

# Play Distraction Versus Pharmacological Treatment to Reduce Anxiety Levels in Children Undergoing Day Surgery

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## ABSTRACT

**Objective:** To determine the effects of pictures, story telling and coloring books in reducing anxiety in pediatric patients preoperatively as compared to pharmacologic interventions.

**Study Design:** Randomized controlled trial study

**Place and Duration of Study:** This study was conducted at the Department of Anaesthesia Nishtar Hospital, Bakhtawar Amin Medical and Dental College Multan and Shahida Islam Medical College, Lodhran from February 2017 to February 2018.

**Materials and Methods:** Study was conducted upon 240 children. Patients were allocated in two groups (pharmacologic intervention versus distraction techniques). The preoperative anxiety of children was determined by using Modified Yale Preoperative Anxiety Scale (mYPAS) score. Vital signs of the patients were recorded before anesthesia and during the recovery period. Other variables include age, State-Trait Anxiety Inventory for Children (STAIC) score, Cystoscopy, EUA eyes, Excision of cyst and hernia.

**Results:** The mean mYPAS total score of the intervention group (play distraction) and control (preoperative medication) patients were  $10.74 \pm 1.18$  and  $10.55 \pm 0.91$  respectively. The mean difference was 0.186. The difference was statistically insignificant ( $p=0.172$ ). The mean STAIC total score of the intervention group (play distraction) and control (preoperative medication) patients were  $20.88 \pm 2.24$  and  $20.85 \pm 2.07$  respectively. The mean difference was 0.037. The difference was statistically insignificant ( $p=0.894$ ).

**Conclusion:** Distraction technique is as effective as substitute to the conventional pharmacological therapies in reducing preoperative anxiety among pediatric patients. It is safe and easily applicable technique with remarkable post operative outcome.

**Key Words:** Hospital anxiety, perioperative nursing care, paediatric nursing, play distraction.

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## INTRODUCTION

Pediatric patients availing health services are eligible for standard management comprised of all the aspects of health combining physical, cultural, psychosocial and mental health of child's developing needs<sup>1</sup>. The time period of infancy is the duration of accelerated buildup for a child that impacts his whole life. This development can be interrupted by various setbacks such as illness, neglect or abuse. This brings about various forms of stress in children. That includes healthcare related anxiety, fear, depression, pain etc<sup>2</sup>.

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This range of behavioral disturbances includes positive, tolerable, or toxic levels of stress. The positive and tolerable level of stress depicts a mild level of discomfort and it can be overcome by appropriate management and healthcare. However, failure to provide the necessary healthcare results in toxic levels of intolerance and anxiety in children<sup>3</sup>. These toxic stressors bring about the negative impact on child's growth, health and mental well being. It causes exorbitant depression in a child when he fails to achieve a certain milestone. This is in particular for chronically ill children<sup>4</sup>. One such stressor is the perioperative experience. They are thought to bring remarkable anguish and woe to the pediatric patients undergoing surgical procedures. Many researchers have been carried out in order to identify and minimize the agony of this situation. There is a dire need to determine the interventions which can enhance the experience of a child during such periods<sup>5</sup>. Failure to provide comfort to a child in this situation results in triggering of fierce preoperative anxiety and stress which is not only difficult for the patient but also causes complications in the anesthetic procedures. These complications may also arise as a result of conventional preoperative

pharmacological interventions<sup>6</sup>. The responses to these interventions include tachycardia, hypotension, respiratory depression, abnormal reactions to anesthesia. In order to avoid such circumstances, diversions and behavioral distractions are introduced<sup>7</sup>. They have been reported as safer and equally efficacious as pharmacological interventions in lessening the anxiety of patients. Nevertheless, further research is required to prove their fundamental role in the field of clinical surgery and psychological enhancement of pediatric patients<sup>8</sup>. Only then these methods can be regarded as one of the healthcare services. Although these techniques are being widely adapted some Arab countries are still hesitant in applying these methods in their hospitals<sup>9</sup>. Incorporating all the aspects of child's life and family (such as siblings, parents, and his favorite activities) is thought to be helpful for the child in familiarizing himself for the operative procedure and environment<sup>10</sup>. The goal of the current study was to determine the difference between efficacy provided by pharmacologic interventions and the play distraction by making a comparison between levels of anxiety measured through Modified Yale Preoperative Assessment Scale (mYPAS) survey". A secondary outcome was to make a comparison of vital signs and evolution among the two groups.

## MATERIALS AND METHODS

It was a randomized controlled trial. Study was conducted in the department of Anaesthesia Nishtar Hospital, Bakhtawar Amin Medical and Dental College Multan and Shahida Islam Medical College, Lodhran from February 2017 to February 2018. The inclusion criteria were children between 3 and 8 years old, having ASA 1 and 2, scheduled for elective day surgery under general anesthesia. The exclusion criteria were the children had previously exposed to anesthesia, developmental delay, audiovisual impairment, or using medicines affecting their psychological status.

Children were allocated randomly into one of these groups preoperative administration of medication as a control group, or distraction and play interventions prior to surgery as experiment group. The children were given oral Midazolam thirty minutes prior to the surgery in the control group. In the experiment group, a story was made for the children regarding their surgery and they were taken to the theatre in order to distract them with colors and pictures. Different personnel and procedures were introduced in a playful manner for their familiarization with the surgical procedures. The parents of patients were handed a story and requested to tell that story to their child one hour prior to entering the theatre for surgery according to their child's taste and likings. Coloring books were given to the children and scenes from an operation theatre were depicted in it.

Parents of eligible patients were requested to participate in the study with their children. A written informed consent from the parents was taken. Children were allocated into one of the groups by envelope randomization methods. The group was disclosed by nurses and upon opening the envelope. According to their selected group, the intervention for the children was chosen. The researcher and the statistician were both blinded.

The "STAIC and mYPAS" were used for the collection of data. Vital signs were also recorded for each patient including BP, HR, and respiratory rate as indicators of child's anxiety level and psychological status.

STAIC scale is a numerical representation of anxiety level in children which indicates very and not is assigned values of 3 and 1, respectively. The order of weighting is reversed for items in which the key terms indicate the absence of anxiety, i.e., very = 1; not = 3. A value of 2 is assigned to all responses where the child checks only the adjective.

The analysis of data was done by using SPSS version 24. Mean and SD were calculated and presented for numerical data variables like age, mYPAS score and STAIC score. Frequencies and percentages were calculated and presented for qualitative data like Cystoscopy, EUA eyes, Excision of cyst and hernia. Student t-test and chi square test was used to see significance of data. P value  $\leq 0.05$  was considered as significant.

## RESULTS

A total number of n=240 children were included in this study, n=120 in intervention group and n=120 in control group. The mean age of the intervention group patients was  $5.35 \pm 2.04$  years. While, the mean age of the controls was  $4.60 \pm 2.23$  years. Current surgery distribution of the both group was displayed in table I.

**Table No.I: Surgery distribution in both groups**

	Intervention n=120	Control n=120	P value
Age (years)	$5.35 \pm 2.04$	$4.60 \pm 2.23$	0.007
Current surgery			
Cystoscopy	(5%) n=6	(5.8%) n=7	0.523
EUA eyes	(1.7%) n=2	(4.2%) n=5	
Excision of cyst	(9.2%) n=11	(9.2%) n=11	
Grommet insertion	(11.7%) n=14	(12.5%) n=15	
Hernia	(14.2%) n=17	(18.3%) n=22	
Orchidopexy	(17.4%) n=21	(9.2%) n=11	
Tonsillectomy and adenoidectomy Wound repair	(40.8%) n=49	(40.8%) n=49	

The mean mYPAS total score of the intervention group (play distraction) and control (preoperative medication) patients was  $10.74 \pm 1.18$  and  $10.55 \pm 0.91$  respectively.

The mean difference was 0.186. The difference was statistically insignificant ( $p=0.172$ ). The mean STAIC total score of the intervention group (play distraction) and control (preoperative medication) patients was  $20.88\pm 2.24$  and  $20.85\pm 2.07$  respectively. The mean difference was 0.037. The difference was statistically insignificant ( $p=0.894$ ). (Table. 2).

**Table No.2: Mean difference**

	Intervention n=120	Control n=120	Test of Sig.
mYPAS total score			
Mean±S.D	10.74±1.18	10.55±0.91	0.172
STAIC total score			
Mean±S.D	20.88±2.24	20.85±2.07	0.894

## DISCUSSION

There are various nonpharmacological techniques applied to reduce preoperative anxiety in children undergoing surgery. One such method used by Golan G et al<sup>11</sup> is introducing medically trained clowns. It was observed that this technique markedly decreased the modified Yale preoperative anxiety score as compared to the group upon which Midazolam was used. However, it was seen that clowns were effective as long as the child entered the operation theatre. During and after entering into an OR, clowns did not seem to be superiorly effective than midazolam in alleviating the anxiety of child<sup>12</sup>.

In order to lessen the preoperative anxiety and consequent complexities, it is necessary to determine the "multimodal approach" to bring relief and prevent anxiety and stress from developing as a result of strange and unfamiliar surroundings (Ni CH et al<sup>13</sup>. It is of particular importance in the setting of day surgery when the patients are given the time for surgery and they either don't have much time to adapt to the environment or they take too long before the surgery that it induces anxiety and fears in such patients.

A study by Millet CR et al<sup>14</sup> shows that both forms of music either active or passive are equally effective in reducing preoperative anxiety in pediatric patients. Also the "behavior distress" is found to be reduced in these patients. These patients also escaped the complications of surgical procedures. Although the mechanism is not fully known yet, it is for sure that music therapy brings about better postoperative outcomes. It has been observed that it reduces not only the anxiety of a "young pediatric patient" but is also effective in decreasing the anxiety and stress of Care given, by family is thought to be of vital importance in providing high-quality nursing care for a pediatric patient and reducing a child's anxiety level. But still, there have been hurdles in its implementation worldwide. Coyne I et al<sup>15</sup> performed a study to determine the causes of this problem and he observed that there were four basic issues including the expectations, barriers to family-centered care, working out roles, and depending on

patient's assistance.

Various interventions have been in use for the purpose of reducing anxiety in children prior to surgery. Some of these include presence of parents (PP), behavioral preparation programs and premedication (midazolam) says Patel A et al<sup>16</sup>, although they all serve the same purpose, yet there are restrictions owing to the availability in resources and time, adverse effects, cost-effectiveness, etc. Video games are used widely in clinical settings as a mode of "distraction and behavior modification therapy". A study was carried out to determine the differences in effectiveness among parental presence (PP), Midazolam (M), and video game usage (VG). It showed that use of VG decreases anxiety by 63% while Midazolam decreased anxiety in 26% of patient and parental presence reduced the anxiety by 28%. Uman LS et al<sup>17</sup> states that various Psychical mediation such as hypnosis, distraction, coping skill training is being used as a cure for relieving the anxiety and pain which pediatric and adult patients come across before having a medical procedure involving needles.

A study was carried out by Choi YK et al<sup>18</sup> on the comparison of effects of music and progressive muscle relaxation upon the anxiety levels of children preparing for surgery. Both these techniques were combined as well. There was a remarkable reduction in the anxiety levels of patients as well as levels of fatigue were also reduced. Similarly, there was increased quality life index among these patients.

In a systemic review done by Chow CH et al<sup>19</sup>, it was evident that the use of audiovisual interventions for decreasing the anxiety in children before surgery was supportive and efficacious. The results showed that audiovisual aids are more effective both qualitatively and quantitatively than standard care in decreasing anxiety levels in children. As well as behaviors, postoperative pain, increased compliance during anesthesia procedure and increased tolerance was seen. The audiovisual interventions are expected to be "attractive solution" in advancement the operative care among pediatric children. Further research should be done to explore other relative areas. Failure to manage efficiently the surgical and related procedures for a child can prove to be a devastating event in the life of a child. As said by Al-Yateem N et al<sup>20</sup>. It not only effects the outcome of surgery and its recovery but also adversely affects the mental health of a child in future life.

## CONCLUSION

Distraction technique is an effective substitute to the conventional pharmacological therapies in reducing preoperative anxiety among pediatric patients. It is cost effective and easily applicable technique with remarkable post operative outcome.

**Author's Contribution:**

Concept & Design of Study: Muhammad Nasir  
 Drafting: Malik Jamil Ahmed  
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 Revisiting Critically: Muhammad Nasir, Malik Jamil Ahmed  
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**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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