children who received the puppet show intervention was significantly lower than in the animation watching group. In other words, it can be said that the distraction of the puppet show rather than watching the animation has reduced the

Anxiety of the children further. Reyhani et al. also found in their study the role of the presence of a red hat in preoperative Anxiety in children and considered age-appropriate games to reduce stress in unfamiliar therapeutic settings (6). Yun et al. evaluate the use of a nurse-led puppet training method to reduce physical symptoms of anxiety in children undergoing surgery and suggest that this method can play an influential role in reducing parental anxiety and reducing Anxiety in children.

Children also have (30). Vagnoli et al. also found using the clown display method to reduce anesthesia anxiety in children and their parents positively. It has also been suggested that the

medical team's coordination is essential in reducing the Anxiety of children and their families during anesthesia and significantly reducing children's Anxiety and complications (31). Mifflin et al. stated in their study that watching video clips can have an influential role in reducing preoperative anxiety in children. He has also suggested that video games or animations should be tailored to the child's age and attractive to effectively create a maximum distraction in children in a stressful environment (9).

Jeongwoo et al. also studied the effect of animation observation on preoperative Anxiety in children and suggested that this method could also have an influential role in reducing their Anxiety (21).

In their study, Hosseinpour and Memarzadeh examined the playroom's impact on children's preoperative anxiety. This study suggests that play as a distraction method can effectively reduce Preoperative Anxiety in children (17). Xing-Lian et al. also found in their study the use of children's favorite games to reduce preoperative anxiety in them and believe that this approach should be considered a mechanism of anxiety reduction by managers (16). In analyzing the results of the above studies, it should be noted that a different range of distraction methods using mechanisms such as watching video clips as well as playing can have an influential role in reducing anxiety in these children before surgery.

While confirming the results of the mentioned studies, it should be noted that the critical point raised in these methods is the appropriateness of the method used with the age of the children. To maximize the use of this method in reducing anxiety, the method must be appropriate to the child's age so that the child can understand his / her method as effectively as possible.

The mean score of anxiety among children in the intervention groups before the intervention was not significant. This difference was significant after intervention between different groups. The lowest mean score of anxiety after the intervention was in the puppet show group, and the highest mean score of anxiety was seen in the control group.

Litman states that using techniques that bring happiness and laugh to children can normalize the therapeutic environment and, therefore, anxiety that can be partly caused by the unknown environment will be reduced. However, it is preferable to carry out these

activities, especially with young children and their parents (12). Adams also states the necessity of performing a preoperative training program, including playing to reduce anxiety. Also, if used in various ways, such as playing alongside video and animation, it will create a comfortable atmosphere in the preoperative environment (10). In their study, Wright et al. suggested using methods such as playing and watching a favorite video to prevent anxiety and preoperative complications in children in surgery (7).

Ghabeli et al. also consider the role of play in reducing preoperative anxiety in children and suggest that this action can reduce parental anxiety and increase their satisfaction with the therapeutic process (32). Analyzing these results also suggests that using deviation methods closer to children's real-life, such as clowning and playing with dolls, can reduce children's anxiety. In this regard, it should be noted that these conditions can also vary due to the children's age.

According to the results, hospital managers are advised to have places in the pediatric surgery ward and the children's operating room to perform procedures such as playing with teddy bears and watching animations to maximize the therapeutic environment. Make it a more informal environment and reduce the anxiety of children.

For this purpose, it is recommended that preoperative waiting rooms be used in the preoperative rooms using monitors to customize the child's animation to play an influential role in reducing their anxiety. The managers of the operating room can use these effective methods to reduce anxiety in children and parents in an unfamiliar operating room environment. The limitations of the above study can be noted by the observational method of completing the instrument.

The observer should complete this tool, and indeed analyzing and capturing the child's condition and face by the researcher can be useful in completing the anxiety questionnaire. Although only one questionnaire was used to complete the questionnaires, multiple observers would increase the reliability of the data.

Also, due to limited time and place, the present method should be implemented in a limited time. However, if there are fixed places for playing and watching animations in the operating room, children's anxiety be decreased.

Conclusion

The present study indicates the influential role of deviant puppetry and animation watching techniques to reduce children's anxiety before surgery. Since children need to spend some time in the waiting room with their parents before surgery, effective implementation of these methods, according to the results, could have an effective and lasting role in controlling their preoperative anxiety.

Acknowledgment

The present study is part of research project number 4529 and code of ethics Ir.bums.REC.1394.93, which is registered and sponsored by the research department of Birjand University of Medical Sciences. We want to thank everyone who participated in the study and all who contributed to this study. There were no conflicts of interest among the authors in the present study.

References

1. Fortier MA, Del Rosario AM, Martin SR, Kain ZN. Perioperative anxiety in children. *Paediatr Anaesth* 2010; 20(4): 318-22.
2. Wennström B, Tornhage CJ, Nasic S, Hedelin H, Bergh I. The perioperative dialogue reduces postoperative stress in children undergoing day surgery as confirmed by salivary cortisol. *Paediatr Anaesth* 2011; 21(10): 1058-65.
3. Fortier MA, Blount RL, Wang SM, Mayes LC, Kain ZN. Analysing a family-centred preoperative intervention programme: a dismantling approach. *Br J Anaesth* 2010; 106(5): 713-8.
4. Chieng YJS, Chan WCS, Klainin-Yobas P, He HG. Preoperative anxiety and postoperative pain in children and adolescents undergoing elective surgical procedures: a quantitative systematic review. *J Adv Nurs* 2013; 70(2): 243-55.
5. Chow CH, Van Lieshout RJ, Schmidt LA, Dobson KG, Buckley N. Systematic review: Audiovisual interventions for reducing preoperative anxiety in children undergoing elective surgery. *J Pediatr Psychol* 2016; 41(2): 182-203.
6. Reyhani T, Dehghan Z, Shojaeian R, Asghari Nekah SM, Behnam Vashani HR. [The influence of the puppet Kolah Ghermezi on preoperative anxiety among hospitalized children with appendicitis in Dr Shaikh hospital of Mashhad]. *Evidence based care* 2014; 4(11): 77-86. (Persian)
7. Wright KD, Stewart SH, Finley GA. When are parents helpful? A randomized clinical trial of the efficacy of parental presence for pediatric anesthesia. *Can J Anaesth* 2010; 57(8): 751-8.
8. Vagnoli L, Caprilli S, Messeri A. Parental presence, clowns or sedative premedication to treat preoperative anxiety in children: what could be the most promising option? *Paediatr Anaesth* 2010; 20(10): 937-43.
9. Mifflin KA, Hackmann T, Chorney JM. Streamed video clips to reduce anxiety in children during inhaled induction of anesthesia. *Anesth Analg* 2012; 115(5): 1162-7.
10. Adams HA. A perioperative education program for pediatric patients and their parents. *AORN J* 2011; 93(4): 472-81.
11. Wright KD, Stewart SH, Finley GA, Buffett-Jerrott SE. Prevention and intervention strategies to alleviate preoperative anxiety in children. A critical review. *Behav Modif* 2007; 31(1): 52-79.
12. Litman RS. Allaying anxiety in children: when a funny thing happens on the way to the operating room. *Anesthesiology* 2011; 115(1): 4-5.
13. Sjoberg C, Amhlieden H, Nygren JM, Arvidsson S, Svedberg P. The perspective of children on factors influencing their participation in perioperative care. *J Clin Nurs* 2015; 24(19-20): 2945-53.
14. He HG, Zhu L, Chan SWC, Liam JLW, Li HCW, Ko SS, Wang W. Therapeutic play intervention on children's preoperative anxiety, negative emotional manifestation and postoperative pain: a randomized controlled trial. *J Adv Nurs* 2015; 71(5): 1032-43.
15. Salmela M, Salanterä S, Aronen ET. Coping with hospital-related fears: experiences of pre-school aged children. *J Adv Nurs* 2010; 66(6): 1222-31.
16. Gao XL, Liu Y, Tian S, Zhang DQ, Wu QP. Effect of interesting games on relief of preoperative anxiety in preschool children. *Int J Nurs Sci* 2014; 1(1): 89-92.
17. Hosseinpour M, Memarzadeh M. Use of a preoperative playroom to prepare children for surgery. *Euro J Ped Surg* 2010; 20(6): 408-11.
18. Weber F. The influence of playful activities on children's anxiety during the preoperative period at the outpatient surgical center. *J Pediatr (Rio J)* 2010; 86(3): 209-14.
19. Khanjari S, Mola F, Davachi A, Haghani H. [Effect of play on anxiety of hospitalized children]. *Iran journal of nursing* 2001; 14(28): 31-38. (Persian)
20. Fincher W, Shaw J, Ramelet AS. The effectiveness of a standardized preoperative preparation in reducing child and parent anxiety: a single-blind randomized controlled trial. *J Clin Nurs* 2012; 21(7-8): 946-55.

21. Lee J, Lee J, Lim H, Son JS, Lee JR, Kim DC, et al. Animation distraction alleviates anxiety in children during induction of anesthesia. *Anesth Analg* 2012; 115(5): 1168-73.
22. Memarzadeh M, Hosseinpour M, Aflakian H. Evaluation of playing room on preoperative anxiety of 2-6 years old children in Al-Zahra hospital. *Iranian journal of surgery* 2006; 14(4): 1-6. (Persian)
23. Mjzoby M, Amany R, Majzoby F. Effects of psychological preparation on reduction of surgery anxiety signs in children. *Koomesh* 2013; 48(4): 466-73. (Persian)
24. Nguyen TN, Nilsson S, Hellstrom AL, Bengtson A. Music therapy to reduce pain and anxiety in children with cancer undergoing lumbar puncture: a randomized clinical trial. *J Pediatr Oncol Nurs* 2010; 27(3): 146-55.
25. Hartling L, Newton AS, Liang Y, Jou H, Hewson K, Klassen TP, Curtis S. Music to reduce pain and distress in the pediatric emergency department: a randomized clinical trial. *JAMA Pediatr* 2013; 167(9): 826-35.
26. Klassen JA, Liang Y, Tjosvold L, Klassen TP, Hartling L. Music for pain and anxiety in children undergoing medical procedures: a systematic review of randomized controlled trials. *Ambul Pediatr* 2008; 8(2): 117-28.
27. Kain ZN, Mayes L, Cicchetti DV, Caramico LA, Sieker M, Nygren MM, et al. Measurement tool for preoperative anxiety in young children: the Yale Preoperative Anxiety Scale. *Child Neuropsychol* 1995; 1(3): 203-10.
28. Proczkowska-Bjorklund M, Gimbler Berglund I, Ericsson E. Reliability and validity of the Swedish version of the modified Yale Preoperative Anxiety Scale. *Acta Anaesthesiol Scand* 2012; 56(4): 491-7.
29. Kain ZN1, Mayes LC, Cicchetti DV, Bagnall AL, Finley JD, Hofstadter MB. The Yale Preoperative Anxiety Scale: how does it compare with a gold standard? *Anesth Analg* 1997; 85(4): 783-8.
30. Yun OB, Kim SJ, Jung D. Effects of a clown-nurse educational intervention on the reduction of postoperative anxiety and pain among preschool children and their accompanying parents in South Korea. *J Pediatr Nurs* 2015; 30(6): e89-99.
31. Vagnoli L1, Caprilli S, Robiglio A, Messeri A. Clown doctors as a treatment for preoperative anxiety in children: a randomized, prospective study. *Pediatrics* 2005; 116(4): e563-7.
32. Ghabeli F, Moheb N, Hosseini Nasab SD. Effect of toys and preoperative visit on reducing children's anxiety and their parents before surgery and satisfaction with the treatment process. *J Caring Sci* 2014; 3(1): 21-8.