

# A Study of Non-Pharmacological Methods for Relieving of Anxiety in Pediatric Patient Undergoing Surgery with General Anesthesia: A Controlled Prospective Study

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**Abstract:** Background: Preoperative anxiety in children is a common phenomenon which is associated with negative behaviour that occurs during surgery. Anxiety can be reduced by pharmacological methods or nonpharmacological methods. Pharmacological methods include antianxiety drugs. We studied non pharmacological methods for relieving anxiety in pediatric patients. Material and methods: A Hospital based prospective Interventional study was conducted in 50 children divided in two groups (Group A n=25, Group B n=25). Group A children were indulged with games and Group B were control. To compare MYPAS score and Separation Anxiety score in both groups we used one-way analysis of variance (ONE –WAY ANOVA) and difference between the groups were compared using unpaired T-Test. Results: MYPAS for case group was 76.48 and that of control group it was 38.8. Separation score was 1 in 60% patients in Group A and in Group B maximum children with score of 3 and 4. Conclusion: We concluded that non pharmacological assets play a role in diminishing the anxiety based results during and after surgeries with anaesthesia.

**Keywords:** preoperative anxiety, nonpharmacological methods, pediatric patients, MYPAS score, Separation Anxiety Score

## 1. Introduction

Every year many millions of children undergo anesthesia and surgery around the world. Anxiety is present in approximately 50% of patients who undergo an anesthetic-surgical procedure. [1] The prospect of postoperative pain, separation from family members, exposure to strangers, fear of the surgery and anesthesia, and the possibility of becoming incapacitated are factors that may increase the degree of anxiety in paediatric patients.[ 2] Preoperative anxiety in children is a significant and challenging problem. If not managed in a considered and structured fashion, it can lead to distress for the child, parents, and the operating theatre staff involved. Of considerable concern is the link between preoperative anxiety in children and an increased incidence of adverse postoperative clinical outcomes.

Pharmacological methods have side effects like dry mouth, sedation, tremor, increased appetite, fatigue, nausea and weakness. [B5, 6, 7]To avoid these side effects in this study we aim to find the effectiveness of non pharmacological methods for relieving anxiety in pediatric patients undergoing surgery with general anaesthesia.

## 2. Material and Method

After obtaining hospital ethical committee approval, children of age 4 to 8 years, either sex, belonging to American Society of Anesthesiologists physical status I to II, scheduled for elective surgery and written informed consent was obtained from parents. Patient with Neurological conditions or patient taking medication, decompensated illness, Any organic Disease and uncooperative children were excluded from the study. The procedure was explained to the parents during pre-anaesthetic visit. Then in preoperative room some children were indulged in different games and some were not

indulged. After half an hour MYPAS score was noted and patient was taken to OT. During this time SEPERATION ANXIETY score was noted. All vital monitors were attached. Injection glycopyrrolate 5ug/kg body weight was given intravenously, preoxygenation with 100% O<sub>2</sub> was done and *Induction Compliance Checklist* was noted simultaneously. Total dose of inj. thiopentone, atracurium, inhalation agent was noted in both groups. ET tube of appropriate size was inserted under direct laryngoscopy. Maintenance was done with (50:50) O<sub>2</sub>:N<sub>2</sub>o with halothane 1%-2% and atracurium 0.1mg/kg intravenously. In the end, halothane, N<sub>2</sub>o discontinued. Neuromuscular blockage was reversed with glycopyrrolate 0.11mg/kg and inj. neostigmine 0.04mg/kg intravenously. The child was extubated after suctioning of oral cavity and return of protective reflexes and after adequate neuromuscular recovery and regular respiratory rate were achieved. Child was shifted to PACU and PAIN DISCOMFORT SCALE was calculated and at the same time any post operative complications if present were notified and managed accordingly.

Data were collected and computed using Microsoft Excel 2013 and analysed using SPSS version 28.0. Continuous variable was summarized as mean + SD (standard deviation). Categorical variables were actual number and percentage (%). Dependent variable was analysed as continuous data. preoperative anxiety in both groups was compared using one-way analysis of variance (ONE –WAY ANOVA) and difference between the groups compared using unpaired T-Test.

## 3. Results

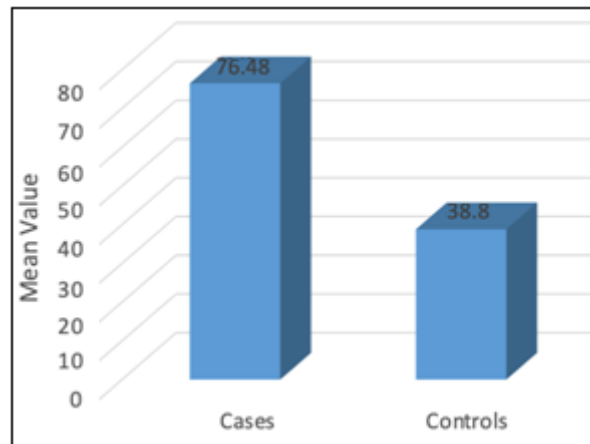
The demographic data of the three studied groups are summarized in Table 1, statistical analysis revealed non-significant differences between the three groups as regards

age, sex and ASA grading. No patients were excluded after inclusion to the study.

**Table 1:** Demographic Data

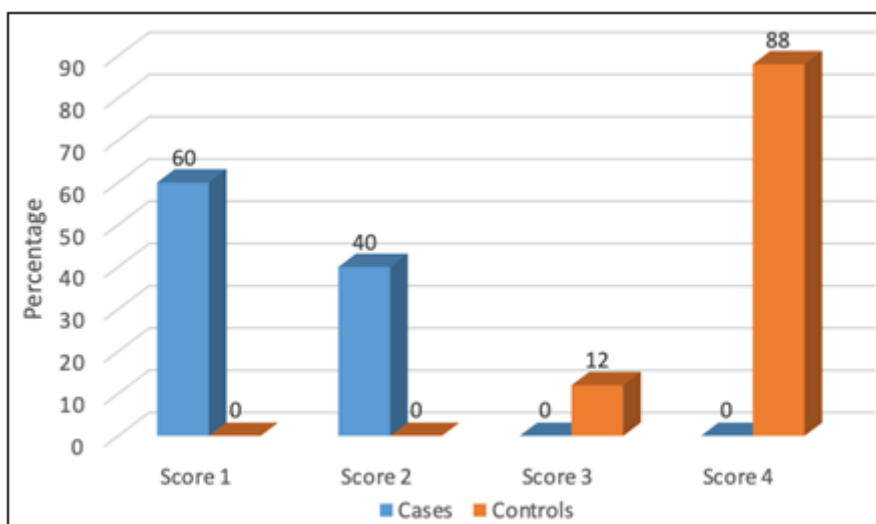
	Cases	Control	P value
Age (Years)	5.52±1.96	4.24±1.69	0.232
Sex N (%)	Male	17(68)	0.753
	Female	8(32)	
ASA I/II	7/18	8/17	1.0

Here we found that mean MYPAS for case group was 76.48 and that of control group it was 38.8. The p-value was <0.001. There was significant difference as p value was <0.05. (Figure 1)



**Figure 1:** MYPAS

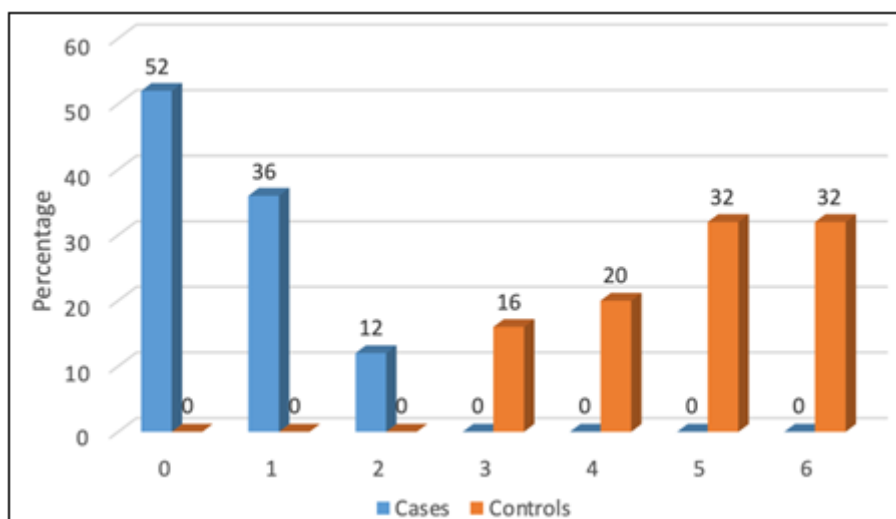
In our study in cases group 60% and 40% cases were of separation score 1 and 2 respectively. In control 12% and 88% patients were of separation score 3 and 4 respectively. The p-value was <0.001. There was significant difference as p value was <0.05. (Figure 2)



**Figure 2:** Separation score

In our study in cases group we found that 52%, 36% and 12% patients had induction compliance of 0, 1 and 2 respectively. In control group 16%, 20%, 32% and 32%

patients had induction compliance 3, 4, 5 and 6 respectively. There was significant difference as p value was <0.05. (Figure 3)



**Figure 3:** Induction compliance

Here, we found that 84% and 16% cases had pain discomfort score 1 and 0 respectively. In control group 52% and 48% patients had pain discomfort score 4 and 3 respectively. The

p-value was <0.001. There was significant difference as p value was <0.05.

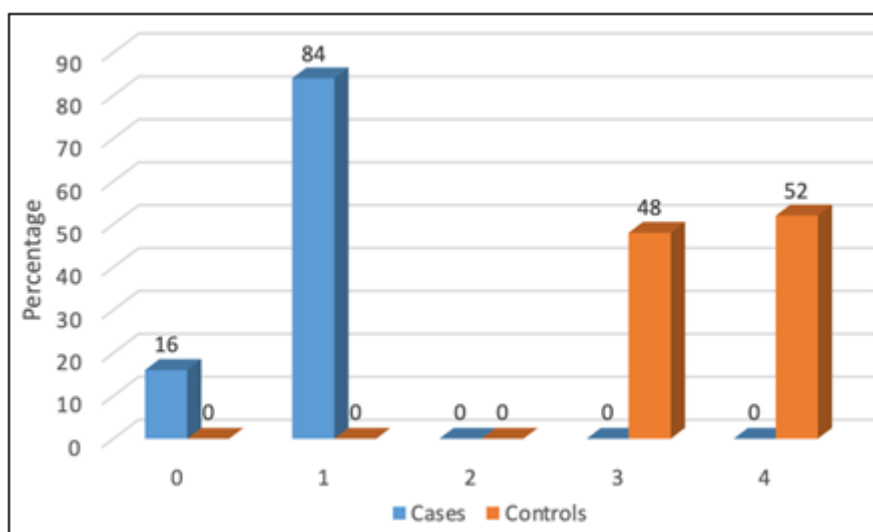


Figure 4: Pain discomfort scale

Here, we found that 20% cases and 32% control patients faced postoperative complications. The p-value was 0.03. There is significant difference as p value was <0.05.

#### 4. Discussion

In our study we found that modified Yale Preoperative Anxiety Scale (mYPAS) was significantly lower in the children who were indulged with games. Sadeghi et al impact of parental presence during induction of anesthesia on anxiety level among pediatric patients. They found that there was significant difference in the number of anxious (mYPAS .40) patients in the parental presence during induction of anesthesia and control groups.[6] Kain et al also reviewed that this tool has good reliability and validity of data, along with this it can be applied to all children older than two years of age in less than one minute, it is much more sensitive to changes in anxiety levels than global instruments and his tool can be applied both in the preoperative holding area and during induction of anesthesia.[7] Liguori et al also found that mean (SD) mYPAS score for the experimental group was 33.0 (18.4), whereas the mean (SD) score in the control group was 48.6 (15.9). The 15.6-point difference between the means was statistically significant (P = .009). We found that mean MYPAS for case group was 76.48 and that of control group it was 38.8. The p-value was <0.001. There is significant difference as p value was <0.05. [8]

Separation score in our study was significantly lower in the children who were indulged with games. Aytekin et al investigate the effects of distraction on the preoperative anxiety levels of pediatric patients. The results of their study demonstrated that the separation scores of the children in the study group, on whom distraction was applied, were lower than those of the control group. [9]

In our study we found that 52%, 36% and 12% patients had induction compliance score of 0, 1 and 2 respectively. In control group 16%, 20%, 32% and 32% patients had

induction compliance score of 3, 4, 5 and 6 respectively. There was significant difference as p value was <0.05. Kain et al (1998) found that the percentage of inductions in which compliance of the child was poor (i.e., ICC > 6) was significantly higher in the control group compared with the parental-presence (25% vs. 17%, P = 0.013). Varughese et al reported that the function of more than half of pediatric patients increases when parents are present during anesthesia induction.[10] However, we didn't allow parents in the operating room at the time of induction, parents were separated from the children outside the operation theatre.

#### 5. Conclusion

We concluded that non pharmacological assets play a role in diminishing the anxiety based results during and after surgeries with anaesthesia and can be of immense help during anaesthesia and post-operative physical and mental well-being of children.

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