

Comparative Study of Effect of Two Methods of Family-Centered and Child-Centered Education on Preoperative Anxiety in 6-12-Year-Old Children in Bushehr City

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Introduction

Surgery is a common medical treatment in many hospitals and one of the most stressful events that may occur during each person's life [1,2]. Surgery of any kind is considered as a stressful experience [3]. Anxiety is common in patients undergoing surgery, with incidence rate of 11%-80% and 20% reported by Caumo and Ferreira and Berns et al. respectively [4,5]. Children are among the age groups who can undergo surgery due to various diseases. Considering their young age and inability to adapt to conditions such as fear caused by surgery, children experience anxiety. The risk of anxiety is increased among children due to their presence in the hospital and issues such as separation from parents, unfamiliar situations, being in the new environment, the presence of health care staff and various procedures [6]. Preoperative anxiety causes negative behaviors during anesthesia and postoperative maladaptive behaviors [7]. Reducing the preoperative anxiety among children leads to better and faster recovery, reduced drug use during anesthesia, better pain tolerance, early discharge and ultimately lower costs and postoperative complications [8]. Drug and non-drug methods are used to reduce the anxiety [9]. Anti-anxiety drugs can exert many physical, emotional and psychological effects on children [10]. Non-drug measures can reduce the child's need for medication as well as the subsequent complications. Non-drug measures can alleviate children's anxiety without endangering their health. Education is one of the non-drug methods used to reduce the children's preoperative anxiety [11]. Education is a way to learn and will satisfy the learner's needs. However, Braun believes that excessive education increases individuals' level of anxiety [12]. Freud believes that preoperative preparation is necessary in children [13]. Nurses, as the closest therapeutic team for patients and their families, are able to improve their ability by using appropriate educational methods [14]. Child care emphasizes family-centered interventions since it is impossible to provide the child with nursing care while neglecting the whole family system [15]. This type of care is essential for better control of the disease and increases the patients' and their family's empowerment. In order to achieve more beneficial outcomes, education and care should be provided to the client at the same time [16]. Family-centered education refers to the setting educational priorities and needs, expansion of relationships of cooperation and empowerment of the family unit [15]. In addition to family-centered education, child-centered education, as an effective teaching method can help reduce pre-operative anxiety. Child-centered education is a method used by the nurse to transfer the information needed by the child based on their level of understanding and need. Children in each age group have the right to receive explanations of the disease and hospitalization in proportion to their level of understanding, and these explanations should be provided to older children in the written form. The most appropriate child preparation means include videos, lectures, plays and games [15]. Multimedia education, as a new educational method, is implemented through the transfer of concepts and educational materials in an easier, wider and more attractive way using text, sound, image and video and this method is widely used today to transfer concepts to children and adolescents [17]. Various studies have been carried out on children's

Abstract

Introduction: Surgery is a common medical practice carried out in many hospitals and one of the most stressful events that may occur during each person's life. Anxiety is commonly seen in children undergoing surgery. Considering the importance of the subject matter, the aim of present research was to compare the effect of two methods of family-centered and child-centered education on preoperative anxiety in children aged 6-12 years.

Methods: This is a quasi-experimental study conducted on 70 school-age children undergoing surgery (6-12 years) in Bushehr hospitals. The subjects were selected using quota and simple random sampling methods. The pre and post-intervention data were collected using 20-item Spielberger's State-Trait Anxiety Inventory for Children, the validity and reliability of which were previously confirmed. The family-centered and child-centered education methods were implemented in the first and second groups, respectively. Data analysis was later carried out using descriptive statistics (mean, standard deviation, frequency) and inferential statistics tests (chi square test, paired t-test and independent t-test) in SPSS vs. 22.

Findings: There was no significant difference between the two groups in terms of demographic variables. There was not statistically significant difference between the two groups in terms of pre-intervention mean anxiety scores ($P=0.758$); however, the post-intervention anxiety score in the child-centered intervention group was significantly lower than that of the family-centered group ($P=0.033$). The findings also showed both the above groups reduced the anxiety score in the post-intervention phase ($P<0.001$, $P<0.001$).

Conclusion: The results showed that family-centered and child-centered education methods reduced preoperative anxiety. The child-centered group led to higher reduction in the preoperative anxiety rate than the family-centered group and these interventions should be performed to prepare patients and reduce preoperative anxiety in the treatment centers.

anxiety, and distraction techniques have been used in most cases [18-20]. Considering the limited number of relevant studies and the importance and place of anxiety in children in one hand, complications caused by drug treatments and high medication cost on the other hand, the aim of the present study was to investigate the effect of two methods of family-centered and child-centered education on preoperative anxiety in children aged 6-12 years in Bushehr hospitals.

Method

This is a quasi-experimental study, in which subjects were randomly assigned into two experimental groups. The research population included all children aged 6-12 years old who referred to the medical centers of Bushehr for surgery. The research setting was the surgical ward of Bushehr Medical Education Center. The number of subjects in each group was equal to 35 obtained according 15% drop-out (Total sample size = 70 people). The inclusion criteria included elective surgery, child's and parent's willingness to participate in the study, and the exclusion criteria included child with mental retardation, history of previous surgery, anxiety and known phobias, severe pre-intervention pain based on the Wong-Baker pain FACES scale, lack of cooperation of parents, parents or guardian working in the hospital and child with history of chronic disease. Sampling lasted for six months. In this research, data collection tools included demographic questionnaire and the State-Trait Anxiety Inventory. The 7-item demographic questionnaire included subjects' underlying information of the including age, gender, place of surgery, parental education, mother's occupation and place of residence. The Spielberger's State-Trait Anxiety Inventory for Children (STAI-CH) was used to measure children's level of anxiety. The name of this inventory was how do I feel? And consisted of 20 questions on anxiety (scoring ten questions directly and 10 other questions indirectly). Each question was answered based on the 3-point of Likert scale with the first, second and third options indicating positive, moderate feeling and negative feelings, respectively. The minimum and maximum score was 20 and 60, respectively with scores ≤ 33 and ≥ 47 indicating mild and severe anxiety, respectively. Other scores showed moderate anxiety. The reliability of the Spielberger's State-Trait Anxiety Inventory for Children was assessed as 0.87 by Tidman (1990) to measure anxiety of school-age children admitted to hospital. Rabiee et al. reported a reliability of 0.89 for the same inventory in Iran [21-23]. The study began after the proposal was approved by the Ethics committee of Bushehr University of Medical Sciences, receipt of permission from the Faculty of Nursing and Midwifery and taking the written informed consent of parents. Considering the fact that sampling was carried out in two educational hospitals of Bushehr city, two-step sampling was carried out using quota and simple random methods. First, the frequency of surgery operations within a month in each hospital has been measured and then a total of 70 percent is multiplied for each hospital's share. Then 56 and 14 of the subjects were assigned to Salman Farsi Hospital and Shohadaye Khalije Fars Hospital, respectively. The random number table was used for selection of random samples in the child-centered and family-centered groups. There was no control group in this study, and the two intervention groups were compared with each other. After obtaining written consent from the child's parents who was ready for surgery on the day before the operation, the researcher provided the necessary explanations on the research procedure, the confidentiality of information, anonymity of subjects. The intervention lasted for one day and one session. The pretest was completed by the two

intervention groups individually in the surgical ward one day before the surgery. The intervention was implemented for both groups as follow: the family-centered group received verbal education for 10 to 15 min according to the following procedure. Things will get better if parents remember that practice is safe and do not exempt the child from doing it. Avoid using comparative words. For example, "this procedure is terrible, it really causes severe pain."

Distraction

Help parents find the strongest distractors. Encourage the child to play (computer, tape recorder, watch TV, use tablet and pain), use recreational programs (Looking at the caricatures, saying comic stories, telling funny jokes with the child). Ask the child to read something.

Photo Exposure

The child is shows the photo album of the operating room staffs, their type of clothing cover (masks, hats and protective glasses) and the reason for such coverage. The operating room equipment such as beds, the recovery room, the computers (for controlling the heart rate and the child's respiration), cialitic lamps were shown to the child.

Gaining Physical and Mental Relaxation

The child was asked to breathe deeply and relax himself like a cloth doll and slowly exhale. Help the child stay in a comfortable position (for example, putting the pillow under their neck and knees). The child was again asked to relax him/herself slowly starting with their fingers, and then systematically make other parts of their body relax and tense. If it is difficult for them to do this, they were taught to stretch tight each part of their body first and then relax them.

Positive Self-concept

We taught the child to repeat positive habits and sentences in the time of pain (I will soon feel good, or when I go home, I will feel better and then we'll all get ice cream together).

Thought Stopping

We emphasized the positive dimensions of painful events (it won't last long). The positive and trustworthy facts were summarized in the form of short sentences and the child was asked to remember them (good practice, less harassment, good nurses, going home). The child was later asked to remember these sentences and phrases whenever (s) he thinks of stressful events. Multimedia method was used for five minutes in the child-centered education group. It was stated that today we will teach you about the preoperative care. The concepts used in multimedia education are as follows. A comprehensible language was used to explain the child about the medical equipment used in the nursing examinations and nursing practices in the surgical ward. The child was later familiarized about the type of coverage of the operating room staffs and the reason of that type of coverage was mentioned. At the end of multimedia session, the child's questions were answered. The child gets acquainted with the surgical environment, the recovery room, monitoring equipment, oxygen mask, and knows what and why procedures are implemented in each step after watching the multimedia. The education scenarios were approved by two professors of psychology at Bushehr University of Medical Sciences. The pretest was given on evening of the day of admission. After completing the

education, both intervention groups completed the post-intervention questionnaire (before surgery) on the morning of the next day in the surgical ward (similar to the pretest). Since children's anxiety level was measure before and after the intervention, the mean of children's anxiety scores changes were a valid anxiety measurement index calculated in the study. The data analysis was carried out using descriptive statistics (mean, standard deviation, frequency) and inferential statistics tests (Chi-square, paired t-test and independent t-test) at the significance level of 0.05.

Results

The findings of this study showed that there was no significant difference between the two groups in terms of age, gender, and place of surgery, parents' level of education, mother's occupation and place of residence. This means that the random allocation of the subjects into

family-centered and child-centered groups led to homogeneous selection of subjects in two equal groups (Table 1). The two groups were homogeneous in terms of demographic characteristics. The mean age of the participants in both the family and child-centered groups was 9.88 ± 1.25 and 9.82 ± 1.15 years, respectively, with the age range of 8-12 years.

The results of the present research also showed no significant difference in both groups in terms of the pre- intervention anxiety score (P-value=0.758); however, the post- intervention anxiety score in the child-centered intervention group was reduced more significantly than the family-centered group (P-value=0.033). The findings also revealed that the anxiety score decreased significantly in the two groups of family-centered and child-centered groups in the post-intervention phase (P<0.001) and P<0.001) (Table 2).

| Variable | test | Test result |
|-----------------------------|--------------------|-------------|
| Child's age | Independent-t test | P=0.843 |
| Gender | Fisher Exact test | P=0.811 |
| Place of surgery | chi-Square test | P=0.267 |
| Father's level of education | chi-Square test | P=0.545 |
| Mother's level of education | chi-Square test | P=0.382 |
| Place of residence | Fisher Exact test | P=0.803 |
| Maternal employment status | Fisher Exact test | P=0.356 |

Table 1: Homogeneity of the studied variables.

| Group | Family-centered | Child-centered | P-value** |
|------------------------|-----------------|----------------|-----------|
| Evaluation steps | Mean ± SD | Mean ± SD | |
| Before intervention | 2.88 ± 50.06 | 2.51 ± 50.26 | 0.758 |
| After the intervention | 6.43 ± 40.03 | 4.90 ± 37.06 | 0.033 |
| P-value * | 0.001> | 0.001> | |

Table 2: Comparison of mean changes in the anxiety of the subjects of the studied groups. Independent t test ** Paired t-test*

Discussion

The findings of the current research showed that the two groups were homogeneous in terms of demographic characteristics and there was no significant difference between the pre and post-intervention mean anxiety scores of children in both groups. These findings also revealed that both family-centered and child-centered groups had the same level of anxiety before intervention. Tabrizi et al. determined the pre-intervention anxiety level of children and showed that two groups had similar levels of preoperative anxiety [24]. The aim of the present research was to compare the effect of family-centered education and child-centered education on the children's level of preoperative anxiety. The results of comparing the pre and post-intervention mean anxiety score showed that each of these two methods reduced the preoperative anxiety. The results of this comparative study on the two methods showed that the child-centered group led to higher reduction in the preoperative anxiety than the family-centered group. The results of this

study were consistent with Tabrizi et al. study, which evaluated the effect of the preoperative education and reducing preoperative anxiety in children aged 8-10 years and their mothers. In this study, the both children and mothers received an information booklet on the operating room and anesthesia. There was difference the pre and post-intervention anxiety scores of the children, and the mothers' and children's preoperative anxiety scores were reduced after receiving explanations on anesthesia and surgery [25] similar to the family-centered education implemented in the present study. The results of the present study were consistent with Reyhani et al. quasi-experimental study on the effect of the presence of Kolah Ghermezi puppet on the child's anxiety before appendicitis and reduced the preoperative anxiety in the intervention group children [26]. In a prospective study evaluating the effect of distraction on the preoperative anxiety in 83 children admitted to of the Turkish University Hospital, Aytekin et al. used distraction interventions, including computer games, listening to music and watching cartoons in the children before the operation.

Their results showed that the preoperative distraction significantly reduced children's level of anxiety [27]. Fincher et al. conducted a study on the effect of preoperative preparation on child anxiety in the Western Australia's Pediatric Hospital. The experimental group received training in the form of photo albums, demonstration instruments using role play and familiarization with the operating room atmosphere. There was a significant difference between pre and post-anxiety scores. Pre-operative interventions were effective in reducing parents' and the child's level of anxiety [28]. Crandall et al. conducted a quasi-experimental and prospective study in the United States to investigate the effect of training on the pain before tonsillectomy in students aged 7-13 years and the effect of training on postoperative clinical outcomes such as (anxiety, severity and quality of pain and sleep). The results showed that preoperative pain training had no effect on the postoperative anxiety, pain level, pain and sleep quality of the children, which were not consistent with the results of the present study [24]. Also, the results of the current study were not consistent with Sotoudeh et al. study which evaluated the effect of psycho-educational interventions on the post-tonsillectomy pain in children aged 9-12 years. The results of this research showed that psycho-educational interventions would accelerate children's return to normal activities. This research did not show a significant relationship between psycho-educational intervention and post-tonsillectomy pain relief, which could be due to tension and anxiety caused by postoperative pain and children's individual differences in showing anxiety. Most of these studies focused on the distraction techniques. There are few researches indicating that multimedia education has a better effect on child's pre-operative anxiety than parental education, which may be due to lack of cooperation of some parents in implementing interventions for the child or exempting the child from practicing the family-centered interventions. The limitations of this study included its small sample size and the lack of cooperation of some patients; therefore, the researcher tried to justify the parents by explaining the importance of the subject and the purpose of the study.

Conclusion

The results of the present study showed that both family-centered education and child-centered education reduced pre-operative anxiety; however, the child-centered group led to higher reduction in the preoperative anxiety than the family-centered group. Obviously, further studies could certainly make the results of the present study more valid; especially considering the fact that there are few relevant studies in Iran. However, the main goal of pre-operative care is obviously to minimize the physical and mental health status of the child. Helping the children and their family to adapt themselves with the conditions and subsequent anxiety is one of the important responsibilities of the nurses. Considering that one of the main roles of nurses is to achieve non-invasive methods used to treat and provide care to patients, it is hoped that the results of this research will broaden the scope of nursing activities, thereby reducing of the preoperative anxiety of children and increasing the quality of nursing care. Nurses who care about the anxiety of their patients and reduce it, would establish better communication with their patients. Therefore, effective and low-cost interventions are needed to improve preparation and participation of parents and children undergoing surgery.

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