



## Relationship between sedative prescribed to children before surgery and parental anxiety at Shahid Chamran Hospital, Shiraz 2015

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### ABSTRACT

The researcher's observations at work indicated that many parents will experience anxious behaviors (cry and so on) while their children are prescribed sedative. The present study was carried out in order to determine the relationship between prescription of sedative to children before surgery and the level of anxiety among parents in Shahid Chamran Hospital, Shiraz. The present study was a comparative descriptive-analytical investigation. It consisted of all parents who had referred to Shahid Chamran Hospital, Shiraz for surgery of their children. Sampling was carried out by a convenience method. The study included a total of 65 individuals in each group (experimental and control groups). The analytical results were examined using Independent t-test, paired t-test, and ANOVA test. SPSS 21.0 software was employed to analyze the collected data. According to p values resulted from Chi-square, Fisher's exact test, and Independent t-test, the two groups were not significantly different in terms of demographic variables (e.g. age, number of family members, gender, employment, and educational level) ( $p > 0.05$ ). The results of the present study indicated that there is no significant relationship between the mean total score of anxiety before intervention and demographic variables. Prescription of sedative before surgery led to a decrease in the parents' anxiety. According to the results of the present study, the main hypothesis of the study, i.e. there is a difference between the level of anxiety among parents whose children have received or not received sedative, was confirmed. This study showed that after the children were prescribed sedative, the parents' anxiety dropped.

**Keywords:** sedative prescription, children, surgery, parental anxiety

### INTRODUCTION

Surgery is one of the most common therapies in many hospitals, which can be planned or unplanned, small or big, invasive or noninvasive, and include any part or system of the body [1]. Surgery of any type is referred to as a stressful and anxiety-provoking experience because it is a threat to the whole body and sometimes to life [2]. This anxiety affects the postsurgical recovery process and leads to appearance of reactions like tachycardia, an increase in blood pressure, arterial vasoconstriction, a decrease in blood supply to ulcers, a decrease in relative pressure of the tissues, prolonged stay of the patient in the hospital, and delay in his discharge. Therefore, it is necessary to control anxiety in order to maintain the patient's energy and to heal and restore the tissues. The need for proposing strategies in order to reduce physical and mental symptoms of surgery justifies the application of non-pharmacological treatments such as massage therapy, oil therapy, and music therapy in nursing care [3]. According to the statistics published in 2014, over 5 million children in the USA undergo surgery every year, 50-75% of whom undergo a remarkable experience of fear and anxiety before surgery [4]. Invasive medical procedures, especially surgical procedures, can result in numerous problems among children, and such fear and anxiety can be a big barrier to achieving therapeutic goals [5]. Prescribing medicine before induction of anesthesia, which is known as a pretreatment in anesthesia, leads to a decrease in anxiety, pain relief, and creation of hemodynamic stability in patient [6]. Due to limited understanding of the disease nature especially among sick children, anxiety requires true treatment. Anxiety before surgery and anesthesia is not just limited to children, but it also involves their parents [7]. In fact, anxiety is the commonest feeling related to surgery among patients and their parents. Therefore,

considerations should not be devoted only to patients, but their family should also be paid close attention, because patients are dependent on their family for support and comfort during their disease. In fact, during disease and their child's need for surgery, parents should get along with a disruption in their daily life routine [8]. Moreover, some resources have referred to the effect of anxiety before surgery on an increase in incidence of sleep problems including difficulty in sleeping, waking up, and nightmares [9]. High anxiety during induction of anesthesia leads to negative behaviors after surgery, which causes long-term problems even for 6 months. In addition to negative effects on the phases of achieving health after surgery, it leaves an unfavorable feeling about treatment in the patient's memory, especially among children before school age who are deeply affected once they are separated from their parents [7]. If special attention is not paid to this issue and children are transferred to operation room with severe fear and undergo surgery, the intense effect of this mental trauma will lead to post-traumatic stress [7]. Children may fear and interpret surgery as the punishment for their wrongdoings [10].

Anxiety experienced by the parents and their ability to control to manage it depend on their compatibility method. Parents' compatibility means their ability to consider problems in a controllable way even though the problems are unfavorable. Children and their parents prefer to be together while receiving medical procedures including vaccination, dentistry, and induction of anesthesia [6].

Preventing anxiety before surgery during childhood with the help provided by the parents' presence during induction of anesthesia to the children is seriously discussed. The results of surveys taken by parents about their presence during induction of anesthesia indicated that most parents prefer to be present during induction of anesthesia to their children and that they feel their presence is useful for their children [7].

In fact, there is ample evidence that indicates emotional interaction between children and parents, which shows the transmission of anxiety from parents to children. Children can feel their parents' anxiety which is worthy being examine because a child can receive anxiety and stress from their parents depending on his/her development and growth, and despite of parents' attempts, anxiety will be transmitted to their children. Since parents are the most important individuals in the supportive system of children, interventions aimed at reducing parental anxiety are also useful for children [11].

Various studies have indicated that parents with less anxiety can provide their children with more emotional support and help them overcome their anxiety [7]. Research shows that parents' preparation for children's medical measurements is as important as the children's readiness [12]. It is natural that parents become worried or anxious when their children should undergo medical measures or hospitalized in hospital. Parents often ask questions and have concerns about the effect of medical measures and available medical reasons and choices, and how they can help their children in such situations [13]. On the other hand, there are numerous ways to help parents and children to deal with medical situations. Appropriate preparation before medical experiences reduces pain and discomfort and helps parents and children cope with such situations better [14]. Induction of anesthesia starts with pre-surgical psychological preparation in the patient. Children, particularly those at age range of 6 months to 6 years, become anxious while being hospitalized because they are not familiar with the environment and due to their fear of being separated from their parents [7]. Since no similar study has been carried out in Iran and due to high prevalence of children with surgical needs, the researchers decided to carry out a comparative investigation into the anxiety of parents whose children received sedative before surgery in an intervention group and a control group. At the same time, prevalence of anxiety among parents was compared in the two groups. The researchers' observations showed that many parents experience anxious behaviors (e.g. cry and so on) when their children were prescribed sedative. As a result, the researchers decided to carry out the present study in order to investigate the dimensions of this issue. Therefore, the present study was carried out in order to investigate the relationship between prescription of sedative to children before surgery and the level of anxiety among parents in Shahid Chamran Hospital, Shiraz.

## MATERIALS AND METHODS

The present study was a comparative descriptive-analytical investigation. Based on its objective, the present study can be considered as an applied research where sedative prescription and the level of anxiety among the parents were independent and dependent variables, respectively. The statistical population included all parents who had referred to Shahid Chamran Hospital, Shiraz due to their children's surgery. Research environment where the study was carried out [15]. was the operating ward in Shahid Chamran Hospital, Shiraz. The study sample was randomly selected according to the characteristics required for investigation. If we want to investigate a certain issue in a community, we can examine every single member of that community. In an easier way; however, we can examine an issue about a limited number of community members (who are selected randomly and with care and whose number is different depending on the size of the statistical population) and the results can be generalized to the whole population. In this way, problems like unavailability of all community members, time-consuming procedures, high costs, and missing the community in some studies will be resolved [15]. In the present study, there were 65

participants in each group. Since the questionnaire employed in the present study had a Likert scale of 1 to 4, to determine the sample size, first the standard deviation was estimated through the equation of  $\sigma = \frac{\max(x_i) - \min(x_i)}{4}$ .

Afterwards, formula  $n = \left( \frac{2(z_{\alpha/2} + z_{1-\beta})^2 \times \sigma^2}{\epsilon^2} \right)$  was used to determine the required sample size of each group, where  $\epsilon$  indicates accuracy,  $\alpha$  stands for error level, and  $1-\beta$  shows the test's power. If the error level is 5%, test power is 95%, and the accuracy is considered as half of the standard deviation, then:

$$n = \left( \frac{(1.96 + 0.84)^2 \times 0.75^2}{(0.375)^2} \right)^2 = 62.72 \quad \sigma = \frac{4-1}{4} = 0.75$$

Therefore, using the above formula, 65 individuals were chosen for each group. The study inclusion criteria included parents with children aging 2 to 11 years old, parents of children who had had no experienced of surgery, parents who were present while their children were being admitted, and parents of children who did not have the background of diseases of the central nervous system and mental diseases.

Exclusion criteria included withdrawal from cooperation during the study and appearance of serious complications like coma, shock, etc. The demographic questionnaire covered the total family members, education, parents' job, gender, age, type of surgery, income level of the family, the number of the children. In order to measure the parents' anxiety, Spielberger Anxiety Questionnaire was employed. Using the standardized Spielberger Anxiety Questionnaire alone can measure the level of anxiety among parents. In the present study, this questionnaire was used to assess the parents' anxiety. This questionnaire had 40 questions; the first 20 questions determine overt or transient anxiety. Each question has 4 options (never, to some extent, relatively high, and very high) and its intensity is determined according to a 1-4-point scale. Questions 21 to 40 cover covert or personality anxiety using four options (almost never, sometimes, most of the time, almost always) based on the feeling that the individuals have in normal state and its intensity is determined using a 1-4-point scale. Therefore, each item of the questionnaire is given a score between 1 and 4 based on the responses given by the respondents. Scoring the items focusing on presence of anxiety is from 1 to 4 and those focusing on absence of anxiety like "I feel relaxed" or "I feel safe" is from 4 to 1 (reversed). In this form, the scale of anxiety state is run first and the scale of anxiety trait is administered then, because the scale of anxiety state is designed in a way that it is sensitive to the conditions of its administration. The total scores of the test are calculated in both scales. Therefore, the scores of both scales of overt and covert anxiety can be within the range of 20 (the least anxiety) and 80 (the most anxiety). Individuals with scores of 20-30 had slight anxiety, scores of 40-59 had average anxiety, and 60-80 had severe anxiety.

### Procedures

By attending the operating room, the researcher selected the individuals with characteristics required to participate in the present study. Then, he provided the parents with necessary explanations about the method of the study, its objective, nature, and study duration. The participants were assured that their data would be confidential. They were also told that they could quit the study whenever they wished to. The researcher also obtained written consent from the participants. The parents were selected by a convenience random sampling method. On surgery day, an hour before the surgery, the researcher received written consent from the children's parents who were waiting for the surgery of their children and provided necessary explanations on the method of conducting the study and that the data would be confidential, no need to provide first and last names. That the parents were beside the children during induction of anesthesia was up to the parents. Afterwards, the researcher distributed the questionnaire among the parents and required them to complete them. The questionnaires were distributed among the parents 30 minutes after the sedative was (intravenously) injected.

### Data analysis method

Frequency, frequency percentage, mean, and standard deviation in the form of tables, and analytical results were examined using independent t-test, paired t-test, and ANOVA test. SPSS 21.0 was utilized to analyze the collected data.

## RESULTS

Gender in most participants in Group 1 (52.30%) and Group 2 (56.92%) was male. The growth of 29 people (44.14%) from Group 1 and 30 people (46.15%) from Group 2 was within the natural scope. Most of the participants in Group 1 (80%) and Group 2 (92.30%) were candidate for surgery for the first time. Most of the participants in Group 1 (84.61%) and Group 2 (70.76%) had disease history. The mean age of the children in Group 1 was 9.17 with standard deviation of 1.10 and in Group 2 was 9.66 with standard deviation of 1.31. The mean weight of the participants was 29.09 kg and their mean height was 119.85 cm. Comparing Groups 1 and 2 using Chi-square test, Fisher test, and independent t-test indicated that there was no significant difference between them in terms of

demographic characteristics ( $P>0.05$ ). In most participants in Group 1 (55%) and in group 2 (63%), mothers responded the questions. The monthly income of the most participants in Group 1 (75.38%) and in Group 2 (7.38%) was under 290 US dollars. The housing type in most participants of Group 1 (53.85%) and Group 2 (61.54%) was rental. Comparing the intervention and control groups using Chi-square test, Fisher test, and independent t-test showed that there was no significant difference between them in terms of their demographic characteristics ( $P>0.05$ ).

According to the results presented in Table 1, among the 65 parents whose children had received sedative before surgery, 9 individuals (13.84%) had slight anxiety, 29 individuals (44.62%) had average anxiety, and 27 individuals (41.53%) had high anxiety. Parents with highest levels of anxiety had the most frequency. The mean anxiety score of this group was 110.76 with a standard deviation of 12.49.

**Table 1. Absolute and relative frequency distribution of the participants based on the anxiety scores of parents whose children had received sedative before surgery**

Time	Frequency		Level	
	N	%	Mean	SD
Slight (40-78)	9	13.84	68.87	3.79
Average (79-118)	29	44.62	96.75	8.99
High (119-160)	27	41.53	136.12	13.12
Total	65	100	110.76	12.49

According to the results presented in Table 2, among 65 parents whose children received sedative before surgery, 5 parents (7%) had slight anxiety, 19 individuals (29%) had average anxiety, and 41 parents (63%) had intense anxiety. Parents who experienced high levels of anxiety had the most frequency. The means anxiety score of this group was 136.63 with a standard deviation of 14.32.

**Table 2. Absolute and relative frequency distribution of the participants based on the anxiety scores of parents whose children had not received sedative before surgery**

Time	Frequency		Level	
	N	%	Mean	SD
Slight (40-78)	5	7	72.41	4.36
Average (79-118)	19	29	110.05	9.47
High (119-160)	41	63	149.30	13.27
Total	65	100	136.63	14.32

According to the results presented in Table 3, among 65 parents whose children underwent surgery and had received sedative (Group 1), their anxiety score was in the range of 40-160 with an average of 110.76 and a standard deviation of 12.49, while among the 65 parents whose children had not received sedative (Group 2), their anxiety score was in the range of 58-160 with an average of 136.63 and a standard deviation of 14.32, which shows the high level of anxiety in Group 2. This difference in average scores was significant ( $P<0.05$ ).

**Table 3. Comparing the mean anxiety scores of parents whose children had and had not received sedative before surgery**

Group	N	Min	Max	Mean	SD	Test Statistics	Sig.
Group 1 (Received sedative)	65	40	160	110.76	12.49		
Group 2 (Received no sedative)	65	58	160	136.63	14.32		

## DISCUSSION AND CONCLUSION

The results of the present indicated that the anxiety of parents whose children had not received sedative before surgery was at a high level. This study is in agreement with the studies carried out by Nikfarid (2008) and Mireskandari et al (2007). The nature of surgery is stressful. Children's anxiety leads to parents' anxiety, vice versa. Since anxiety of parents whose children do not receive sedative before surgery is high, children's anxiety before surgery should be controlled.

The results of the present indicated that the anxiety of parents whose children had received sedative before surgery was at a low level. The present study is in line with those carried out by Nikfarid (2008), Mireskandari et al (2007), Naziri et al [15], Amini et al [16], Ahmed et al [17], and Hernández et al [18]. Due to the anti-anxiety and sedative properties of sedatives before surgery and during induction of anesthesia and because they are safe in hemodynamic terms, they are important, useful, effective, complication-free anesthetic premedication which reduces anxiety among children and their parents. Therefore, parents whose children had not received sedative before surgery had a low level of anxiety.

The results of the present study show that among 65 parents whose children had received sedative before surgery, 9 parents (13.84%) had a low level of anxiety, 29 parents (44.62%) had an average level of anxiety, and 27 parents (41.53%) had a high level of anxiety. Parents with an average level of anxiety had the highest frequency. The mean anxiety score of this group was 120.76 with a standard deviation of 12.49. Among the 65 parents whose children had not received sedative before surgery, 5 parents (7%) had low anxiety, 19 parents (29%) had average anxiety, and 41 parents (63%) had high anxiety. Parents who experienced intense anxiety had the highest frequency. Their mean anxiety score was 136.63 with a standard deviation of 14.32. Among the 65 parents whose children underwent surgery and had received sedative (Group 1), their anxiety score was in the range of 40-160 with an average of 110.76 and a standard deviation of 12.49, while among the 65 parents whose children had not received sedative (Group 2), their anxiety score was in the range of 58-160 with an average of 136.63 and a standard deviation of 14.32, which shows the high level of anxiety in Group 2. This difference in average scores was significant ( $P < 0.05$ ).

The results of the present study show that the anxiety score of parents whose children had received sedative was lower; therefore, prescribing sedative to children before surgery can reduce the parents' anxiety. The results of the present study are in agreement with those of the following studies. The results of the study carried out by Rostaminezhad and Karimi [19] also showed that oral Ketamine as an anesthetic premedication is effective in reducing the anxiety caused by separation from parents [19]. They also concluded that using sedative as anesthetic premedication decreased the children's excitement, anxiety, and fear and caused peace, failure to resist and cry, and sleep while they are transferred to operation bed [19]. The results of the study conducted by Shahbazi showed that administering sufentanil intranasal drop as an anesthetic premedication could reduce anxiety, increase sleep, and facilitate anesthesia [20]. In their study carried out in 2007, Mireskandari *et al* showed that diazepam and rectal midazolam were effective in reducing anxiety among children candidate for surgery and that of their parents.

The study carried out by Naziri *et al* [15] indicated that using oral midazolam and prometazolin were effective in decreasing the level of anxiety caused by separation of children from their parents before anesthesia. The results of the study carried out by Ahmed *et al* [17] showed that participation of parents in pre-surgical period was particularly effective in induction of anesthesia and that non-pharmacologic interventions were effective tools to decrease children's anxiety. In their study, Khoshrang *et al* [21] concluded that children who had received midazolam while entering the operation room experience lower levels of anxiety compared to those who had received dexmedetomidine; however, there was no significant difference between them during the recovery phase. Yuen *et al* [22] reported that dexmedetomidine and oral intranasal midazolam caused relaxation and children could separate from their parents more easily. On the other hand, the results of the studies carried out by Schmide *et al* [23], Mountain *et al* [24], and Akin *et al* [25] indicated that there was no significant difference between the level of relaxation and separation of children from their parents in the two groups who had received sedative and the control group. This agreement between those studies and the present study may be attributed to the dose and the method of administering midazolam. In all those three studies, the least dose of midazolam was administered in an intranasal way. In the present study; however, a normal dose of the medication was used orally.

## CONCLUSION

The present study examined and compared the level of difference in anxiety of parents whose children had and had not received sedative before surgery. The results indicated that after the children were given sedative, the parents' anxiety decreased. According to the results of the present study, the main hypothesis of the study, i.e. there is a difference between the level of anxiety among parents whose children have received or not received sedative, was confirmed.

### Limitations

1. Some of the parents quit the study. They were talked to in order to attract their cooperation. If they were not willing to continue their cooperation again, they would be crossed out from the study.
2. Anxiety caused by the children's surgery affected the parents' concentration on responding to the questions. This issue could not be controlled by the researcher.
3. The researcher's individual characteristics and wearing white scrub dress could affect the level of anxiety among the parents, which was not controllable by the researcher.

### Applications of the results

**Nursing:** Nursing is a unique profession because it determines the individuals' and families' response to promotion of health, health maintenance, and health problems. Nurses simultaneously play a large number of roles including direct care, clinical decision-making, and emotional and spiritual support of patients and families. Yet, emotional and spiritual support provided to a patient's companion is one of the most important roles played by nurses working in health care systems. This role is known as an independent practice and one of the standards of nursing care.

Psychological support provided to the patient's companion by the nurses is one of the best methods to manage their anxiety. Therefore, one of the biggest responsibilities of professional nurses is to help the patients and their companion to reduce their anxiety, which is possible by calming down the patient (by prescribing sedatives). Managing the patient companion's anxiety even leads to a decrease in the patient's anxiety. Managing anxiety and stress is one of the commonest and the most essential form of health care. The significance of reducing anxiety and providing emotional support is more than health care, and it is approved that they play a decisive role in health results.

As a result, medical staff including nurses can utilize the results of the present study and manage the patient's and their companions' anxiety as a part of medical programs, whereby they can reduce a large number of physical, mental, and social problems experienced by the patients and their companions. Moreover, using the results of the present study to educate nursing students raise their awareness about the patients' needs so as to enhance their health and reduce their anxiety. Due to the positive effect of prescribing sedative to children on reduction of anxiety among their parents, it seems that prescribing sedative to children can lead to mental relaxation of their parents and the children as well. Therefore, it can be recommended that prescription of sedatives should be used to reduce anxiety among parents and their children.

**Education:** Training about management of anxiety among the patient's companions especially parents whose children are candidate for surgery is one of their necessary needs. They need to be aware of all conditions and situations threatening their patient's health. Among the medical team, nurses play a key role in training due to their close and constant touch with patients and their companions. Therefore, it is recommended that nurses obtain accurate knowledge about the learning needs of the patients' companions in order to resolve their problems and improve the management of their anxiety.

**Research:** In order to highlight the importance of managing anxiety among the companions of patients who are candidate for surgery, it is necessary to carry out more extensive studies in order to make this important and influential issue practical for all individuals particularly health promotion planners and encourage them to pay more attention to the companions of patients who are candidate for surgery and interfere with their education so as to promote the total health of the patients.

**Management:** The results of the present study indicate the significance of training management of pre-surgical anxiety among the patients' companions in health care system; therefore, nursing managers can promote such programs by evaluating programs and activities that are common in training the management of anxiety and figuring out more programs. In order to carry out these programs more, it is necessary for the managers to select individuals to provide anxiety management trainings in a correct way and based on scientific principle appropriate with the needs of the patients' companions.

#### **Suggestions for further studies**

1. The relationship between prescription of sedative to patient before surgery and the companions' anxiety level
2. The relationship between prescription of sedative to patients before surgery and the level of their anxiety and satisfaction after the surgery
3. Comparing the effect of prescribing midazolam and prometazolin as sedatives to children before surgery and the level of their parents' anxiety
4. Comparing the effect of mother's presence on induction of anesthesia and prescription of sedative to the patient before surgery on anxiety and behavior changes of the children
5. It is suggested that in future studies of anxiety due to the parents' fatigue or boredom, visual analogue scale for anxiety should be used instead of Spielberger Anxiety Questionnaire.

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