

## The Effect of Performing Preoperative Preparation Program on School Age Children's Anxiety

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### Abstract

**Objective:** The purpose of this study was to examine effects of performing preoperative preparation program on children's anxiety.

**Methods:** This study was performed in Amirkola Pediatrics Hospital, Mazandaran. A randomized controlled trail was performed on 122 children (7-12 years of age) admitted for elective surgery during 15 months. The researcher randomly assigned eligible participants in to the experimental and control groups, after pre-test baseline measurement had been taken. Analyzing was performed through independent t-test and  $\chi^2$  test.  $P < 0.005$  was considered statistically significant. The experimental group received therapeutic play and the control group received routine preoperative information preparation.

**Findings:** The mean and standard deviation of the state anxiety scores of children in experimental and control groups before intervention were  $35.52 \pm 6.99$  and  $34.98 \pm 6.78$ , after intervention  $31.44 \pm 5.87$  and  $38.31 \pm 7.44$  respectively. The state anxiety score was lower significantly in the experimental group prior to preoperative surgery than in the control group ( $P = 0.000$ ).

**Conclusion:** Performing preoperative program with using therapeutic play intervention is effective for preparing children before surgery and decreases their anxiety.

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**Key Words:** Surgery; Children; Anxiety; Therapeutic play

### Introduction

Anxiety is the most commonly reported emotion of children when confronted with surgery or stressful medical procedures<sup>[1]</sup> and a risk factor

for pre-, intra and post-operative complications<sup>[2]</sup>. It is estimated that 60% of children suffer from anxiety in the preoperative period<sup>[3]</sup>. Excessive anxiety and stress can affect children's physical and psychological health and it has been

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associated with number of negative behaviors (e.g. agitation, crying and spontaneous urination), also it hinders their ability to cope with surgery and may also inhibit their post-operative recovery [1,4-10].

Previous research findings have shown that lack of control over upcoming medical procedures is one of the major sources of stress, which may cause considerable anxiety in children undergoing surgery[4]. Therefore, children need to be well prepared before surgery or stressful medical procedures, and the goal of such preparations should focus on minimizing their level of anxiety[1,11]. Attempting to minimize these reactions, health professionals developed preparation programs to familiarize the patient with procedures and to facilitate coping. These preparation methods took the form of film modeling, picture books, rehearsals, visit to the operating room, the presence of 1 of the 2 parents during the induction of anesthesia, use of music as a distraction and play activities [3,12].

Earlier studies have shown that preoperative preparation programs allow reduce anxiety, it is effective and can prevent many behavioral and physiologic manifestations of anxiety as well [2,4,11-13]. Preparation through therapeutic play is the best method of orientation and preparing a child for carrying out medical and surgical procedures. Review of literature also have shown that therapeutic play is effective for a child coping with stressful situation [12,14-16]. In this line Li, Lopez and Lee (2007) also showed that therapeutic play intervention with using doll demonstration is effective for declining children's anxiety [17].

Therapeutic play is a set of structured activities designed according to age, cognitive development and health-related issues to promote the psychophysiological well-being of hospitalized children [4,15,18].

Because the number of children having elective surgery is within the age range of 7-12 years, and also most studies of play have been conducted with preschool children, the benefits of therapeutic play for school-age children remain unknown. In addition, little is known about whether preoperative therapeutic play interventions can be used to prepare children psychologically for day surgery[4]. Also more research has to be done on early school age

children [12]. Since there are few researches on this subject in this age group, this study examined the effects of performing preoperative program using therapeutic play intervention on anxiety of school age children undergoing elective surgery.

## Subjects and Methods

This study was performed between July 2008 and October 2009, in Amirkola Pediatric Hospital, Mazandaran, Iran. Approval of the study was obtained from Mazandaran University of Medical Sciences ethics committee.

Inclusion criteria were children aged 7-12 years, undergoing elective surgery, being able to speak and read Persian, being accompanied by their mothers (as a close caregiver) on the preoperative assessment day and on the day of surgery. Children who had previous surgery or hospitalization after the age of 18 months, developmental delay, use of anti-anxiety drugs, chronic illness, and parents who were working in health care centers were excluded from the study. In this experimental study, we examined the effectiveness of preoperative preparation programs with use of therapeutic play intervention for children who had elective surgery. The consent was obtained from mothers. We used a randomized controlled trial, two-group pretest and repeated post test, between subjects design.

The eligible participants were randomly assigned into the experimental and control groups, after the pre-test baseline measurements had been taken. A single blind technique was used in which the research nurses who were responsible for data collection were unaware of the treatment allocation of the study participants. The method of simple complete randomization was adopted.

We put two balls in a bag, with one labeled experimental and another labeled control. We drew one ball from the bag for each child to determine group assignment. According to the results of previous studies done in this field and on the basis of predicting sample size formula, in the confidence interval (CI) 95 percent and power

of 80 percent, 61 samples were calculated and selected in each group.

In the control group, children and their mothers received routine information preparation (usual care), 1 day before the day of surgery. It consisted of a brief explanation on pre and postoperative care, which included information about pre operative fasting time, personal hygiene, control of vital signs, control of losing teeth, location of dressing, wound care, use of analgesic drugs to relieve pain after the surgery. The content was standardized by the surgery unit personnel. In the experimental group, children received usual care plus the therapeutic play intervention one day before the surgery. The therapeutic play intervention used in this study included a set of structured activities, designed to prepare children psychologically for surgery according to their developmental stage.

The therapeutic play was implemented with a child and their mother as individual intervention. The mothers as a close caregiver accompanied their children at all time watching these activities.

The content of the activities in therapeutic play included a preoperative tour visit to the operation room, a manikin demonstration by the researcher, and a return demonstration by the children on preoperative procedures. The first child and his/her mother started tour, visiting orientation of environment of reception area, operation room, recovery room, observing equipments which are in this area such as operating table, monitoring machines, operating lamp. Then for presentation of procedures on the manikin, the researcher with the child and his/her mother came back again to the surgery ward and entered a room that a pediatric manikin with the size similar to a 6-8 year old child was ready beforehand. The activities such as obtaining vital signs, attaching blood pressure cuff to the manikin's arm, attaching a stethoscope to the manikin's chest, use of oxygen catheter, placing mask on the manikin's face, placing identification bracelet and providing intravenous therapy were done by the researcher. Then the child was encouraged to touch the various equipments and was invited to demonstrate the activities on the manikin under supervision and guidance. The therapeutic play was standardized and lasted for 1 hour. In order to ensure that intervention could be implemented

appropriately, a psychologist and pediatrician checked the integrity and uniformity of intervention.

The instruments for data collection in this study included:

- 1) Demographic questionnaire without name.
- 2) The Spielberger State Anxiety Scale for children (SSAS-c) was used to measure the state anxiety level of the children. The psychometric properties of the SSAS-C have been empirically tested<sup>[19]</sup>.

The SSAS-C asks children to point out the degree to which they are experiencing a particular feeling at the current moment. Each item begins with the stem "I feel" and children respond by placing an "x" next to the one response that best describes how they feel from three possible responses. The scale consists of 20 items, each of which is scored from 1 to 3. The total possible scores range from 20 to 60, with higher score indicating greater anxiety.

The data collection for the study was mainly divided into two phases: on the day of preoperative assessment (pre-intervention) and on the day of surgery before operation (post-intervention). On the day of preoperative assessment, demographic data and state anxiety score of children were collected. On the day of surgery the state anxiety level of children was again assessed before surgery. After data collection processing was done through the SPSS Software, version 16, and analyzing performed through independent t-test and chi-square test.  $P < 0.05$  was considered statistically significant.

## Findings

The demographic and clinical information of experimental and control groups are presented in Table 1. The experimental and control groups were similar with respect to the age, gender and kind of surgery performed. The mean and standard deviation of age was in experimental group 9 (1.7) and in the control group 9(1.5). None of the mothers of experimental and control groups had been employed in any health care centers. There was no experience of surgery in

**Table 1:** Comparison of demographic and clinical characteristics in experimental and control group

Variables		Experimental Group (n = 61) n (%)	Control Group (n = 61) n (%)	P-value
Gender of children	Female	19 (31/1)	18 (29/5)	1
	Male	42 (68/9)	43 (70/5)	
Type of surgery	erniorraphy	31 (50/8)	39 (63/9)	0.3
	Urogenital	22 (36)	16 (26/6)	
	Abdominal mass	4 (6/6)	2 (3/3)	
	Breast mass	2 (3/3)	0 (0)	
	Non specific abdominal pain	2 (3/3)	4 (6/6)	

experimental and control group children.

The mean and standard deviation of the state anxiety scores of children in experimental and control groups (Table 2) before intervention were  $35.52 \pm 6.99$  and  $34.98 \pm 6.78$ , after intervention were  $31.44 \pm 5.87$  and  $38.31 \pm 7.44$  respectively. Children in experimental group reported significantly lower level anxiety score in preoperative period ( $P=0.000$ ).

## Discussion

Children may experience heightened anxiety in the preoperative period. They need to be prepared both physically and psychologically<sup>[20]</sup>.

We examined the effects of performing preparation program before surgery on school age children's anxiety who underwent elective surgery. Overall the results of this study showed that performing preoperative program before surgery using therapeutic play is effective in decreasing children's anxiety. The results revealed that the experimental group had lower state anxiety than control group, significantly at the time prior to surgery.

Early research identified that lack of control over upcoming medical procedures is one of the major sources of stress for children undergoing

surgery<sup>[4]</sup>. Thus in the case of facing a child to surgery as a threatening situation, child's sense of control may be affected. Therefore, if a child believes that he/she has adequate control over the upcoming surgery, the perception of threat would be decreased. The main goal of preparation of children using therapeutic play in this study was to enhance personal control and to decrease their anxiety. It was believed that explaining and demonstrating procedures before the surgery on the manikin, help the child to understand his/her perception of the situations considerably<sup>[10]</sup>. It means that, demonstrating the medical procedures such as applying stethoscope, sphygmomanometer, oxygen mask and intravenous catheter on the manikin through play is fun for the child and returning demonstration procedures on the manikin by the child causes that the child shows less sensitivity to probable stressful situations and interact to environment providing an opportunity to practice producers through an active and non-threatening method<sup>[15]</sup>. Hence the child would be able to decrease his/her anxiety against threatening procedures and to have a sense of control on situation he/she faces. In addition, showing surgical procedures can help the child understand scientific/medical expressions and the way of application of the tools can be more accessible. Providing an opportunity for children to touch the real tools and using them on the manikin during therapeutic play helps to

**Table 2:** The mean and standard deviations for the state anxiety scores in children

A- state	Experimental	Control	P-value
Pre intervention A-state	35.52 (6.99)	34.98 (6.78)	0.7
Post intervention A-state	31.44 (5.87)	38.31 (7.44)	0.001

A-state: state anxiety scores

decrease that threat when using them. Besides, with return demonstration procedures by child in the form of therapeutic play, the unpleasant experiences are known through the play. Therefore, this explanation can state the reason of decreasing anxiety score prior to surgery in experimental group than in control group. In our study, the children who had therapeutic play as an intervention showed lower anxiety (table2). Our findings confirmed the results of other studies that state preoperative preparation program can reduce children's anxiety [15,17,21-23]. In our study, performing preoperative preparation program one day before surgery led to decrease in school age children's anxiety, while this finding was in contrast with previous studies that determined the effectiveness of preoperative preparation on anxiety. They identified that anxiety increased in children older than 6 years who received preparation programs one day prior to surgery[24].

The reason of the difference between our studies with early researches may be due to different cultural and social factors of school age children in our society on children's anxiety. With reference to the clinical characteristics of the participants, the most common surgery performed on children in this center was herniorrhaphy (Table 1). This occurrence was similar with previous studies conducted in pediatric day-case surgery setting in the Children's Medical Center in Tehran[25].

Limitation of this study to minor elective surgeries is considered as project limitation and can affect the overall results. Consequently, carrying out the study in a center where major elective surgeries are performed will be able to prove its results in a wider aspect.

This study was aimed to discover the anxiety of children undergoing elective surgery who did not have any physical limitations. It is suggested to perform this study also on children with physical limitations who undergo elective surgery.

## Conclusion

This study used the preoperative preparation program for school age children before surgery, with using therapeutic play as a method for

decreasing anxiety. The study showed that therapeutic play intervention is an appropriate method for preparing children before surgery and effective in minimizing their level of anxiety.

With regard to the results of this study, we can enhance the knowledge of children about hospital procedures with therapeutic play and decrease anxiety especially before surgery.

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**Conflict of Interest:** None

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