

Evaluation of the Effect of Individual and Group Tour on the Anxiety Scores of 4–7-year-old Hospitalized Children and their Mothers

Abstract

Background: Anxiety is a human response to any unknown situation. Hospitalization and encountering an unfamiliar environment could lead to anxiety and its complications. Therefore, the aim of the present study was to evaluate the effect of individual and group tours on anxiety in children and their mothers. **Materials and Methods:** This quasi-experimental study was conducted on the three groups of individual tour, group tour, and control in two stages. The study was performed on 84 children. The self-report image anxiety scale and State-Trait Anxiety Inventory (STAI) (Spielberger *et al.*) were used for the assessment of anxiety among children and their mothers, respectively. Data were analyzed using Statistical Package for the Social Sciences software. **Results:** The results showed that the mean score of children's anxiety differed significantly between the three groups after the intervention ($F = 40.58, p < 0.001$). In addition, the three groups were significantly different in terms of the mothers' anxiety after the intervention ($F = 4.12, p < 0.02$). No significant difference was observed between the group tour and individual tour groups regarding the children's anxiety score ($F = 0.02, p = 0.980$) and mothers' state anxiety scores ($F = 0.054, p = 0.950$). **Conclusions:** The hospital visiting tours decreased the hospitalized children's anxiety and their mother's anxiety. This might be due to their greater familiarity with the ward's nurses, hospital environment, and facilities, familiarization with the unfamiliar new places and the location of different places, and speaking to and finding a sense of empathy and sympathy with their peers.

Keywords: Anxiety, hospitalization, mothers, orientation, pediatrics, surgery

Introduction

Children's anxiety of being hospitalized is due to their low ability to adapt, fear, being separated from their parents, pain, lack of control, and the unfamiliar environment.^[1] From among 5 million children who undergo surgery in the United States, 50–75% experience severe anxiety before the surgery.^[2] The results of a study indicated that 53.1% of hospitalized children experience moderate anxiety and 46.9% of them experience mild anxiety.^[3]

Anxiety leads to disorder in the cardiovascular, respiratory, and digestive systems.^[4] It also causes tachycardia, increased blood pressure, arterial vessels contraction, decreased blood flow to the wounds, and decreased blood pressure of the tissues. It also increases postoperation pain and the need for painkillers and analgesics, and consequently, increases the risk of anesthesia, increases the duration of hospitalization, and delays recovery. By

slowing down respiration, anxiety causes respiratory complications, increases the risk of infections, and also decreases the response of the immune system.^[5] Studies have shown that parents also experience a great deal of anxiety regarding the hospitalization and surgery of their children. Lack of information about the expected processes, the unfamiliar environment of the hospital, and uncertainty and doubt about the disease and its treatments are factors associated with the parents' anxiety.^[6]

Anxiety management includes medicinal and nonmedicinal interventions, educational programs for preparing the families and parents for presence during the induction of anesthesia.^[7] Other management methods include music therapy,^[8] massage therapy,^[9] age-related training for the hospitalized child,^[2] provision of written information using brochures, verbal recommendations,^[10] educational booklets,^[11] different methods of distraction such as controlled breathing, beautiful dolls, mental relaxation, electronic

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games,^[12] and hospital visiting tours.^[13] Results of the study by Sadegh-Tabrizi *et al.* showed that children undergoing surgery and their mothers experience lower levels of anxiety the night prior to the surgery, after receiving the necessary education through educational booklets the day before the surgery.^[14] Existence of advanced technology and complicated modern treatments in the healthcare system, the demanding nature of the nursing profession, and the limited time for creating a relationship between nurses and all of the patients have led to a gap between caregivers and patients. Therefore, these environments are accompanied by anxiety for the patients. Thus, considering all the above-mentioned issues, the researcher's personal confrontation with anxiety-related problems for children and their parents (including insomnia, feeling of fear, and existence of posttraumatic stress disorder symptoms), and personal and group tours as one of the methods for introducing new environments to people, the present study was conducted. In the present study, the researcher evaluated the effect of personal and group hospital tour on the anxiety of hospitalized children of 4–7 years old who were candidates for surgery and their mothers.

Materials and Methods

The present quasi-experimental study was conducted to evaluate the effect of the independent variable (hospital visiting tour) on the dependent variable (anxiety of hospitalized children and their mothers) in the three groups of personal tour, group tour, and control in three stages at the Department of Pediatric Surgery of the selected hospital in Isfahan, Iran, in 2014. The participants of the present study were 4–7-year-old children and their mothers. The participants were selected using simple randomized sampling (using colored beads) and based on the day of children's admission to the hospital. Eligible subjects were selected, and then, randomly allocated to three groups. Children who referred to the hospital during the first day were allocated to the personal intervention group (30 participants), those who referred on the second day were assigned to the group intervention group (27 participants), and the third-day admissions were assigned to the control group (27 participants). Using the sample size calculation formula, and considering a 95% confidence interval and test power of 84%, the sample size for each group was determined as 25 participants. Eventually, considering a sample loss of about 10%, the study was conducted on 27 participants in the personal intervention group and control group and 30 participants in the group intervention group (a total of 168 participants).

The inclusion criteria were the mother accompanying the child at the time of hospitalization, being 4–7 years old, both the mother and the child speaking Farsi, not having fever and pain at the time of recording the vital signs, being mentally healthy according to the medical file, being conscious enough to perform the intervention, not

consuming any anxiety-reducing drugs according to the physician's prescription recorded in the medical file, and having one day or less until the time of the surgery. The exclusion criteria consisted of unwillingness of the mother or the child to participate in the study, child's prior history of hospitalization, mother's prior experience of having another hospitalized child, the need for emergency surgery, child's chronic disease, changes in the physical and mental condition of the child, mother's illiteracy, and the request by the pediatric surgeon for excluding the child from the study and cancelation of the surgery.

The data gathering tools were the demographic characteristics questionnaire, State-Trait Anxiety Inventory (STAI), and self-report visual analog anxiety scale. The STAI and Reheiser includes 20 items with maximum and minimum scores of 80 and 20, respectively. Scores ≤ 33 indicate mild anxiety, 33–46 indicate moderate anxiety, and ≥ 47 indicate severe anxiety. The STAI was used to measure the mothers' trait anxiety.^[15] The self-report visual analog anxiety scale includes seven numbered cartoon images that represent a 1–7 scoring scale.^[16] The first picture represents "the neutral state with no anxiety," and pictures 2–7, respectively, show the ascending rate of anxiety.^[16] This tool was used for measuring the children's anxiety. Spielberg *et al.*^[15] reported the reliability coefficient of the STAI to be 0.89. The reliability coefficient of the self-report visual analog anxiety scale was reported between 0.85 and 0.95.^[17]

After obtaining a written permission from the research deputy of the School of Nursing and Midwifery and presenting it to the hospital's managers, and explaining the goals of the study, the researcher visited the pediatric surgery department of the hospital. After gaining written informed consent from the parents, sampling was started. Sampling was randomized and the participants' demographic characteristics were gathered through questionnaires, interviews with the mothers, and the patients' medical files. Then, the children's anxiety was measured before the intervention using the self-report visual analog anxiety scale and the mothers' mean of state and trait anxiety was measured before the intervention using the STAI. Then, the hospital tour intervention was performed. For the personal tour group, each child with their mother visited the hospital and they were provided with basic information about the hospital's overview, different places, the photo gallery of the department, and physicians and nurses along with necessary explanations. Then, they were taken to different parts of the hospital including the yard, cafeteria, toy store, the corridors leading to their department, and the waiting room before undergoing surgery and necessary explanations were provided. The group tour was performed in a similar method as the personal tour for at least 5 children together. Each visit lasted from about 45 min to an hour. The control group only received the routine educations. After the intervention, the mothers' and children's mean

of anxiety scores were measured again. Data were analyzed using descriptive and analytical statistics, such as one-way analysis of variance (ANOVA) and paired *t*-test, in Statistical Package for the Social Sciences (SPSS) software (version 18, SPSS Inc., Chicago, IL, USA).

Ethical considerations

For performing sampling, permission was obtained from the research deputy of the School of Nursing and Midwifery and the selected hospital, and a written informed consent was obtained from every participant. The participants were assured that their information would remain confidential and if they had any questions about the results, the researcher would answer.

Results

The results showed that 30% of the children were girls and 70% were boys. There were no significant differences between the mean age of the mothers ($p = 0.86$) and the children ($p = 0.31$) in the three groups. In other words, the three groups were homogenous regarding the age of both mothers and children.

The results showed that before the intervention, there was no significant difference in children's anxiety scores between the three groups ($p = 0.980$). However, the difference between the anxiety scores of children in individual tour and group tour was statistically significant after the intervention ($p = 0.770$). The scores of both groups were significantly lower than that of the control group ($p < 0.001$). In other words, according to paired *t*-test, anxiety was significantly diminished in both individual and group tours after the intervention ($p < 0.001$), while it remained the same for the control group ($p = 0.190$) [Table 1].

Furthermore, although one-way ANOVA demonstrated no significant difference between the state anxiety scores of the mothers in the three groups before the intervention ($p = 0.950$), after performing the tours, the scores were

significantly different ($p = 0.020$) [Table 2]. There was significant difference between the individual and group tours in terms of the mother's anxiety after the intervention ($p = 0.980$). The mean scores of the mother's anxiety in the control group remained significantly higher than the individual tour ($p = 0.020$) and the group tour ($p = 0.001$) groups.

Discussion

After performing the visiting tour, the mean scores of children's anxiety were significantly different between the three groups, which might be due to the effect of performing hospital visiting tours and advantaging from the benefits of hospital tours, including introducing the hospital environment to the children, having more self-control over the environment, and decreased anxiety. In this regard, the results of a study showed that providing education about the presurgery and postsurgery procedures and cares in the operating room, performing procedures as puppet shows, and performing them again by the children could lead to decreased levels of fear and anxiety in children.^[18] Moreover, the results of another study showed a significant difference between the mean scores of anxiety of the intervention and control groups on the day of admission, one hour before angiography, and at the time of discharge from the hospital.^[19] Results of the mentioned studies indicated the effectiveness of tutorial tours, and consequently, more interaction between people, and a sense of empathy, accompaniment, and collaboration in the reduction of patients' anxiety.

The results showed a significant difference between the three groups after the hospital visiting tour regarding the mothers' anxiety score, which might be due to the presence of mothers during hospital visiting tours and their advantages from its benefits and getting answers for their questions. The results of a previous study showed that education decreased mothers' trait anxiety.^[20]

Table 1: Comparison of the children's mean preintervention and postintervention anxiety scores in the three groups

Group	Mean (SD)	
	The children's pre-intervention anxiety scores	The children's post-intervention anxiety scores
Individual tour intervention	3.30 (2.03)	1.50 (0.80)
Group tour intervention	3.40 (2.10)	1.40 (0.60)
Control group	3.70 (1.90)	3.60 (1.50)
ANOVA	$F=0.02, p=0.98$	$F=40.58, p<0.001$

Table 2: Comparison of the mothers' mean pre-intervention and post-intervention anxiety scores

Group	Mean (SD)	
	The mothers' pre-intervention anxiety scores	The mothers' post-intervention anxiety scores
Individual tour intervention	51.00 (13.50)	42.10 (9.50)
Group tour intervention	50.00 (11.30)	42.03 (10.80)
Control group	50.04 (13.30)	49.30 (11.90)
ANOVA	$F=0.054, p=0.95$	$F=4.12, p=0.02$

These results indicated the effectiveness of performing a tutorial tour in decreasing the anxiety of participated children. After performing the tutorial tours, the two groups of personal intervention and group intervention showed lower levels of anxiety compared to the control group. Nevertheless, this comparison revealed that children in the two groups of personal intervention and group intervention had almost similar mean scores of anxiety. Thus, performing the tutorial tours personally or in groups had no significant effect on the patients' mean score of anxiety. This result might be due to the fact that during such a short period of time, the children did not have enough time to get to know each other, interact, and express their feelings to decrease their anxiety. Furthermore, considering the age of the children (4–7 years) and their interest in social and group activities, providing more time than what was assigned to them in the present study could lead to their friendship and interaction, advantaging more from the group activities during the tutorial tours, and a greater decrease in their anxiety compared to the personal tour group. Despite all the efforts, the researcher was not able to find any studies which evaluated and compared the effect of personal and group tutorial tours. It can be stated that if the duration of the tutorial tours was longer and they were performed before the child's hospitalization, considering no financial and executive problems, they would probably have more effect on decreasing the anxiety of children and their parents. Moreover, if it was possible to categorize children into groups of 4–5 years old and 6–7 years old during one day, the intervention would probably have been more effective because the explanations would have been provided based on the age range and the children would have been more similar and had mutual understanding.

One of the limitations of the present study was interference between the time of the tours and patient's transfer to the operating room. To prevent sample loss, the necessary coordinations were made with the responsible surgeons, operating room officials, and department officials.

Conclusion

The results of the present study indicated the effectiveness of hospital visiting tours in decreasing the anxiety of children who were candidates for surgery and their mothers. This might be due to a greater familiarity with the ward nurses, hospital environment, and facilities, familiarization with the unfamiliar new places and the location of different places, and speaking to and finding a sense of empathy and sympathy with their peers.

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Conflicts of interest

Nothing to declare.

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