

# Children's Behavior toward Tooth Extraction: Comparison of Age, Chief Complaint, Method of Anesthesia, Dental Fear and Dental Anxiety with Level of Cooperation

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## ABSTRACT

**Aim:** To compare children's behavior toward tooth extraction taking into account their gender, age, chief complaint, method of anesthesia, presence of dental fear and dental anxiety.

**Methodology:** This cross sectional descriptive study was conducted at the Department of Maxillofacial Surgery, Nishtar Institute of Dentistry, Multan, Pakistan, from June 2021 to November 2021. The Wright's Clinical Classification and Children's Fear Survey Schedule Dental Subscale (CFSS-DS) were used respectively to assess the degree of cooperation and presence of dental fear anxiety (DFA) toward tooth extraction. Data was analyzed using SPSS 22.

**Results:** Female children 167 (65%), age group of 7-8 years 83(98%), children presented with loose tooth 120 (66%), children received Inj. lignocaine 2%, 152 (70%) and children diagnosed with dental fear and anxiety 406(82%) showed uncooperative behavior toward tooth extraction. Chi squared test showed that gender ( $p=.01$ ), age ( $p=.01$ ), chief complaint ( $p=.04$ ), method of anesthesia ( $p=.01$ ), dental fear and anxiety ( $p=.01$ ) were significantly associated with children's level of cooperation toward tooth extraction procedure.

**Conclusion:** Invasive procedure like tooth extraction brought out negative behavior hampering level of cooperation in pediatric dental treatments.

## INTRODUCTION

Culminating cooperative behavior in a child is an important facet of successful pediatric dentistry as uncooperative behavior on the part of a child can negatively affect the outcome of dental treatments<sup>1</sup>. Therefore pediatric dentists are required to have an ability to guide children positively throughout their dental experience and encourage a positive dental attitude so that level of child's cooperation during dental procedure can be improved<sup>2</sup>.

Children are known to have unfound fear and anxiety towards dental procedures. Invariably these anxieties and fears when concerned with dentistry adversely affect the level of cooperation during dental procedure<sup>3</sup>. Dental fear or dentophobia is a normal response to one or more specific threatening stimuli in a dental situation<sup>4</sup> whereas dental anxiety is a state of apprehension that something dreadful is going to happen concerning dental treatment and dental phobia is marked and persistent anxiety in relation to either clearly discernible objects or within the dental setting. The term dental fear and anxiety (DFA) is collectively used to refer to strong negative feelings among children related with dental treatments. DFA can include fear of dental procedures, objects, environment, instruments or fear of dentist as a person<sup>4</sup>. Other concerns related to the child's cooperation are the variety of treatment modalities offered during dental treatment. Indeed, fear of needles and anesthesia has been the most important focus of research as needle fear in particular, is a significant issue<sup>5</sup>. The Prevention or reduction of pain during treatment can nurture the relationship between the dentist and the patient, build trust, allay fear and anxiety, and enhance positive dental attitudes<sup>6</sup>. despite the fact that use of local anesthesia via injection remains an effective way of pain relief in tooth extraction however children notoriously avoid injectable which as a consequence may result in poor pain control undermining uncooperative behaviour<sup>7,8</sup>.

While some children are able to cooperate in potentially stressful situations such as visiting the dentist, others are more vulnerable to their fears and impulses and therefore more likely to react through uncooperative behaviors<sup>8</sup>. Moreover fearful and anxious children tend to exhibit non cooperative behavior during dental care<sup>9</sup>.

Therefore behavioral assessments play a special role in dentistry as they may assist to classify cooperation level and ultimately serve the purpose of managing uncooperative behaviors<sup>10</sup>.

However, studies investigating and comparing the differences in children's behavior toward tooth extraction are scarce. Therefore, our study aims to compare children's behavior in term of cooperation level toward tooth extraction taking into account the demographic and psychological variables. The result of the study will provide an updated statistics of children's behavior during tooth extraction procedure so that dentists would be well informed about the vulnerable group of children in need of better attention.

## METHODOLOGY

The permission to carry out the research was taken from the ethical review committee of the institute. The cross sectional study descriptive was conducted at the Department of Maxillofacial Surgery Nishtar Institute of Dentistry Multan, Pakistan, from June 2021 to November 2021. Total 655 children with primary one tooth extraction accompanying with an adult attendant were included through non probability convenience sampling during the stipulated period. Children with a history of medical, surgical illness or mental disability were excluded. Consent and confidentiality regarding research were ensured through the accompanying adult attendants. Data about age, gender, chief complaint, type of anesthesia used, presence of dental fear and level of cooperation during dental extraction were recorded on a performa. Presence of dental fear was analyzed through Children's Fear Survey Schedule (CFSS-DS), which involves 15 items. Every item can be given five different scores ranging from not afraid at all (1) to "very much afraid (5). The CFSS-DS has a total score range of 15 to 75 while a cut off score of 38 or more has been associated with presence of clinical dental fear and anxiety<sup>11</sup>. The level of cooperation was assessed through Wright's Clinical Classification which classifies whether child is cooperative or non cooperative during dental procedure<sup>12</sup>. Data were analyzed using SPSS ver 22. Descriptive analysis was recorded in term of frequencies and percentages. Chi square test was performed to ascertain associations between the

variables of interest. P-value of  $\leq 0.05$  was considered as significant.

## RESULTS

Among total 655 children participants of this research, 255(38%) were male, and 400(61%) were female.

Regarding level of cooperation during dental procedure, majority of male 167(65%) (Table-1), age sub group of 7-8 years old (Table-2), children presented with loose tooth (66%) 120 (Table-3), children receiving Inj. lignocaine 2% (70%) 152 (Table-4), and children with diagnosis of dental fear and anxiety 406(82%) (Table-5) were uncooperative. Chi squared test showed that gender ( $p=0.01$ ), age ( $p=0.01$ ), chief complaint ( $p=0.04$ ), method of anesthesia ( $p=0.01$ ) and dental fear anxiety ( $p=0.01$ ) were significantly associated with level of cooperation to dental procedure.

Table 1: Comparison of gender with level of cooperation in children during tooth extraction

Gender	n(%)	Level of cooperation		p-value
		Un Cooperative	Cooperative	
Male	400(61%)	(59%) 236	(41%) 164	0.01
Female	255(38%)	(65%) 167	(34%) 88	

Table 2: Comparison of age groups with level of cooperation in children compliance during tooth extraction

Age	Level Of Cooperation		p-value
	Non cooperative	Cooperative	
5-6 Years	56(66%)	28 (33%)	0.09
7-8 years	83(98%)	15 (17%)	
9-10 years	112(54%)	92 (45%)	
11-12 years	96(77%)	28 (22%)	
13-14 years	56(56%)	44 (44%)	
15-16 years	56(66%)	28 (33%)	

Table 2: Comparison of chief complaint with level of cooperation in children compliance during tooth extraction

Chief Complain	Level of Co-operation		p-value
	Non cooperative	Cooperative	
Pain	(66%) 120	(48%) 60	0.01
Crowding	(60%) 133	(39%) 88	
Loose Tooth	(51%) 64	(28%) 52	
Swelling	(4%) 78	(38%) 48	
Routine Check-up	(0%) 0	(100%) 4	
Total	387	252	

Table 3: Comparison with method of local anesthesia with level of cooperation in children compliance during tooth extraction

Method Of Local Anaesthesia	Level Of Co-operation	
	Non cooperative	Cooperative
Lignocaine Gel 2%	(42%) 48	(57%) 64
Lignocaine Gel 2% + Lignocaine Injection 2%	(62%) 203	(29%) 64
Lignocaine Injection 2%	(70%) 152	(37%) 124
Total	(61%) 395	(38%) 252

Table 4: Comparison of dental fear and anxiety with level of cooperation during tooth extraction

Dental fear and anxiety (DFA)	n (%)	Level Of Co-operation		p-value
		Non cooperative	Cooperative	
Present	495(75%)	406(82%)	89(18%)	0.01
Absent	163(25%)	27(17%)	136(83%)	

## DISCUSSION

The study indicated that uncooperative behaviors of children are relatively common in the dental settings. Significant associations between demographic factors, psychological factors and level of cooperation informed us that the most vulnerable groups of children related to uncooperative behavior consisted of female children, aged 7 to 8 years, children who were offered injectable as anesthesia, those who exhibited dental fear and anxiety. Level of cooperation did not seem to improve with age, however girls reported frequent uncooperative behaviors as compared to boys.

In fact such association between gender and uncooperative behavior was in line with published review which reported 14 researches, out of which 10 researches found dental anxiety more common in girls than in boys<sup>13</sup>.

Furthermore our results demonstrated that anesthetic modalities used for tooth extraction were related with subsequent cooperation. While frequent uncooperative behavior was seen in those who got a shot of anesthetic injection lignocaine 2 % as compared to those who were given anesthetic gel lignocaine. Furthermore majority of children presented with pain as a chief complaint for extraction showed most uncooperative behavior as compared to those who had reported for routine appointment. These findings pertaining to injectable use and pain with consequent uncooperative behavior were consistent with previous research which documented anxiety related with pain and fear of injections<sup>14</sup>.

## CONCLUSION

Invasive procedure like tooth extraction brought out negative behavior hampering level of cooperation in pediatric dental treatments. Children with low level of cooperative behaviors may be benefited from psychological management techniques and definitive psychotherapy. A close liaison between dental and psychiatry departments is needed for catering the needs of vulnerable children.

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