

THE ATTITUDE OF SPECIAL NEEDS PATIENTS' PARENTS IN KSA TOWARDS GENERAL ANESTHESIA IN DENTAL TREATMENT

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ABSTRACT

General anesthesia (GA) is a temporary loss of sensation and total unconsciousness that resembles a very deep sleep. Anesthetics, which are specialized medications or other chemicals, are what induce it. This study aims to determine parental attitudes, knowledge, and beliefs toward GA. The objective of this study will be to understand parents' educational level and co-relating it to acceptance or rejection of GA and understanding parents' concerns regarding GA. This is a cross-sectional study among parents of children with special need. An online questionnaire using Google Forms was distributed to pediatric patients' parents in Saudi Arabia via social media and messengers to prevent contamination. It was concluded that the parents hesitate to go for anesthesia-related treatment for their children. Their fear and anxiety also play a role in this hesitation. Parents must be educated and provided with counseling in order to improve their children's oral health.

Key words: Special needs, General anesthesia, Dental treatment, Saudi children.

Introduction

Parents have a significant role in ensuring their children have good oral health. Parents' involvement is crucial and important for children with impairments [1]. Children with disabilities have an increased risk of developing oral diseases such as dental caries and gingivitis/periodontitis because they are less likely to practice good oral hygiene due to intellectual and motor impairments [2]. Consensus exists that addressing children's behavioral needs is crucial when delivering dental treatment [3]. Indeed, it is difficult, if not impossible, to carry out any necessary dental treatment if a child's conduct in the dental surgery/office cannot be handled [4]. Most youngsters perform well enough under a pedodontist's care when they use behavioral methods. However, these treatments are ineffective for treating certain youngsters [5].

In a state of transient numbness and complete unconsciousness, general anesthesia (GA) is comparable to that of a very deep slumber. Inducing it is the job of anesthetics, which may be either specific drugs or other compounds [6]. General anesthesia numbs the patient so they do not feel anything during surgery or other operations [7, 8]. Healthy and medically impaired children may get complete, safe, and high-quality dental treatment under general anesthesia [9, 10]. This research shows that parents of children with special needs are worried about having their children undergo general anesthesia (GA) during pediatric dental treatment.

However, some parents' concerns regarding hospitalization and GA usage continue to impact their treatment decisions for their children [11]. The internet and modern technologies have increased the data accessible to patients regarding their treatment options and any potential risks they may face. There is a risk that not all information is reliable. Because of the paucity of data on Saudi parents' attitudes toward pediatric DGA, educating them on the benefits and drawbacks of pediatric dental care under GA would help them make better future treatment decisions for their children [12].

People with impairments are those who, by today's standards, have different capacities and can do things differently [13]. Visible disabilities affect the body, the senses, and the mind. Common side effects are the inability to move, see, think, hear, learn, talk, communicate, remember, and socialize. Most of the world's disabled population (80%) is located in developing nations, making up 15% of the global population [13].

People with special needs may encounter several obstacles while seeking dental care, which raises the incidence of oral disorders in this group, according to research [14]. The dental health of people with special needs is poor, and they experience oral injustice more often than those without disabilities [15]. Additionally, immunological responses may be altered by developmental problems like Down syndrome, rendering the person more vulnerable to periodontal disease and peri-implantitis. International efforts have been undertaken to prepare dentists to care for

patients with special needs. According to estimates, 2.9% of Saudi Arabia's population suffers from a serious kind of impairment. Additionally, research indicates that oral diseases such as dental caries and periodontal disease are more common among Saudis with special needs [16].

Distance, a lack of professionals with the necessary training, the carers' lack of knowledge or education, and the expense of the treatment are some of the obstacles to providing oral health care for people with special needs. Patients with intellectual impairments could undervalue the value of dental treatment and may not know how to take advantage of available dental options [17]. Additionally, providing dental care for those with special needs could take longer and need more employees, as well as sedation or anesthetic techniques [14].

Study rationale

General anesthesia brings several misconceptions and hesitations among the parents of special needs children. Therefore, it is imperative to know the Saudi parents' attitude towards the use of general anesthesia when treating their special needs children.

Aims, objectives, and significance

This study aims to determine parental attitudes, knowledge, and beliefs toward GA. The objective of this study will be to understand parents' educational level and co-relating it to acceptance or rejection of GA and understanding parents' concerns regarding GA.

Materials and Methods

This is a cross-sectional study among parents of children with special needs.

An online questionnaire using Google Forms was distributed to pediatric patients' parents in Saudi Arabia via social media and messengers to prevent contamination. 500-1000 responses were expected to be collected from special needs patients' parents who visit private and public dental clinics around Saudi Arabia.

Questionnaire

A 14-point self-constructed survey was used in this study. The first half of the survey included questions related to demographics. The second half of the survey included questions related to various pediatric-related disorders, anxiety toward dental treatment, types of behavioral management, and questions related to general anesthesia.

Instrument validity and reliability

The survey was sent to 20 participants as part of a pilot research, and the results were entered into SPSS version 22 to calculate the reliability using Cronbach's coefficient alpha. The questionnaire's validity was examined by submitting it to seasoned researchers at REU, and

improvements were made in response to their suggestions and criticisms.

Sample size calculation

The margin of error: 5%
Confidence level: 95%
Population size: 20000
Response distribution: 50%
Minimum sample size: 377

Patient confidentiality

Data collected from the participants was kept confidential and was not disclosed to anyone or used without the consent of the participant.

Inclusion criteria

- Parents of patients with special needs
- Children aged between 4-12

Exclusion criteria

- Parents of healthy patients
- Children aged more than 12 years or less than 4

Statistical analysis

Using SPSS version 22, both descriptive and inferential statistics will be performed on the collected data. Comparative analyses of groups were conducted while keeping the significance level at 0.05. A test for normality was performed, and based on the results, a choice of statistical tests was made.

Research question

Is the attitude of Saudi parents of special needs children towards general anesthesia use positive?

Results and Discussion

Figure 1 shows that 52% were boys and 48% girls who participated in this study. **Figure 2** shows the age group distribution and **Figure 3** disclosed their nationalities. **Table 1** presents the frequencies of different types of disabilities among the children of the study participants. Each disability type is listed, along with its corresponding percentage frequency. The first disability listed is mental retardation, which has a frequency of 6.4%. This indicates that 6.4% of the children in the study were identified as having mental retardation. The second disability is a speech disorder, also with a frequency of 6.4%. This suggests that 6.4% of the children in the study had a speech disorder.

Hypothyroidism and cardiac disease are both listed with a frequency of 0.8%. This implies that 0.8% of the children had either hypothyroidism or cardiac disease. The next disability listed is emotional and behavioral disorders, which have a frequency of 10.4%. This indicates that 10.4% of the children in the study had emotional and behavioral disorders.

Down syndrome has a frequency of 7.2%, suggesting that 7.2% of the children had Down syndrome. Visual impairment is listed with a frequency of 3.2%, implying that 3.2% of the children had visual impairments.

Autism has the highest frequency at 13.6%. This means that 13.6% of the children in the study were identified as having autism. Hearing loss, neurological disorders, intellectual disability, and cerebral palsy all have a frequency of 0.8%. This indicates that 0.8% of the children had each of these respective disabilities.

PTSD (post-traumatic stress disorder) has a frequency of 2.4%, suggesting that 2.4% of the children had PTSD. Obsessive-compulsive disorder and osteogenesis imperfecta are both listed with a frequency of 0.8%. This implies that 0.8% of the children had either obsessive-compulsive disorder or osteogenesis imperfecta.

The category "Other" has a frequency of 7.2%, indicating that 7.2% of the children had disabilities not specifically listed in the table. Finally, the category "None" has the highest frequency at 32.8%, suggesting that 32.8% of the children did not have any disabilities.

Overall, the table provides an overview of the different types of disabilities present among the children of the study participants and their respective frequencies, allowing for a better understanding of the distribution of disabilities in the sample.

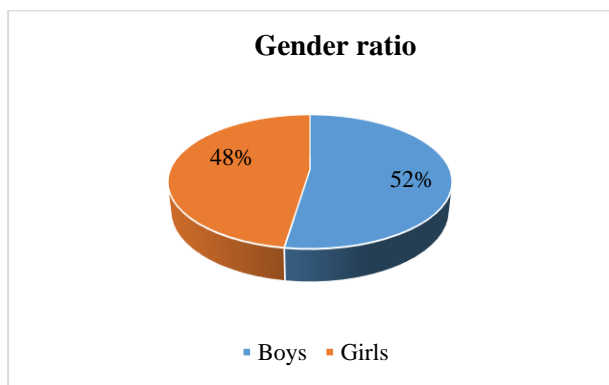


Figure 1. Gender ratio of the study participants' child's gender

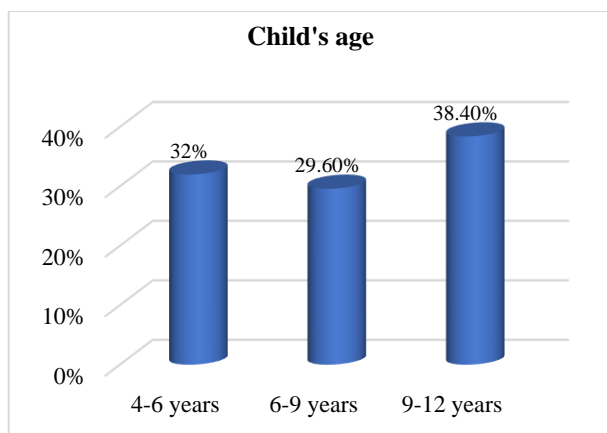


Figure 2. Participant children's age groups distribution

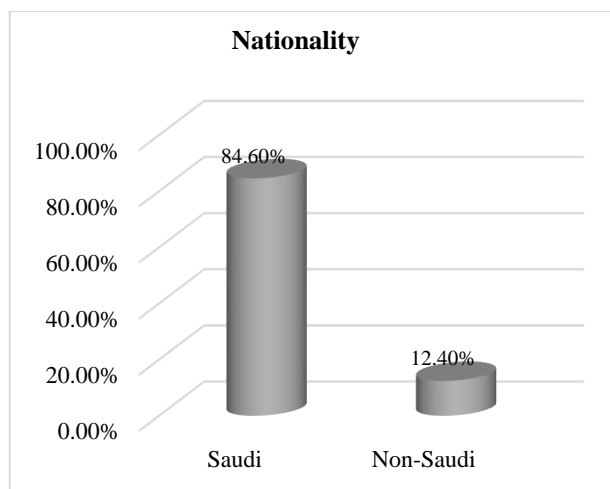


Figure 3. Participants' nationality

Table 1. Frequencies of disabilities among children of the study participants

No.	Type of disability	Frequencies
1	Mental retardation	6.4%
2	Speech disorder	6.4%
3	Hypothyroidism	0.8%
4	Cardiac disease	0.8%
5	Emotional and behavioral disorders	10.4%
6	Downs syndrome	7.2%
7	Visual impairment	3.2%
8	Autism	13.6%
9	Hearing loss	0.8%
10	Neurological disorders	3.2%
11	Intellectual disability	0.8%
12	Cerebral palsy	1.6%
13	PTSD	2.4%
14	Obsessive compulsive disorder	0.8%
15	Osteogenesis imperfecta	0.8%

16	Other	7.2%
17	None	32.8%

Table 2. Responses to the survey questions

Survey Questions	Responses
When was the last dental visit?	3-6 months: 39.8% 6-12 months: 36.6% 2 years: 13% Never visited: 10.6%
Reason for a dental visit?	Regular checkup: 48.7% Provoked pain: 51.3%
Your own anxiety has affected your child's dental visits?	Yes: 48.4% No: 51.6%
List the difficulties of the child while attending a clinic.	Fear: 22.4% Refuses to follow instructions: 40.8% Doesn't stay still: 32% None: 4.8%
How satisfied are you with your child's treatment plan:	I don't approve: 8.1% It could be better: 20% Very satisfied: 51.6% I don't understand the treatment plan: 11.3%
Do you know different behavioral management techniques?	Yes: 33.1% No: 66.9%
If yes, which method you think is better?	General anesthesia: 34.5% Nitrous oxide: 30.9% Restrain: 34.5%

Table 2 presents responses to various survey questions related to dental visits and treatment plans.

The first question asks about the timing of the last dental visit. The responses indicate that 39.8% of participants had their last dental visit within the past 3-6 months, 36.6% visited between 6-12 months ago, 13% visited 2 years ago, and 10.6% have never visited a dentist. The next question pertains to the reason for dental visits. The responses show that 48.7% of participants visited for a regular checkup, while 51.3% visited due to provoked pain.

The survey also asks whether the participants' anxiety has affected their child's dental visits. The responses reveal that 48.4% of participants answered "yes," indicating that their anxiety has had an impact, while 51.6% answered "no." Participants were then asked to list the difficulties their child faces while attending dental clinics. The responses indicate that 22.4% reported fear, 40.8% mentioned their child's refusal to follow instructions, 32% stated that their child doesn't stay still, and 4.8% reported no difficulties.

The survey also explores the participants' satisfaction with their child's treatment plan. The responses reveal that 8.1% of participants don't approve of the treatment plan, 20% feel that it could be better, 51.6% are very satisfied, and 11.3% admitted to not understanding the treatment plan. Lastly, the participants were asked whether they were familiar with different behavioral management techniques. The responses show that 33.1% of participants answered "yes," indicating familiarity with such techniques, while 66.9% answered "no." Among those familiar with these techniques, the preferred methods were general anesthesia (34.5%), nitrous oxide (30.9%), and restraint (34.5%).

Overall, the table provides a comprehensive overview of the participant's responses to the survey questions, covering the timing of dental visits, reasons for visits, the impact of parental anxiety, difficulties experienced by children, satisfaction with treatment plans, and knowledge of behavioral management techniques.

Table 3. Comparison of survey responses based on child’s gender

Questions	Boy	Girl	P -value
Who attends dental appointment with the child?	Father: 20% Mother: 75.3% Other: 4.7%	Father: 10.1% Mother: 86.4% Other: 4.5%	.282
When was the last visit?	3-6 months: 31.7% 6-12 months: 38.1% 2 years: 15.8% Never visited: 14.2%	3-6 months: 49.1% 6-12 months: 35.5% 2 years: 10.1% Never visited: 5.1%	.126
Reason for dental visit?	Regular checkup: 56.4% Provoked pain: 43.6%	Regular checkup: 40.3% Provoked pain: 49.7%	.058
Your own anxiety has affected your child’s dental visits?	Yes: 52.3% No: 47.7%	Yes: 44.1% No: 55.9%	.231
List the difficulties of child while attending clinic.	Fear: 23.1% Refuses to follow instructions: 41.5% Doesn’t stay still: 30.7% None: 4.6%	Fear: 22.1% Refuses to follow instructions: 40.6% Doesn’t stay still: 32.2% None: 5.1%	.997

The p-values in the table indicate the statistical significance of the differences observed between the responses of boys and girls in the survey. In statistical analysis, the p-value represents the probability of obtaining results as extreme as the observed data, assuming that there is no true difference or relationship between the variables being compared (Table 3).

For the question "Who attends a dental appointment with the child?", the p-value is 0.282. This suggests that there is no statistically significant difference in the proportions of fathers, mothers, and others accompanying boys and girls to dental appointments. The p-value for the question "When was the last visit?" is 0.126. This indicates that there is no strong evidence of a significant difference in the distribution of time intervals between boys and girls for their last dental visits.

Regarding the reason for dental visits, the p-value is 0.058. This suggests a weak indication of a difference between boys and girls in terms of their reasons for dental visits, with girls slightly more likely to visit for a regular checkup and boys slightly more likely to visit due to provoked pain. However, the result is not statistically significant at conventional significance levels. The question in focus is "Reason for dental visit?" and the percentages represent the

distribution of responses between boys and girls. Among boys, 56.4% reported visiting the dentist for a regular checkup, while 43.6% reported visiting due to provoked pain. On the other hand, among girls, 40.3% reported visiting for a regular checkup, while 49.7% reported visiting due to provoked pain.

The p-value for the question related to parental anxiety affecting the child's dental visits is 0.231. This indicates no significant difference between boys and girls in terms of the impact of parental anxiety on their dental visits. For the question about difficulties experienced by children during clinic visits, the p-value is 0.997. This high p-value suggests that there is no significant difference between boys and girls in terms of the reported difficulties they face while attending dental clinics.

In summary, the p-values reflect the statistical significance of the observed variations between boys and girls in their survey responses. A p-value below a predetermined threshold (e.g., 0.05) would indicate a significant difference, while a higher p-value suggests that the observed differences may be due to chance and not necessarily reflective of a true disparity between boys and girls.

Table 4. Comparison of survey responses based on child’s age

Questions	3-6 years	6-12 years	2 years	p-value
Who attends dental appointment with the child?	Father: 15% Mother: 82.5% Other: 2.5%	Father: 10.8% Mother: 86.4% Other: 2.7%	Father: 19.4% Mother: 74.4% Other: 6.3%	.667
When was the last visit?	3-6 months: 58.9% 6-12 months: 23.1% 2 years: 2.5% Never visited: 15.3%	3-6 months: 32.4% 6-12 months: 51.3% 2 years: 10.8% Never visited: 5.4%	3-6 months: 29.7% 6-12 months: 36.1% 2 years: 23.4% Never visited: 10.6%	.005
Reason for dental visit?	Regular checkup: 56.7%	Regular checkup: 51.3%	Regular checkup: 40%	.297

	Provoked pain: 43.3%	Provoked pain: 48.7%	Provoked pain: 60%	
Your own anxiety has affected your child's dental visits?	Yes: 47.5% No: 52.5%	Yes: 43.2% No: 56.8%	Yes: 53.1% No: 46.9%	.657
List the difficulties of child while attending clinic.	Fear: 17.5% Refuses to follow instructions: 42.5% Doesn't stay still: 40% None: 0%	Fear: 24.3% Refuses to follow instructions: 45.9% Doesn't stay still: 21.6% None: 8.1%	Fear: 25% Refuses to follow instructions: 35.4% Doesn't stay still: 33% None: 6.2%	.391

Table 4 provides survey responses regarding various aspects related to dental appointments and children of different age groups. The p-values in the table indicate the statistical significance of the differences observed between the age groups for each question.

For the question "Who attends a dental appointment with the child?" the p-value is .667. This suggests that there is no significant difference in the distribution of attendees among the age groups. The proportions of fathers, mothers, and others attending the appointments are similar across the different age groups.

The p-value for the question "When was the last visit?" is .005. This indicates a statistically significant difference in the distribution of last-visit timeframes among the age groups. The proportions of children visiting the dentist within the last 3-6 months, 6-12 months, 2 years, or never visiting differ significantly between the age groups.

Regarding the question "Reason for dental visit?", the p-value is .297. This suggests that there is no significant difference in the distribution of reasons for dental visits among the age groups. The percentage of routine exams and visits brought on by pain are comparable across all age groups.

For the question "Your own anxiety has affected your child's dental visits?" the p-value is .657. This indicates that there is no significant difference in the distribution of responses regarding the influence of parents' anxiety on their child's dental visits among the age groups. The proportions of parents who answered "yes" or "no" to this question are similar across the different age groups.

Finally, the p-value for the question "List the difficulties of child while attending clinic" is .391. This suggests that there is no significant difference in the distribution of reported difficulties among the age groups. The proportions of children experiencing fear, refusing to follow instructions, not staying still, or having no difficulties are similar across the different age groups. In summary, the p-values provide information about the statistical significance of the observed differences in the survey responses among the different age groups. A p-value less than .05 is typically considered statistically significant, indicating a significant difference, while a higher p-value suggests no significant difference.

This study aimed to assess the attitude of parents of children with special needs towards general anesthesia in dental treatment. It can be noted from the findings that parents' anxiety plays a vital role in their hesitation to attend dental visits regularly. Moreover, only 34.5% of the parents were in favor of general anesthesia. No statistically significant association was found between survey questions and the gender as well as the age of the children.

According to Asiri, Tennant, and Kruger (2022), people with special needs have poor oral health, limited access to dental treatment, and a general lack of knowledge about oral health [18]. Furthermore, it is challenging to offer an overall evaluation of oral health practices and oral health care usage among people with disabilities in Saudi Arabia due to the disparities in age and general health of those with special needs.

Additionally, according to Khodadadi *et al.* (2014), 98% of parents were concerned about the procedure under general anesthesia [19]. The majority of their worries (68%) started before the therapy. *General anesthesia* was correctly defined by 24% of parents as a regulated degree of awareness, and 55% of parents were aware that it was a term for both conscious and unconscious sedation. These results vary from what we saw in our research, where only 34% of parents supported general anesthesia, and only 48% of parents expressed anxiety.

Only a tiny portion of Saudi Arabia's population obtains adequate medical treatment, even though between 4 and 8% of its population has grown handicapped over time [20]. 2.9% of Saudi Arabia's population lives with a severe kind of impairment, according to the General Authority for Statistics [20]. Therefore, thorough rules and policies are required to ensure that Saudis with special requirements may get dental treatment [20]. The p-value in this research is 0.282 for the inquiry, "Who attends a dental appointment with the child?" According to this, there is no statistically significant difference in the percentages of dads, mothers, and other companions accompanying children to dental visits. The answer to the query "When was the last visit?" has a p-value of 0.126.

Our study findings showed that almost half of the parents took their children for dental visits for regular checkups. However, a study by Shyama *et al.* (2015) showed that Toothache and curative treatment needs were the main reasons for dental visits among disabled children [21]. This

should be noticed, and the parents must be provided with adequate education towards the prevention and maintenance of the oral health of their disabled children.

In previous research, there was a correlation between children's ages and their answers to the question, "If your child is being treated under general anesthesia, what are you concerned about?" ($p < 0.05$). Younger children's postoperative suffering caused parents greater anxiety. Additionally, there was a significant ($p < 0.05$) association between children's sex and DGA worries. Parents specifically expressed increased worry for a girl kid. We found a strong correlation between prior GA history and parents' worries about pre-operative fasting requirements and hospital stay duration for children who had previously had GA ($p < 0.05$) [5].

The participants in the current research were then asked to indicate the challenges their kid encounters while visiting dentist offices. According to the replies, 22.4% of respondents said they were afraid, 40.8% indicated that their kids do not listen to them, 32% said their kids move about, and 4.8% said they had no problems. This research looked at parents' impressions of DGA for their children since pediatric dental care is a stressful experience for parents, particularly when it entails GA [11]. Parents who had previously had GA rated it as a vivid and painful experience, according to Aldossari *et al.* (2019) [12]. The majority of parents in this survey expressed worry about DGA. Two other studies showed that parents who sent their kids to the dentist under GA were anxious about the procedure and afraid of possible side effects. The least significant worries, such as postoperative discomfort and the need for intravenous lines, received the most answers.

The previous study's primary results included the difficulties and barriers that people with special needs face while trying to get dental care. Surveys carried out in far-flung areas could reveal more details about issues like remoteness and a lack of dental facilities. Additionally, more thorough research into the abilities of general dentists to serve patients with special needs has to be done. Additionally, we advocate for developing specialty or continuing education programs that instruct dentists in special care dentistry [18].

Additionally, several researchers claimed that children who received dental care under GA had positive psychological impacts [12, 22]. Aldossari *et al.* (2019) noted that Saudi children who had received dental care under GA were nonetheless more likely to have dental anxiety years later [12].

The p-value for the inquiry into kids' challenges when attending the clinic is 0.997. This strong p-value shows no discernible difference in the reported challenges boys and girls encounter while visiting dental clinics. The parent's presence during the induction of anesthesia did not,

however, reduce the parent's anxiety levels, according to earlier research [23]. In addition, parents in our research believed that seeing their children undergo pediatric DGA would make them feel less anxious. The frequency of autism is the greatest, at 13.6%. This indicates that 13.6% of the study's young participants were diagnosed with autism. A frequency of 0.8% is shared by cerebral palsy, intellectual impairment, hearing loss, and neurological conditions. This shows that 0.8% of the kids had the corresponding disability [23].

ASD research has already been conducted in Saudi Arabia, focusing on parents' perceptions, prevalence reports, risk factor identification, and proposed treatments at various levels [24-26]. Although these studies provide insight into the obstacles and difficulties faced by children with ASD and their caregivers, it is urgently necessary to pinpoint research gaps to identify the necessary points of intervention when formulating policies addressing the provision of care for children with ASD. Only 28.2% of kids with ASD attended the dentist in prior research, and only in extreme emergencies [27].

According to Al-Qahtani *et al.*'s research (2017), 40% of the sample size of children with impairments included had never been to the dentist [28]. Additionally, according to two studies, almost half of the participants (46.6% to 49.2%) had never been to the dentist [14], and Alsheri *et al.* discovered that tooth discomfort was the primary driver of dental clinic visits [29]. Distance, transportation challenges, an inadequate clinic atmosphere for patient treatment, medical conditions, a lack of medical insurance or coverage, a prior negative dental clinic experience, and a lack of time were among the common obstacles to dental care mentioned by caregivers [14].

With the exception of hand-over-mouth, all behavior control strategies investigated in this research had to mean parental approval ratings that were within the acceptable range. The third most preferable method was general anesthesia. In comparison to past research, this high degree of general anesthetic approval may indicate that parental acceptance of this method is rising [14].

Conclusion

- Parents hesitate to go for anesthesia-related treatment for their children.
- Their fear and anxiety also play a role in this hesitation.
- Parents must be educated and provided with counseling in order to improve their children's oral health.
- No significant comparison was found when comparing the study results based on the child's age and gender.

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