

Effect of Toys and Preoperative Visit on Reducing Children's Anxiety and their Parents before Surgery and Satisfaction with the Treatment Process

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ABSTRACT

Introduction: Hospital anxiety and surgery has an unpleasant and disturbing feeling for a child and his/her family. This study aimed to determine the effect of toys and visit in reducing children's anxiety before the surgery and their mothers and satisfaction with the treatment process.

Methods: This was a quasi-experimental study in posttest design with a control group. 60 children aged 3 to 8 years, who were undergoing ear, nose and throat surgery in Tabriz Amiralmomenin hospital, were chosen, and regarding their age and gender, were recruited into the control or experiment group. For the experiment group, the interventions before surgery were applied. The level of anxiety in children and parents was evaluated by Observation Scale of Behavioral Distress (OSBD-R) and Spielberger State Anxiety Inventory (STAI). The level of parental satisfaction with the treatment process before being discharged from the hospital was evaluated by the process of treatment satisfaction questionnaire (PSQ-18). Data were analyzed by SPSS ver.13.

Results: Mean anxiety scores of the children and mothers in the experimental group were lower than the control group. Mean maternal satisfaction score of the treatment process in the experimental group was higher than the mean scores of the control group. However, in the subscales of general satisfaction, interpersonal behavior, and financial aspects of satisfaction with treatment, no statistical significant difference was found between the experimental and control groups.

Conclusion: Based on the findings, providing toys for children and informing the parents about medical information has a major effect in reducing children's and other's anxiety and increasing maternal satisfaction with the treatment process.

Introduction

Hospitalization is a major cause of stress in patients, and if it is related to pediatrics it will be a threatening experience for the children and their families.¹ Therefore, illness and surgery anxiety may be the first components of the crisis that the child is faced with. Surgical anxiety is a state of distasteful anxiety or stress that occurs due to fear of illness, hospitalization, anesthesia, or surgery.² It is associated with symptoms such as emotional stress, irritability, insomnia, unusual behavior,³ increased hormone secretion, dysrhythmia, malnutrition, and slow wound healing.⁴ The continuation of

anxiety postpones surgery,⁵ makes the recovery period longer, causes bleeding, more anesthetic, and increases pain after surgery.⁶

The time a child is ill, it creates a difficult situation for his or her family. The diagnosis, its compatibility, and treatment follow-up are critical for the family. The parents anxiety is associated with the severity of the disease and the treatment methods. This anxiety is greatly felt and observed during the treatment,⁷ and it might continue even after hospital discharged.⁸ Previous studies indicated that the main causes of stress in hospitalized children are the fear of medical

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services, physical injuries, pain, death, fear of separation from parents, fear of the unknown, uncertainty, loss of power, control, comfort and convenience.⁹ Furthermore, regarding the causes of stress, parents have reported different variables such as the role of parents, lack of control over events, the fear of death for children under anesthesia, fear of failure, fear of adverse surgical outcome, fear of the pain that child bears, fear of the unknown, and being concerned about the treatment team not responding correctly to the child's needs during their absence.^{10,11}

In order to reduce children and parent's anxiety, preoperative interferences are provided such as prescribing sedatives, presence of parents at different stages of treatment, and providing clinical information for the parents.¹² Preoperative visit or providing treatment information needed for the patients and their family shows the relationship between the patient undergoing surgery and operation room nurse before transferring patient to the operation room. Given the close relationship between the nurse and the child's parents, nurses can be effective in reducing parental stress and discomfort during hospitalization.¹³ Preoperative visit and preparation for surgery is sometimes more important than a medical intervention. During the visit, the child's treatment conditions, required surgery, psychological support needs and their families are estimated. The beginning of anesthesia will be discussed, which helps to calm the child and their family. It is believed that stress is transferred from parents to children. So every action that reduces parental anxiety causes children anxiety to eliminate. In the previous study, it was reported that children who had been playing prior to the surgery had better conditions and had less anxiety compared to the group who directly transferred for surgery.¹⁴ It was reported that the use of toys in the preoperative period effectively reduces preoperative anxiety in children.^{15,16} It seems that toys provide conditions for children to

indicate anxiety, negative feelings and imagination. Essentially, in the process of playing and play-therapy, children can express their feelings freely. Therefore, cognitive separation from experiences and negative circumstances can cause anxiety. On the other hand, children show themselves while playing and learn how to deal with different situations.¹⁷ Stress is a physical, mental, and emotional reaction against an external stimuli and anxiety is an advanced stage of stress.¹⁷

There is evidence that preoperative visit will help to reduce stress. Essentially, the information given to patients before surgery due to reducing anxiety is effective in their improvement. The benefits of verbal communication (visit) in all areas of patient-care has clearly been evaluated.¹⁷ Providing play-therapy for children and giving sufficient information about the treatment and surgery process to the parents help them to complete the treatment with more comfort, and thus affects the level of their satisfaction with the treatment process. Satisfaction with the treatment is an outcome of a complex set of factors and to achieve it, this is necessary that several aspects of service including nursing care, medical support and various parts of the organization are coordinated and with full respect for patient rights in all aspects provide favorable conditions for its improvement.¹⁸ Perceived quality of the provided services by the patients, often leads to patient satisfaction of the treatment. Accordingly, in most countries, evaluating patient satisfaction is an important indicator of health care quality. Therefore, it is necessary to prepare programs to create, maintain and enhance the satisfaction.¹⁹ However, the importance of satisfaction is increased when it can be promoted by reducing the child and parent's anxiety. The main objectives of the present study were few available studies on this matter in Iran, the need of medical and treatment centers to provide low cost methods to reduce children and parents' anxiety, and also improving

family satisfaction of the treatment process. Accordingly, the present study was conducted to address these questions; "Are providing toys for children and informational visits for the parents effective in reducing anxiety?" "Are providing toys for children and preoperative visits for the parents effective in improving parental satisfaction of the treatment process?" The findings of this study can be used in treatment centers.

Materials and methods

This was a quasi-experimental study with post-test and control group. The study population consisted of the entire children candidate for surgery aged 3 to 8 years in otolaryngology ward and their mothers in Tabriz Amiralmomenin Hospital (Iran) during the April to August 2013. Sample size was estimated using sample size determiner software, and taking 5 as the average difference between the two groups, standard deviation (SD) 4, sample size for the control and experiment group with an error less than 0.05, was 25 people for each group. But in order to increase the validity of the sample size, the groups were increased to 30 patients each. Thus 60 children and mothers were selected through convenient sampling method in a 3-month period (from July 1st to September end) with regard to the inclusive and exclusive criteria. Considering the age and gender of a child and mother, replacement was made in one of the control and experimental group.

Inclusive criteria included parental consent in participating in the study, children undergoing ear, nose, and throat surgery, and being at the age range of 3 to 8 years. Exclusive criteria included children undergoing emergency surgery, orphans, mentally retarded children, and foreign nationals. Research tools included Observation Scale of Behavioral Distress (OSBD-R). OSBD-R is an 8-item tool which is used to assess children's anxiety symptoms (including crying, screaming, physical

resistance, verbal resistance, seek help from parents, requests for information, predict pain, and thumping hands and feet).²⁰ OSBD-R scoring includes 0 = no observed behavior, 0.5 = observed anxious behavior. The minimum and maximum individual score is from 0 to 4. Sadat Hossein et al.,²¹ confirmed the content validity of OSBD-R based on the opinion of 12 faculty members of Tehran university of medical sciences. In this study, the reliability was estimated based on coefficient Cronbach's alpha in a sample of 30 mothers for the whole scale as 0.70.

Spielberger State Anxiety Inventory (STAI) has 40 items.²² It assesses two subscales of trait anxiety and state anxiety which each have 20 subjects. In this study, only the state anxiety subscale was used. Spielberger state anxiety is scored based on 4 points Likert scale (1 = almost never to 4 = almost always). Kvaal et al., reported the sensitivity and specificity of state-trait anxiety questionnaire as 0.82 and 0.88, respectively.²³ Nasiri Amiri et al. reported the validity of trait and state anxiety questionnaire for each of the subscales of trait anxiety and state anxiety as 0.90.²⁴ In this study, the reliability based on coefficient Cronbach's alpha in a sample of 30 mothers for the whole scale was estimated as 0.72.

Patient satisfaction questionnaire (PSQ-18): The patient satisfaction questionnaire has 18 items which is used to determine patient satisfaction of the treatment process. This questionnaire involves patient's opinions (or parents) about the received medical care and treatment. It has 7 subscales; i.e. 1. General satisfaction, 2. Technical and professional quality, 3. Interpersonal behavior, 4. Communication, 5. Financial aspects, 6. Time spent with the physician, and 7. Accessibility and convenience. The scoring of satisfaction with the treatment process is in 5-level ordinal scale (1 = strongly agree to 5 = strongly disagree). High scores indicate satisfaction with medical care. Ong et al. have confirmed the validity of the satisfaction from treatment process questionnaire and have

reported the reliability of each subscale higher than 0.09.²⁵ In Iran, Zahednezhad et al. have reported the reliability of the questionnaire with Cronbach's alpha 0.67.²⁶ In this study, the reliability based on coefficient Cronbach's alpha in a sample of 30 mothers for the whole scale obtained 0.76.

Data were collected using survey instruments. Children in the experimental group were visited 20 minutes before the surgery onset, and were given a toy appropriate to their age, and the mother's questions were answered regarding the treatment process. Thereafter, the child was transferred to the operation room. The children's anxiety scale was completed by the psychologist in the operating room. Then, the parental anxiety assessment was described to them and was completed. At the time of discharge, the satisfaction of the treatment process questionnaire was explained and then completed by the mothers. The control group did not have any visit and did not receive toys, and the preoperative anxiety questionnaire was completed for them as well. At the time of discharge, the satisfaction of the treatment process questionnaire was applied. Minimum and maximum length of stay for a child after the surgery was one to two days.

All the statistical analysis of data obtained from the study was conducted by SPSS for Windows 13.0 (SPSS Inc., Chicago, IL, USA). T-test was used for the comparison of child and parent anxiety mean scores and comparing patient satisfaction of the treatment process between the two groups. Before using independent t-test, assumption of data normality using Kolmogorov-Smirnov and homogeneity of variance between groups was ensured. In the present study, $p < 0.05$ was considered as a statistically significant level.

Results

Mean age of the children in the experimental group was 5.10 (SD = 1.68) and in the control group it was 5.90 (SD = 1.70). Based on the results of independent t-test, the mean age of participants was not significantly different between the two groups ($P > 0.05$). This finding implies the similarity of the two groups regarding the age. In both groups, the distribution of male and female ratio was equal to 15 people. Twelve mothers in the experimental group (40%) had primary or lower level of education, 6 (20%) had secondary school education, 11 (36.7%) were high-school graduates, and one (3.3%) had a bachelor degree. In the control group, eight mothers (26.7%) had primary or lower education, 5 (16.7%) had secondary education, 11 (36.7%) were high-school graduates, and 6 (20%) had an academic bachelor degree.

The results of the independent t-test showed that the mean scores of preoperative anxiety and the state anxiety of the mothers in the control and experimental groups were statistically different. The experimental group compared to the control group had lower mean preoperative anxiety scores ($P < 0.001$). Furthermore, comparing the two groups regarding the mean score of parental satisfaction of the treatment process in all the scales and subscales (technical quality, communication, time spent and accessibility) had significant differences. Parents in the experimental group compared to the control group had higher mean scores in satisfaction ($P < 0.05$). But in subscales of general satisfaction, interpersonal behavior, and financial aspects, there was no statistically significant difference between the experimental and control groups (Table 1).

Table 1. t-test results to compare the mean scores of anxiety in children, their mothers, and parental satisfaction with the treatment process in both experimental and control groups

Variable	Experiment group (n = 30)	Control group (n = 30)	Mean differences 95% CI	Statistical indicators
Anxiety before operation	0.56 (0.08)	2.21(0.10)	-1.92, -1.37	t = 12.08, p < 0.001
Mothers state anxiety	37.83 (1.07)	56.33(1.66)	-22.46, -14.53	t = -9.33, p < 0.001
Overall satisfaction scale	67.93(1.22)	61.70 (1.46)	2.41, 10.05	t = 3.26, p < 0.010
General satisfaction	8.20 (0.24)	7.56 (0.22)	-0.20, 1.29	t = 1.92, p = 0.059
Technical quality	16.43(0.38)	14.40 (0.51)	0.74, 3.31	t = 3.16, p < 0.010
Interpersonal behavior	8.83 (0.23)	8.53 (0.21)	-0.32, 0.92	t = 0.95, p = 0.340
Relationship	8.50 (0.21)	6.93 (0.31)	0.80, 2.33	t = 4.09, p < 0.001
Financial aspects	5.70 (0.31)	5.30 (0.28)	-0.45, 1.25	t = 0.93, p = 0.350
Time spent	5.86(0.25)	6.70 (0.29)	-1.61, -0.05	t = 2.14, p < 0.050
Accessibility	14.40(0.43)	12.26(0.54)	0.73, 3.53	t = 3.05, p < 0.010

Data are given as mean (SD)

Discussion

This study aimed to determine the effects of toys and preoperative visits on decreasing the anxiety of children and their parents and their satisfaction from the treatment process. The results indicated that providing toys for children before an operation decreases their anxiety. The results of this hypothesis was in accordance with the previous studies.¹⁴⁻¹⁶ In addition, some studies have highlighted the role of play-therapy on reducing stress in children before a surgery. It was reported that play-therapy had a positive effect on reducing anxiety in children.²⁷ Mohammadi Gharaeyi et al. had also reported that play-therapy intervention was effective on reducing children's stress after surgery.²⁸

This finding emphasized on the importance of game room and toys in reducing children's anxiety before surgery. Since average to mild anxiety before surgery causes behavioral improvement in the postoperative period, severe anxiety before surgery causes psychological and physiological outcomes after the operation.¹⁵ Therefore, the management of anxiety in children leads to the best psychological and physiological response to surgery and better managing of their health. Using game rooms is an important factor in reducing extreme anxiety, adjustment of children with hospital environment, and the problems after surgery.

Previous studies mainly focus on the importance of playing in children's anxiety.²⁹ Unfamiliar status of the hospital and medical staff,³⁰ anxious parents,¹¹ and separation from mother³ were reported as possible causes of preoperative anxiety in children. Thus, in explaining the findings of the study about the effect of toys on preoperative anxiety in children, it can be concluded that toys by creating positive mood in children allows them to cope with the hospital conditions. On the other hand, the cognitive effects of toys cannot be ignored. Toys reduce children's consideration of stressful situations, and diversion attention emerges as anxiety. Moreover, by placing a child in a play room, the emotional connections between parent and child would be decreased, and the parental anxiety transmission to children will be reduced. Another part of the research findings showed that preoperative visit reduced the parent's anxiety. The hypothesis of the study was in accordance with reports on the benefits of verbal communication (visit) in all areas of patient care.^{17,31}

Basically, ambiguous situation and unpredictable future have been introduced as basic causes of anxiety.³² With visits to the physician and receiving detailed information, this ambiguity would be reduced. With logical approach to the disease and its treatment, parents can express more logical reactions.³³ Results from other parts of the

study showed that toys and preoperative visits increased parent's satisfaction of the treatment process. Parents in the experimental group had higher mean scores compared to the control group regarding satisfaction with the treatment process. Comparing the subscales of parent satisfaction questionnaire showed that the mean subscale scores of technical quality, relationship, time spent and accessibility in the experimental group was significantly higher than the control group. However, in subscales of general satisfaction, interpersonal behavior, and financial aspects there was no statistically significant differences between experimental and control groups.

The findings of this part of the research were in accordance with several reports on the overall structure of treatment satisfaction and subscales of treatment satisfaction questionnaire.^{24,34} It was reported that improving community access to economic and information services and increasing people's information about healthcare can increase satisfaction regarding healthcare services. This matter, along with improving the quality of services and providing them, can dramatically increase the levels of satisfaction.³⁴ Another study reported the effectiveness of the appropriateness of the cost of services provided and the service quality of the influencing factors on satisfaction of treatment. Basically, the relationship of physician and patient is a predictor of satisfaction with treatment.²⁶ Another study reported the physical environment, human resources, facilities, management staff, and the relationship of the medical personnel associated with patient's satisfaction.³⁵ It was also reported that the quality of care, waiting time, service charges, quality, services, and the reputation of the physician as predictors of patient satisfaction with health services. Given the lack of a significant difference in subscales of general satisfaction, interpersonal behavior, and financial aspects, the small number of items

on the questionnaire can be taken into consideration. Quantifiers were used in measuring the concept. But the overall score of the scale demonstrated the differences in the experimental and control groups. In formal comparison of the means, the high mean score for this subscale can be realized. The small variance in the scores of the two groups can be a destructive factor in obtaining accurate results. Accordingly, use of tools with more items for future research can lead to the correctness or accuracy of the findings.

In explaining the findings of the study, it can be argued that children toys reduces their anxiety, providing accurate medical information to parents through preoperative visit increases parental knowledge of the treatment process and reduces parental anxiety of the consequences of the illness. Forteir et al. showed that elevated stress of the parents is a predictor of postoperative anxiety in children.³⁶ Reducing parents and children anxiety and providing medical information for the parents will be associated with greater satisfaction. The results of every study are useful with taking its limitations into consideration. The instrument used in this study was a questionnaire. The participating patients were candidates of ear, nose, throat, and tonsillectomy surgery. The subjects aged 3-8 years old with the elective surgery and did not have emergency operation. These limitations point to the need for further studies.

Conclusion

Based on the findings, using toys and play rooms for children is an important factor in reducing anxiety in children undergoing surgery. Providing detailed information about the medical treatment process should be considered in the hospital program to reduce stress in parents regarding their child's illness. Considering two factors of providing children with toys and providing detailed information about the treatment for

the parents are effective in improving parental satisfaction with the treatment process. According to the results using play rooms and providing parents with medical information are cost effective methods that can be used in medical centers.

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Ethical issues

None to be declared.

Conflict of interest

Findings of this study do not correlate with the interests of researchers.

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