

# The Extent of Parents' Acceptance with Regard to Usage of General Anaesthesia for Their Children during Dental Procedure in Riyadh City

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## ABSTRACT

### BACKGROUND

Investigators have begun to assess the parental acceptance on General Anaesthesia (GA) in pediatric dentistry. Patient satisfaction and knowledge has an essential role in determining the utilization of the healthcare services. Physiologic and functional outcomes can affect completion of the treatment process that is one of the Factors that influence parental decision for seeking care.

### METHODS

In this survey, a structured self-administered and close ended questionnaire, was used to assess parents' acceptance for dental treatments under general anaesthesia for their child. Parents whose children were going to undergo dental treatments in Riyadh Elm University, were approached with this questionnaire. All parents fulfilling inclusion criteria were explained about the purpose of the study and a total of 452 parents provided informed consent during the aforementioned period was included in the survey.

### RESULTS

A total of 452 parents of the children participated in the study. The educational level of the parents was found to be significantly associated with the effectiveness of the comprehensive dental care for their child under GA. Child age showed significant association with the parental refusal of dental treatment under GA. Educational level of the parents and residence were found to be significantly associated with the perception that the dental treatment under GA is indicated for a specific class of patients. ( $P < 0.05$ )

### CONCLUSIONS

Education level of parent's have important role in knowledge and awareness to treat their children under GA. Regular dental check up is important. Educating parents about oral health and diseases is important to increase the awareness about prevention rather than intervention.

### KEY WORDS

Dentistry, General Anaesthesia, Paediatric Dentistry, Parent Acceptance

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**BACKGROUND**

Good oral health and dentition are important for speaking, effective masticating, and of course from beauty point of view for smiling. Most children can undergo in-office regular dental treatments.<sup>1</sup> Behavioral management techniques are one of the techniques that have been used for uncooperative children who refuse Dental treatment due to fear and anxiety.<sup>2,3</sup>

However, some children cannot be managed in their conscious state by these methods and subsequently they require other methods.<sup>2,4</sup> For those children, treatments under GA have many advantages, which include the provision of treatments that are safe, efficient, and convenient. Extensive high-quality treatment is performed in a single visit, with minimal discomfort to the patient; less physical and mental stress for both the patient and the dentist.<sup>5,6</sup>

Another study by Eidelman et al showed more than 90 % of the restorations placed under GA were rated as successful based on the marginal adaptation and anatomic form. Parents will be educated about all level of procedures of local and general anaesthesia.

Paediatric patients who are classified generally for the need of GA treatment are those with disability, emotional immaturity and anxiety who need wide range of rehabilitation. As well as a very young age or those are having physical, cognitive, and mental impairment.<sup>4,7</sup> Most applicants demanding this kind of treatment are children who have one prevalent health problem such as Early Childhood Caries (ECC).<sup>6,7</sup>

Patient satisfaction is an important role in determining the utilization of the healthcare services and the compliance behavior of the patients.<sup>8</sup> In a study done by Vellingiri and Gurunathan<sup>8</sup> it was found that most of the parents' preference was to localize anaesthesia (97 %) and preferred general anaesthesia under given circumstances. But there are not enough amount of evidence to assess the parent's preference to GA or LA (Local Anaesthesia) for children undergoing dental treatment among Saudi Arabia. Therefore the aim of the present study was to assess the parents' knowledge and acceptance to treat their children under general anaesthesia in Riyadh city.

**METHODS**

The study was approved by the Institutional Review Board (IRB) of the Faculty of Dentistry, REU FUGRP / 2019 / 69 and IRB number RC / IRB / 2019 / 278

This cross-sectional survey was conducted among parents presenting to REU (Riyadh Elm University) in Namuthajiyah Campus for dental treatment, to determine their acceptance to treat their children under general anaesthesia for dental procedures from November 2019 to June 2020. Parents with children older than 14-year-old and less than the age of 3 and having children with mental impairment and cardiac diseases or any other medical or mental problem were excluded. All the parents fulfilling inclusion criteria were explained about the purpose of the study and a total of 452 parents provided informed consent during the aforementioned period were included for the survey.

The survey was carried out using a structured, self-administered and close ended questionnaire. The first part of questionnaire enquired regarding demographics like age of parents and child, educational status of parents and relationship with child. This was followed by items regarding their perceptions concerning use of GA during dental treatments like effectiveness of such treatments, worry due to such treatments, impact of these treatments on child's behaviour towards dentists etc. Along with these, reasons for refusal or acceptance of dental procedures under GA were also asked. The time allotted to each patient for filling the questionnaire was approximately 8 - 10 minutes and regional language was used.

A pilot study was carried out before the main survey on 25 patients for the validation of the questionnaire. The participants of this pilot survey were not included in main study. The Cronbach's alpha and split-half reliability values for the items of questionnaire were found to be 0.84 and 0.80, respectively.

**Statistical Analysis**

All the data entered into the statistical Software Package for Social Sciences (SPSS-IBM, version 25, Armonk, NY, USA), and analyzed. Descriptive statistics of frequency distribution and percentages calculated for demographic variables and questionnaire items. Chi-squares tests applied to assess the relationship between categorical variables. A p-value of (p < 0.05) was considered significant for all statistical purposes.

**RESULTS**

A total of 452 parents (mothers = 290, fathers = 162) of the children participated in the study. Majority of the parents belonged to the 31 - 40 years of age 169 (37.4 %), having bachelor's degree of educational level 204 (45.1 %). Most of the parents reported to have of 4 - 8 years 183 (40.5 %) children, as shown in (Table 1).

	Variables	n	%
Age (Years)	18 - 30	151	33.4 %
	31 - 40	169	37.4 %
	41 - 50	88	19.5 %
	Above 50	44	9.7 %
	Total	452	100.0 %
Educational Level	Lower than high school	68	15.0 %
	High school	153	33.8 %
	Bachelor's degree	204	45.1 %
	Higher than bachelors	27	6.0 %
	Total	452	100.0 %
Relationship with Child	Mother	290	64.2 %
	Father	162	35.8 %
	Total	452	100.0 %
Age of the Child (Years)	2 - 4	122	27.0 %
	4 - 8	183	40.5 %
	9 - 12	110	24.3 %
	More than 12	37	8.2 %
	Total	452	100.0 %
Residence	Riyadh	426	94.2 %
	Other	26	5.8 %
	Total	452	100.0 %

**Table 1. Demographic Variables of the Study Participants (N = 452; 100 %)**

Most of the parents who participated in the study reported that their children were healthy 416 (92 %), while 30 (6.6 %), 2 (0.4 %), 2 (0.4 %) and 2 (0.4 %) suffered from respiratory, endocrine and gastric problems (Figure 1).

Variables	Comprehensive Dental Care for Child under GA						Feeling towards GA							
	Effective		Ineffective		Effective		Ineffective		Effective		Ineffective			
	n	%	n	%	n	%	n	%	n	%	n	%		
Age of Parent (Years)	18 - 30	50	27.6 %	26	33.8 %	75	38.7 %	82	34.9 %	38	30.4 %	31	33.7 %	
	31 - 40	77	42.5 %	27	35.1 %	65	33.5 %	89	37.9 %	51	40.8 %	29	31.5 %	
	40 - 50	35	19.3 %	15	19.5 %	38	19.6 %	42	17.9 %	23	18.4 %	23	25.0 %	
	> 50	19	10.5 %	9	11.7 %	16	8.2 %	22	9.4 %	13	10.4 %	9	9.8 %	
	P value	0.375												
Educational Level of Parent	Lower than High school	19	10.5 %	18	23.4 %	31	16.0 %	32	13.6 %	23	18.4 %	13	14.1 %	
	High school	52	28.7 %	29	37.7 %	72	37.1 %	79	33.6 %	45	36.0 %	29	31.5 %	
	Bachelor's degree	93	51.4 %	30	39.0 %	81	41.8 %	107	45.5 %	56	44.8 %	41	44.6 %	
	Higher than a bachelor's	17	9.4 %	0	0.0 %	10	5.2 %	17	7.2 %	1	0.8 %	9	9.8 %	
	P value	0.003*												
Relation	Mother	114	63.0 %	43	55.8 %	133	68.6 %	149	63.4 %	87	69.6 %	54	58.7 %	
	Father	67	37.0 %	34	44.2 %	61	31.4 %	86	36.6 %	38	30.4 %	38	41.3 %	
	P value	0.132												
	Child Age (Years)	2 - 4	44	24.3 %	22	28.6 %	56	28.9 %	60	25.5 %	33	26.4 %	29	31.5 %
		5 - 8	73	40.3 %	30	39.0 %	80	41.2 %	97	41.3 %	54	43.2 %	32	34.8 %
9 - 12		52	28.7 %	22	28.6 %	36	18.6 %	56	23.8 %	30	24.0 %	24	26.1 %	
More than 12		12	6.6 %	3	3.9 %	22	11.3 %	22	9.4 %	8	6.4 %	7	7.6 %	
P value		0.118												
Residence	Riyadh	173	95.6 %	72	93.5 %	181	93.3 %	220	93.6 %	116	92.8 %	90	97.8 %	
	Outside Riyadh	8	4.4 %	5	6.5 %	13	6.7 %	15	6.4 %	9	7.2 %	2	2.2 %	
	P value	0.609												
												0.243		
	<b>Table 2. Parent Perception of Comprehensive Dental Care for Their Child under GA and Feelings towards GA</b>													

Variables	Parent Refusal of Treatment under GA				
	Fear of the child not waking up	Cost	Bad experience		
	N (%)	N (%)	N (%)		
Age of Parent	18-30	162 (35.8)	130 (28.7)	107 (23.7)	
	31-40	167 (37.0)	156 (34.5)	79 (17.4)	
	40-50	83 (18.3)	119 (26.4)	60 (13.2)	
	>50	40 (8.9)	47 (10.3)	71 (15.8)	
	p value	0.502			
Education Level of Parent	Lower than High school	60 (13.3)	78 (17.2)	95 (21.1)	
	High school	153 (33.9)	177 (39.1)	95 (21.1)	
	Bachelor s degree	205 (45.3)	192 (42.5)	226 (50.0)	
	higher than a bachelors	32 (7.0)	5 (1.1)	36 (7.9)	
	P value	0.129			
Relation	Mother	301 (66.7)	260 (57.5)	262 (57.9)	
	Father	151 (33.3)	192 (42.5)	190 (42.1)	
	P value	0.192			
	Child Age	2-4	124 (27.5)	125 (27.6)	95 (21.1)
		3-5	195 (43.1)	146 (32.2)	166 (36.8)
6-12		94 (20.8)	165 (36.6)	119 (26.3)	
More than 12		39 (8.6)	15 (3.4)	71 (15.8)	
P value		0.021			
Residence	Riyadh	423 (93.6)	437 (96.6)	428 (94.7)	
	Outside Riyadh	29 (6.4)	15 (3.4)	24 (5.3)	
	P value	0.620			
	<b>Table 3. Parental Refusal of Dental Treatment of Their Child under GA</b>				

Variables	GA is for a Specific Class			GA has an Impact on the Child's Behaviour towards the Dentist			Decision to Accept Treatment under GA is Affected						
	Special Needs Category	Non-Cooperative Children	Age Group 18 Years or Older	Special Needs Category	Non-Cooperative Children	Age Group 18 Years or Older	Special Needs Category	Non-Cooperative Children	Age Group 18 Years or Older	Special Needs Category	Non-Cooperative Children		
	n %	n %	n %	n %	n %	n %	n %	n %	n %	n %	n %		
Age of Parent	18 - 30	19 (27.5 %)	60 (32.4 %)	24 (40.0 %)	48 (34.8 %)	40 (30.1 %)	7 (41.2 %)	50 (30.7 %)	54 (38.8 %)	82 (31.7 %)	36 (31.6 %)	33 (41.8 %)	
	31 - 40	28 (40.6 %)	79 (42.7 %)	19 (31.7 %)	43 (31.2 %)	54 (40.6 %)	7 (41.2 %)	63 (38.7 %)	45 (32.4 %)	100 (38.6 %)	38 (33.3 %)	31 (39.2 %)	
	40 - 50	14 (20.3 %)	32 (17.3 %)	9 (15.0 %)	33 (23.9 %)	25 (18.8 %)	1 (5.9 %)	31 (19.0 %)	31 (22.3 %)	54 (20.8 %)	22 (19.3 %)	12 (15.2 %)	
	> 50	8 (11.6 %)	14 (7.6 %)	8 (13.3 %)	14 (10.1 %)	14 (10.5 %)	2 (11.8 %)	19 (11.7 %)	9 (6.5 %)	23 (8.9 %)	18 (15.8 %)	3 (3.8 %)	
	P value	.383											
Educational level of parent	Lower than High school	10 (14.5 %)	22 (11.9 %)	13 (21.7 %)	23 (16.7 %)	20 (15.0 %)	1 (5.9 %)	22 (13.5 %)	25 (18.0 %)	38 (14.7 %)	21 (18.4 %)	9 (11.4 %)	
	High school	29 (42.0 %)	47 (25.4 %)	23 (38.3 %)	54 (39.1 %)	35 (26.3 %)	6 (35.3 %)	61 (37.4 %)	51 (36.7 %)	88 (34.0 %)	37 (32.5 %)	28 (35.4 %)	
	Bachelor's degree	29 (42.0 %)	100 (54.1 %)	22 (36.7 %)	53 (38.4 %)	66 (49.6 %)	10 (58.8 %)	70 (42.9 %)	58 (41.7 %)	115 (44.4 %)	52 (45.6 %)	37 (46.8 %)	
	Higher than a bachelor's	1 (1.4 %)	16 (8.6 %)	2 (3.3 %)	8 (5.8 %)	12 (9.0)	0 (0.0 %)	10 (6.1 %)	5 (3.6 %)	18 (6.9 %)	4 (3.5 %)	5 (6.3 %)	
	P value	0.013*											
Relation	Mother	44 (63.8 %)	127 (68.6 %)	41 (68.3 %)	78 (56.5 %)	82 (61.7 %)	11 (64.7 %)	111 (68.1 %)	86 (61.9 %)	171 (66.0 %)	72 (63.2 %)	47 (59.5 %)	
	Father	25 (36.2 %)	58 (31.4 %)	19 (31.7 %)	60 (43.5 %)	51 (38.3 %)	6 (35.3 %)	52 (31.9 %)	53 (38.1 %)	88 (34.0 %)	42 (36.8 %)	32 (40.5 %)	
	P value	.134											
	Child age	2 - 4	20 (29.0 %)	50 (27.0 %)	12 (20.0 %)	40 (29.0 %)	41 (30.8 %)	5 (29.4 %)	38 (23.3 %)	38 (27.3 %)	67 (25.9 %)	28 (24.6 %)	27 (34.2 %)
		5 - 8	26 (37.7 %)	80 (43.2 %)	25 (41.7 %)	52 (37.7 %)	52 (39.1 %)	7 (41.2 %)	64 (39.3 %)	60 (43.2 %)	103 (39.8 %)	47 (41.2 %)	33 (41.8 %)
9 - 12		21 (30.4 %)	39 (21.1 %)	16 (26.7 %)	34 (24.6 %)	31 (23.3 %)	4 (23.5 %)	48 (29.4 %)	27 (19.4 %)	65 (25.1 %)	31 (27.2 %)	14 (17.7 %)	
More than 12		2 (2.9 %)	16 (8.6 %)	7 (11.7 %)	12 (8.7 %)	9 (6.8 %)	1 (5.9 %)	13 (8.0 %)	14 (10.1 %)	24 (9.3 %)	8 (7.0 %)	5 (6.3 %)	
P value		.585											
Residence	Riyadh	69 (100 %)	174 (94.1 %)	58 (96.7 %)	125 (90.6 %)	130 (97.7 %)	15 (88.2 %)	154 (94.5 %)	127 (91.4 %)	244 (94.2 %)	107 (93.9 %)	75 (94.9 %)	
	Outside Riyadh	0 (0.0 %)	11 (5.9 %)	2 (3.3 %)	13 (9.4 %)	3 (2.3 %)	2 (11.8 %)	9 (5.5 %)	12 (8.6 %)	15 (5.8 %)	7 (6.1 %)	4 (5.1 %)	
	p	0.008											
												0.085	
												0.949	
<b>Table 4. GA Indications, Impact and Decision to Accept Treatment under GA</b>													

Amongst all the sociodemographic variables, educational level of the parents was found to be significantly associated with the effectiveness of the comprehensive dental care for their child under GA ( $p = 0.003^*$ ). While other sociodemographic variables did not show any significant association with the effectiveness of the comprehensive dental care for the child under GA (Table 2).

Child age showed significant association with the parental refusal of dental treatment under GA ( $p = 0.021$ ). (Table 3). Educational level of the parents and residence were found to be significantly associated with the perception that the dental treatment under GA is indicated for a specific class of patients ( $p = 0.013$ ) and ( $p = 0.008$ ) (Table 4).

## DISCUSSION

Findings in this study show that majority of the educated parents have agreed that GA is effective in improving the quality of life & children's health ( $p = 0.003^*$ ). Findings of a previous study reveals that, parents believed that the overall health of their child had improved as a result of comprehensive dental intervention. (82 %) <sup>9</sup> In the study of Mavridou P <sup>10</sup> they reported the major causes of patients' fears for GA is not waking up after surgery (56.4 %), but in present study only (37 %) of participants answered fears of not waking up, which give us clue that there are other reasons that affect in the decision to accept treatment under GA.

The time required for completion of dental rehabilitation is considerably fluctuating Because of operation complexity, estimating operation time is not exact most of operations may take longer or shorter duration than estimated preoperatively, the significant value was variable among socio-demographic (age, educational level of parents ) ( $p = 0.005$ ), ( $p = 0.000$ ) and ( $p = 0.003$ ), Likewise, Forsyth AR et al <sup>3</sup> found that the time of procedure ranged from 15 min to 120 min also may be increased according to type of procedure associated with: patient age ( $p = 0.01$ ); ASA classification ( $p = 0.006$ ); treatment type ( $p < 0.001$ ); number of teeth treated ( $p < 0.001$ ); and dentist operator type ( $p = 0.005$ ).

Educational level of the parents and residence were found to be significantly associated with the perception that the dental treatment under GA is indicated for a specific class of patients ( $p = 0.013$ ) and ( $p = 0.008$ ) (Table 4).

Similarly in another study authors agreed that in clinical relevance, patients with severe disablement, dental GA presents the only treatment option, specific preventive programs should be implemented for patients with minor disablement or dentist phobia. <sup>11</sup> From this study the tooth brushing frequency in children was one time a day (313) (69.2 %). Likewise Soltani R et al, <sup>12</sup> found that children's brushing frequency twice a day was 12.8 % and once a day 43.7 % ( $p < 0.05$ )

## Limitations

Some parents refused to participate. So, the data collected might not be big and moreover the study was done in just one institute (REU Namuthajiyah Campus); so, generalizability of the results has to be seen with caution.

## CONCLUSIONS

From this study, we conclude that the education level will affect the parent's knowledge and awareness with regard to treat their children under GA. We observed in this study, insufficient awareness of parents toward regular dental check up. It is important to educate parents about oral health and diseases to become aware about prevention rather than intervention.

Data sharing statement provided by the authors is available with the full text of this article at jemds.com.

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Haneen Al Shukairy made the concept of the study and review of literature, Bayan Alshawan also made the concept of the study and final manuscript writing, Massoma Alkhabbaz assisted in questionnaire preparation and data collection, Maryam Alkhwajah did data collection and data entry, Zainab Bumajdad also assisted in data analysis and manuscript writing and Zahra Alradwan wrote overall final manuscript checking and preparation.

All procedures performed in studies involving human participants were in accordance with the ethical standards of the Institutional and / or National Research Committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards (ethical approval number REU FUGRP / 2019 / 69 and IRB number RC / IRB / 2019 / 278).

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