Investigating the Effect of Educational Film Presentation on the Anxiety Level of Mothers Visiting the Preoperative Anesthesia Clinic

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Received: 19 Feb. 2023; Accepted: 19 Oct. 2023

Abstract- With the increasing number of pediatric surgeries and the transfer of caregiving roles to parents, appropriate preparation and reduction of their stress levels for proper care of children before and after surgery is essential. If parental anxiety can be reduced through various methods, not only can it improve parental performance and their comfort, but it can also prevent the impact of anxiety on the child. Therefore, we aimed to investigate the effect of educational film presentation on the anxiety level of mothers visiting the obstetric anesthesia clinic at the Children's Medical Center in 2020. This study was a randomized double-blind controlled trial conducted as an intervention. Sampling was done randomly, and the study population consisted of two groups of 38 individuals, whose children were candidates for MRI. The intervention group watched the educational film, while the second group served as the control group. Subsequently, their anxiety levels were assessed and compared using the Beck Anxiety Inventory. The data were entered into SPSS Ver. 21 software and analyzed accordingly. The mean age of mothers in this study was 33.41 years with a standard deviation of 7 years. The mean age of children was 3.79 years with a standard deviation of 3.4 years. Among the children, 30 were girls (39.5%) and 46 were boys (60.5%). The mean age of girls was 4.35 years with a standard deviation of 4.16 years, while the mean age of boys was 3.433 years with a standard deviation of 2.787 years. Overall, 39 participants (50.6%) watched the educational film, while 38 participants (49.4%) were in the control group. The mean score of anxiety level according to the Beck Anxiety Inventory (BAI) was 9.47 with a standard deviation of 9.77. The level of anxiety was significantly higher in the intervention group who watched the educational film compared to the control group (P=0.012). The results of the present study indicated that parental anxiety increased after watching the educational video on anesthesia methods. It is recommended that alternative strategies be considered for reducing parental anxiety in future studies.

Acta Med Iran 2023;61(12):743-748.

Keywords: Educational film presentation; Maternal anxiety; Pediatric anesthesia

Introduction

Anxiety is a mental state that arises when encountering various situations (1). In children undergoing surgery, when they are separated from their parents, anxiety can manifest in various forms such as mental tension, restlessness, insomnia, and inappropriate behavior (2). With the increasing prevalence of pediatric surgeries and the transfer of caregiving roles to parents, proper preparation and reducing their stress levels are essential for ensuring adequate care of children before and after surgery. This is because pediatric surgery creates stressful caregiving responsibilities for parents, such as lack of knowledge about the illness, treatment procedures, pediatric care, disease consequences, and financial burdens. These factors lead to the development

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of anxiety and a decrease in their self-efficacy in caring for the child (3,4). In surgical procedures, parents play a crucial role in accepting responsibility for pre and post-operative care. They require adequate preparation and comprehensive education in this regard. The number of children undergoing surgery is also on the rise. Additionally, there has been a significant change in the provision of care used for surgical interventions, such as improved short-term hospitalization plans and advancements in surgical techniques (3,5). The experience of a child's illness and surgery creates significant symptoms of anxiety and stress for parents (5,6). Psychological issues in mothers, especially anxiety, lead to emotional and behavioral problems in children. Improving the understanding of a child's illness and implementing self-efficacy strategies by mothers for better care of the child reduce parental anxiety (6,7). In surgical procedures, parents play a crucial and special role in accepting responsibility for the care of the child before and after the surgery. They require thorough and appropriate preparation and education in this regard. However, research indicates that parents usually lack sufficient education in this area and are often anxious and confused on the day of surgery (8,9). This anxiety not only renders them incapable of fulfilling their caregiving role but also transfers anxiety to the child, resulting in unnecessary stress and anxiety for them. This can lead to consequences such as problems during anesthesia, increased post-operative pain (requiring repeated administration of painkillers), and behavioral disorders persisting for a long time after surgery (10,11).

One of the significant factors contributing to anxiety is insufficient knowledge about the treatment process. Various educational aids are used to educate patients. The results of a study showed that educating patients through lectures leads to better information retention and reduces their anxiety. Conversely, another study demonstrated that video presentations are an effective tool for educating patients before surgery (10,12). Reducing parental anxiety through various methods can not only enhance parental performance and comfort but also prevent the negative impact of anxiety on the child, therefore, it is important for the anesthesiologist to pay attention to the parents' anxiety (13,14).

Research indicates several approaches to prepare parents and children for outpatient surgery, such as offering educational booklets and CDs, organizing hospital and operating room tours the day before the procedure, and engaging in therapeutic games and role-playing exercises. The efficacy of these methods in reducing anxiety and enhancing the mental and physical readiness of both the child and their parents has been validated through multiple trials (15-17). Multiple studies highlight the suitability and efficacy of written informational and training materials as a cost-effective approach before surgery, either as a standalone method or in conjunction with modern techniques (15-16,18).

Based on this, conducting and evaluating programs that can help reduce parental anxiety significantly benefits both parents and children. Therefore, we decided to investigate the impact of educational film presentation on the level of anxiety among parents visiting the preoperative anesthesia clinic.

Materials and Methods

This study was a double-blind randomized clinical trial conducted in a descriptive-analytical intervention manner. The trial was registered at the Iranian Registry of Clinical Trials under the protocol registration code IRCT20200521047530N1. The study was conducted on the mothers of children visiting the preoperative anesthesia clinic at the Children's Medical Center. The inclusion criteria were the mothers of all patients who visited the preoperative anesthesia clinic at the Children's Medical Center before undergoing MRI, could speak and understand Persian, were capable of caring for themselves and their child, had no history of mental or physical illness, and were literate. The exclusion criteria from the study encompassed a history of abortion in the mother, the presence of physical and mental issues in the child (such as intellectual disability, cerebral palsy, and chronic congenital defects), and the child having an untreatable illness. Furthermore, to mitigate the effect of parental gender on the anxiety level, the process of film presentation and anxiety level assessment was only conducted on mothers of affected children. The desired sample size was 38 individuals in both the control and intervention groups.

This study was conducted after obtaining approval from the Children's Medical Center and the Ethics Committee of Tehran University of Medical Sciences. Patient information throughout the study was kept anonymous and confidential. After applying the inclusion and exclusion criteria, the mothers were randomly allocated to either the intervention or control group using a pre-prepared randomization sequence by the researchers. Randomization was done based on odd and even appointment numbers for entering the clinic and the film was presented to individuals in the intervention group by a medical intern in the waiting area. After obtaining informed consent and explaining the study

process to the participants, a checklist including demographic information, maternal age, child's age, child's gender, maternal occupation, maternal education, number of children in the family, maternal surgical history, and children's surgical history was completed for both the intervention and control groups at the time of their visit.

Then, a 5-minute educational film created by the researcher (a general medical student) depicting the process of pre-MRI sedation, intravenous cannulation under inhalation induction, followed by sedation or general anesthesia, and the recovery stage was shown to the intervention group. No film was shown to the control group. This study had a double-blind design. An intern divided the participants into two groups and presented the film, while an anesthesiologist evaluated all participants. The participants were not aware of the intervention's effect, and the anesthesiologist (evaluator) did not know to which of the participants the film was presented. Subsequently, after the pre- operative anesthesia visit, the level of anxiety in both groups was assessed using the 21-item Beck Anxiety Inventory.

To assess parental anxiety, the Beck Anxiety Inventory was utilized. This questionnaire consists of 21 questions and was validated by Kaviani et al. in a study conducted in 2008 on Iranian age and gender groups. The questionnaire demonstrated satisfactory validity (r=0.72, P<0.001) and reliability (r=0.83, P<0.001), with an internal consistency of 0.92 (19). This questionnaire consists of 21 questions, with four options for each question. Each statement reflects one of the symptoms of anxiety typically experienced by clinically anxious individuals or those in anxiety-provoking situations. Therefore, the score range is from 0 to 63. A score between 0 and 7 indicates no anxiety, a score between 8 and 15 shows mild anxiety, a score between 16 and 25 suggests moderate anxiety, and a score between 26 and 63 demonstrates severe anxiety.

The data was analyzed using the SPSS version 20. Quantitative variables are presented as mean and standard deviation, and qualitative variables are presented as frequency and percentage. Descriptive statistics, including tables, means, and standard deviations were used for quantitative data, and frequencies and proportions were employed for qualitative data. Inferential statistics, such as independent t-tests, paired t-tests, and covariance analysis, were also utilized for analysis. A significance level of less than 0.05 was considered statistically significant. Parametric tests were used for analyzing parametric data, while non-parametric tests were used for analyzing non-parametric data.

Results

This study was conducted on 76 parents of children who were supposed to undergo MRI in 2020. They were randomly assigned into two intervention and control groups. The demographic characteristics of the participants are presented in Table 1. The youngest participating mother was 19 years old, and the oldest was 47 years old. Furthermore, the youngest child was 1 month old, and the oldest was 16 years old. In this study, 30 of the children (39.5%) were girls, and the rest were boys.

Table 1. Demographic characteristics of participants

Parameter		Intervention group	Control group	Total	*P*
Maternal age		33.95±6.96	32.87±7.09	33.41±7	0.5
Child's age		4.55±3.77	3.04±2.83	3.79±3.4	0.053
Maternal surgical history		23 (60.5 %)	15 (39.5%)	----------	0.066
Child's surgical history		12 (60%)	8 (40%)	----------	0.297
Occupation	- **Self-employed**	2 (5.3%)	1 (2.6%)	3 (3.9%)	0.084
	- **Employee**	2(5.3%)	2 (5.3%)	4 (5.3%)	
	- **Housewife**	34 (89.4%)	35 (92.1%)	69 (90.8%)	
Maternal education	- **Below high school diploma**	15 (39.5%)	16 (42.1%)	31 (40.8%)	0.794
	- **High school diploma to bachelor's degree**	22 (57.9%)	20 (52.6%)	42 (55.3%)	
	- **Beyond bachelor's degree**	1 (2.6%)	2 (5.3%)	3 (3.9%)	

In this study, an educational film was presented to 39 mothers, while the film was not shown to 38 mothers in the control. The mean anxiety score based on the Beck Anxiety Inventory (BAI) criteria was 12.26±10.51 in the intervention group, 8.19±6.68 in the control group, and 9.47±9.77 overall among the participants. The level of anxiety was significantly higher in the intervention group, who watched the educational film, compared to the control group (*P*=0.012). The relationship between the BAI anxiety score and the demographic variables studied is presented in Table 3. Furthermore, according to the Spearman correlation test, no significant correlation was observed between the level of anxiety in mothers and their age (*P*=0.235), the age of their children (*P*=0.052), and the number of their children (*P*=0.328).

Table 2. Relationship between BAI anxiety score and demographic variables

Parameter		Intervention group	Control group	Total
Sex	**-Girl**	12.93	7.56	10.07
	-Boy	11.88	6.05	9.09
	P	*0.77*	*0.58*	*0.672*
Maternal surgical history	**-Positive**	11.83	8.33	10.45
	-Negative	12.93	5.61	8.5
	P	*0.756*	*0.323*	*0.389*
Child's surgical history	**-Positive**	13	9.5	11.6
	-Negative	11.92	5.93	8.71
	P	*0.774*	*0.280*	*0.26*
Occupation	**-Self-employed**	6	3.99	5.33
	-Employee	19.5	2	10.75
	-Housewife	12.21	7.02	9.58
	P	*0.448*	*0.674*	*0.74*
Maternal education	**-Below high school diploma**	13.54	6.31	9.81
	-High school diploma to bachelor's degree	11.4	7.54	9.52
	-Beyond bachelor's degree	11.99	2	5.33
	P	*0.841*	*0.662*	*0.755*

Discussion

In this study, we aimed to assess the effect of educational videos on anesthesia techniques and their risks on the anxiety levels of mothers whose children were candidates for surgery. The mean age of the mothers in this study was 33.41 years, with a standard deviation of 7 years. In this regard, the present study can be compared with a study conducted by Nikfarid *et al*., (11), where the mean age of the mothers was 29.86±5.4 years. In that study, there was also no significant difference in age between the two study groups. The lack of significant difference in the two study groups, considering the age of the mothers in the present study, indicates that maternal age did not affect the results of our study.

Furthermore, our study showed that the level of anxiety in mothers did not have a statistically significant difference based on the gender, age, or number of children. Considering this point, it can be inferred that the children's gender, age, or number did not significantly affect the level of parental anxiety. The results of our study in this regard are comparable to the study conducted by Nikfarid *et al*., (11), where there was no significant difference in the number of children (*P*=0.7), the gender of the children (*P*=0.5), and the mean age of the children (*P*=0.2) between the two study groups.

Among these 76 mothers under study, 38 had a history of surgery, of whom 23 were in the intervention group and 15 in the control group. Additionally, 20 children also had a history of surgery, of whom 12 were in the intervention group and 8 in the control group. The results of our study showed that the level of anxiety among mothers in the two groups did not have a statistically significant difference based on the history of surgery in mothers and children. Nikfarid *et al*., (11) also found no difference in the history of surgery in mothers and children between the two groups.

In the present study, 3 (3.9%) mothers were self-employed, 4 (5.3%) were employees, and 69 (90.8%) were homemakers. Additionally, 31 mothers (40.8%) had education below a high school diploma, 42 (55.3%) had education ranging from a high school diploma to a bachelor's degree, and 3 (3.9%) had education beyond a bachelor's degree. No statistically significant difference

was observed in occupation and education between the two study groups. Furthermore, no statistically significant correlation was observed between the level of maternal anxiety and occupation, as well as between the level of maternal anxiety and education level (P>0.05). In a study by Motahari Nia *et al*., (3), maternal education (P=0.09) and maternal occupation (P=0.24) showed no statistically significant correlation with anxiety.

The mean score of anxiety level according to the Beck Anxiety Inventory (BAI) was 9.47 with a standard deviation of 9.77. Furthermore, 51.3% had no anxiety, 25% had mild anxiety, 14.5% had moderate anxiety, and 9.2% had severe anxiety. The level of anxiety was significantly higher in the intervention group who watched the educational video compared to the control group (P=0.012). This finding contradicted numerous studies that found that educational videos led to a reduction in parental anxiety. In the study conducted by Motahari Nia *et al*., (3), which investigated the impact of education on the anxiety of mothers of children undergoing surgery, cognitive-behavioral training was employed to reduce stress factors and surgery-related anxiety in mothers. In this study, psychological education and stress management programs were implemented in the intervention group. The results of this study showed no significant difference between the two groups before the intervention (P=0.68). However, after the intervention, the level of anxiety significantly decreased in the intervention group compared to the control group. In this study, mothers in the intervention group had less anxiety before their child's surgery compared to the control group.

In a study by Débora de Oliveira Cuminoa *et al*., in 2013, the impact of education on reducing parental and child anxiety before anesthesia was investigated. The results of this study showed no difference in the level of anxiety between children in the control and study groups, nor between the parents of both groups (7). The results of a study conducted by Aranha and colleagues in 2016 showed that educational programs are effective in reducing parental anxiety, and the use of these programs for pediatric surgical centers is beneficial in supporting parents (10). Also, in the study by Nikfarid, which examined the effect of a preparation leaflet on the level of anxiety on the operation day in mothers of children undergoing outpatient surgery, a preoperative educational leaflet containing information relevant to before, during, and after surgery was provided to the intervention group. The results showed a significant difference in anxiety scores between the control and intervention groups (11).

The presence of differences in the results of various studies may be due to the use of different methods for parental education. Consequently, some studies showed no effect, while others demonstrated reduced anxiety with preoperative education. In our study, however, an increase in anxiety was observed after the presentation of educational videos. Protecting the child from dangers and providing comfort are the primary functions of parents. Parents who bring their child to the hospital for surgery may feel guilty because they cannot protect their child from harm and pain, which leads to anxiety. Furthermore, they feel a lack of control over the situation and are confused and uncertain. Other sources of anxiety for parents of children undergoing outpatient surgery include fear of their child's death under anesthesia, fear of their child experiencing pain, fear of the unknown, and concern that the medical team may not respond appropriately to the child's needs in their absence.

Perhaps another reason for the anxiety caused by showing the anesthesia process to parents could be that the film was presented while they were waiting to enter the examination room. Ultimately, showing the anesthesia process as a procedure that parents have not previously encountered may lead to stress and anxiety in parents. Therefore, it seems that showing the anesthesia process through a film increases anxiety, and this process should be combined with providing more explanations, offering educational leaflets, and counseling sessions. The content of educational films should be simplified in a way that it prevents the creation of fear and anxiety in parents. While it cannot be definitively stated that showing educational videos as one of the methods of patient education causes anxiety, it is recommended that future studies be conducted with larger sample sizes, including parents of patients undergoing other surgeries, to explore the various dimensions of this educational method on patients.

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