

Comparing knowledge and opinions of medical and dental students in the field of pediatric anesthesia

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ABSTRACT

Background and Purpose: Dental treatment under general anesthesia (GA) is one of the common treatment methods today for dental treatment in children, so dentists' point of view in this field is very important. Therefore, the purpose of this study was evaluation the awareness and attitude of pediatric dentists and final-year dental students about dental treatment for children under GA. **Methods:** To conduct this study, 150 people, including 75 general dentists (GD) and 75 final-year dental students (FYDS), were randomly selected in Tehran. In this study, a researcher-made questionnaire containing 15 questions (7 awareness questions and 8 attitude questions) was used to evaluate the awareness and attitude of the participants. After extracting the raw results, statistical analysis of the results was done using SPSS-Ver. 22 software. **Results:** 60% of the participants (90 people) were men and the remaining 40% (60 people) were women. The results showed that the level of awareness of male dentists was significantly higher than that of female dentists ($P = 0.015$). In addition, although the awareness level of FYDS was lower than GD, this difference was not statistically significant ($P = 0.130$). The average level of awareness among different age groups had a significant difference ($P = 0.009$), so the age group of 36-45 years compared to the younger age groups (25-35 years) and the older age groups (36-45 and 55 -46 years), had a higher level of awareness. **Conclusion:** According to the findings, it can be concluded that it is necessary to use appropriate educational methods to improve the level of awareness and attitude of children's dentists.

Keywords: Attitude, awareness, children, dental treatment, general anesthesia

Introduction

Children's oral and dental health and its improvement are one of the issues that has received little attention from families, doctors,

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and pediatricians.^[1] Many oral health problems, including dental caries, begin in childhood and can have a significant impact on children's development, general health, and quality of life.^[2] On the other hand, premature loss of milk teeth due to extensive caries causes problems of lack of space, malocclusion, and problems in the eruption of permanent teeth.^[3] With the increase in parents' awareness of dental treatments, attention to children's dental treatments and primary dental procedures has increased.^[4] But there are problems in controlling children's behavior and

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their fear of dental treatment, especially extensive treatments.^[5] The most important causes of fear in children are general fear, the child's age, and parents' fear of medical teeth.^[6]

The lack of cooperation and as a result the physical limitations of some children, in addition to reducing the accuracy and quality of work, will bring unpleasant psychological results for them.^[7] In addition, there are children with special medical needs such as communication disabilities, mental disabilities, physical limitations, movement limitations, behavioral disorders, and chronic medical conditions that require special therapeutic interactions in behavioral control techniques to perform dental work.^[8] Practical techniques include desensitizing patients, administering anti-anxiety drugs, immobilizing limbs, sedating the patient, and finally GA.^[9]

Dentistry under GA has a positive psychological effect on treated children and strengthens the positive attitude of parents and children toward oral health.^[10] It seems that after this type of treatment, the child can make changes in his behavior and life, such as increasing the number of times he brushes his teeth and reducing the consumption of high-sugar foods.^[11] Despite the high risk of side effects in GA, this method is recognized as a safe and reliable method in hospitals and operating rooms.^[12] The use of this method by pediatric dentists is increasing, and its popularity among parents has also increased over the last 30 years until today.^[13]

Several studies show that anesthetic effects in children for exposure to GA before the age of four increase the risk of cognitive problems and ADHD in children.^[14] In this regard, the number and frequency of anesthesia are also important. Surgery lasting less than 2 hours has no risk, but surgeries longer than three hours increase the likelihood of learning disabilities.^[15] GA should not be performed for some systemic diseases. From the perspective of parents, some factors such as the effects of anesthesia and fear of anesthesia are among the disadvantages of GA.^[4]

Treatment with GA has several advantages, including the efficiency and comfort of treatment, extensive treatment in one session, and the absence of unpleasant memories after dental treatment. Of course, this type of treatment is associated with problems such as child and parent stress during the treatment, and this method is also associated with spending money.^[16,17]

GA means reducing the patient's level of consciousness to such an extent that the senses (especially the sensation of pain) are inactive. This type of anesthesia is usually performed by injecting anesthetic into a vein or by inhaling the anesthetic through a mask in the operating room under the supervision of an anesthesiologist.^[18] GA is divided into four stages: induction, excitement, surgical anesthesia, and overdose. In addition, GA has five goals: analgesia, memory loss and surgery, immobility, loss of consciousness, and muscle relaxation.^[6,19]

Considering the importance of using the dental treatment method under general surgery for children and also increasing

the use of this method by pediatric dentists, the aim of this study was the evaluation of the awareness and attitude of pediatric dentists and final-year dental students about dental treatment for children under GA.

Materials and Methods

This study was conducted in Tehran, and the study population included general dentists and final-year dental students. To conduct this study, 150 people including 75 general dentists (GD) and 75 final-year dental students (FYDS) were selected by simple random sampling method. The required sample size of this study was estimated to be 150 people using the sample size estimation formula of previous similar studies and considering the confidence level of 95%.

Three universities of medical sciences were selected for questioning from FDYS, while for selection of GD, dentists' offices and clinics in Tehran were referred. One of the main criteria for choosing GD was having work experience related to pediatric dentistry, which was asked before handing over the questionnaires to the dentists. The questionnaire used in this study is based on the basics of the questionnaire used for the study of Keerthika and Mani (2021)^[20] and Eshghi *et al.* (2020)^[21] was designed and according to other similar studies in the past, the number of questions and their bases were changed. Finally, the final questionnaire for this study included the following topics:

1. Do you agree with GA dental treatment for children?
2. Are the case facilities also available for doing GA in your institution?
3. What is the minimum age of a child considered for GA?
4. What conditions lead to GA?
5. Which assessments are required when discharging a pediatric patient after GA?
6. What is the minimum number of teeth that require treatment to automatically qualify a patient for GA?
7. In which stage of GA do most oral injuries occur?
8. What is the minimum number of caregivers to accompany pediatric patients undergoing dental treatment under GA?
9. How to calculate the dose of GA given to a patient? From your point of view, how much can GA help in facilitating the work of dentists?
10. From your point of view, how much can GA help in better dental treatment?
11. Is the consent form completed by the parents before doing GA for their child?
12. Are the required explanations about GA provided to parents to reduce their stress?
13. Before GA, is the risk assessment of the teeth done before the operation?
14. Have you ever had a pediatric patient who needed dental treatment and suffered from GA?

The final designed questionnaire has 15 questions, which have 7 and 8 questions in the two parts of awareness and attitude, respectively. To facilitate data analysis, the 15 questions in the questionnaire were

divided into 5 areas: awareness of the target group of hospital dentistry, awareness of dental clinical strategies under GA, attitude towards GA, attitude towards GA costs, and attitude about the level of awareness. Parents were relative to GA. The content validity of the questionnaire was examined and finally approved by the opinion of 15 general dentists and children’s dental specialists. The reliability of the level of awareness questions was confirmed by the halving method and the attitude questions were confirmed by Cronbach’s alpha methods (with a coefficient equal to 0.88). The level of awareness of the participants was placed in three categories of favorable, unfavorable, and excellent awareness, and the answers to the attitude questions were “agree” and “disagree”

After completing the questionnaires, raw data were recorded in Excel and then entered into SPSS-Ver. 22 software. Descriptive statistics were used to evaluate the primary results. In addition, the statistical analysis of the results was done using the Chi-square test.

Result

In this study, 75 final year dental students (FYDS) and 75 general dentists (GD) participated. Based on the results, it was found that out of 150 participants, 33, 47, 41, and 29 people were in the age group of 25-35, 36-45, 46-55, and more than 55 years old, respectively. 60% of the participants (90 people) were men and the remaining 40% (60 people) were women. The results showed that 93.3% of the participants agreed with GA dental treatment method for children and 6.7% disagreed.

The results showed that the level of awareness of male dentists was significantly higher than that of female dentists ($P = 0.015$). In addition, although the awareness level of FYDS was lower than GD, this difference was not statistically significant ($P = 0.130$). The average level of awareness among different age groups had a significant difference ($P = 0.009$), so the age group of 36-45 years compared to the younger age groups (25-35 years) and the older age groups (36-45 and 46 -55 years), had a higher level of awareness [Table 1]. The results of the FYDS and GD attitude survey were presented in Table 2.

The results showed that 72% of GD and 64% of FYDS found the use of the GA method acceptable for dental services in terms of cost-benefit. In addition, 75.3% of GD and 86% of FYDS did not consider the level of parents’ awareness about dental treatment under GA to be adequate. The frequency distribution of the level of awareness related to the FYDS group on the Likert scale was obtained as Excellent (51.3%), middle (36%), and unfavorable (12.7%), while this amount for the GD group was equal to 46%, 30.7%, and 23.3% was obtained [Figure 1].

Among the participants, 46% stated that they would like to have their children’s dental treatment under GA. About 81.3% of FYDS had received their awareness about GA from their dental degree course and 94% had no personal experience at all. In addition, 75% of the participants in this study felt that they needed additional GA training to perform their daily exercises.

Table 1: The average awareness of participant about dental treatment under general anesthesia based on various variables

Variables	Average awareness	P
Gender		
Man	6.05±0.84	0.015
Woman	5.16±0.44	
Participant		
FYDS	6.17±0.32	0.130
GD	6.45±0.27	
Age group (year)		
25-35	5.22±0.65	0.009
36-45	6.36±0.54	
46-55	5.97±0.32	
>55	5.55±0.49	

Table 2: The average awareness of participant about dental treatment under general anesthesia based on various variables

Questions	Agree (%)	Disagree (%)
The use of GA leads to help dentists.	93.3	6.7
The use of GA leads to better dental treatment for children.	90.7	9.3
The use of GA is only due to the impatience of pediatric dentists.	31.5	68.5
GA should only be used if life is at risk.	23.3	76.7
Dental treatment under GA complies with medical ethics and professional ethics.	80.7	19.3
Dental treatment under GA is a safe procedure for children’s dentistry	73.3	26.7
All conditions and facilities related to dental treatment under GA are available in Iranian hospitals.	54	46
Dental treatment under GA is an accepted practice among parents of children and they have enough awareness about this treatment method.	48.7	41.3

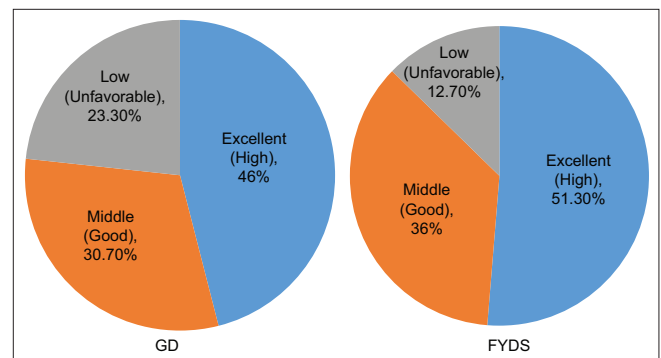


Figure 1: Frequency distribution of awareness level of final year dental students (FYDS) of general dentists (GD) about dental treatment under general anesthesia

Discussion

The method of dental treatment under GA for children is a method that is used day by day by children’s dentists and the use of this method is also increasing. For the use of GA in pediatric

dental treatment, several advantages have been mentioned, including that the treatment is completed in one session, the person is also free from pain, and most importantly, the child's cooperation is not required. It seems that dental treatment under GA for children has a positive psychological effect on the treated children and positively strengthens the views of parents and children regarding the importance of going to the dentist and also observing the principles of oral and dental health.^[21] In addition, it seems that this treatment method can cause changes in the behaviors related to oral and dental hygiene, including increasing the number of brushing teeth, reducing the consumption of foods full of sugar, and also taking more care of their own teeth.^[22] Considering the importance of using GA and creating inevitable stress for parents and children under treatment, it can be said that pediatric dental specialists play a very important and key role in referring children who need dental care under GA and also provide the necessary explanations for their parents. Therefore, it can be said that dental professionals have a very important role in discouraging or persuading parents to perform this treatment method for their children.^[21]

The results of the present study showed that among the participants, 12.7% of the FYDS group and 23.3% of the GD group had low and unfavorable awareness of the dental treatment method under GA. This result may be due to the fact that many pediatric dental professionals do not consider timid, anxious, stubborn, and uncooperative children to be the target group for dentistry under GA. According to those experts, only children with physical and mental disabilities need this treatment method.^[20,21] In addition, it seems that the level of awareness among pediatric dental specialists about the benefits of GA for pediatric dental treatment needs to be increased to avoid unnecessarily scaring parents who are concerned about the GA procedure for their children. Eshghi *et al.* (2020)^[21] investigated the awareness and attitude of 100 children's dental specialists regarding dental treatment under GA in Isfahan city, the results of this study showed that 53% of the participants about dental treatment under GA and 42% about clinical strategies Related to the mentioned treatment method, they had a favorable and excellent level of awareness, which is almost similar to the results of the present study.

The results of the present study showed that regarding dental treatment under GA, the level of awareness of men was higher than women, which is in agreement with the results of the study of Eshghi *et al.* (2020)^[21] is similar. Considering that men are probably more capable of dealing with anxiety than women, men are more interested in this treatment method and therefore have a greater desire to learn more and increase their awareness in this field. According to these results, it is necessary to increase the awareness of female dentists about this treatment method. The results of the present study showed that the level of awareness of the age group of 36-45 years was higher than other age groups, which is in agreement with the results of the studies of Eshghi *et al.* (2020)^[21] and Adair *et al.* (2007)^[23] is consistent. While in the study of Kaviani *et al.*^[24] (2013) reported that the level of awareness of dentists about the use of the GA method to control

dental anxiety is favorable and this issue is not related to the age of the doctor. The age group of 36-45 years due to the greater ability to control anxiety compared to younger ages and also possibly conducting more studies in the field of the above-mentioned treatment method, has caused the level of awareness of this age group to be higher than other age groups. Holding workshops and training sessions about this treatment method for all specialists of different age groups can significantly help in increasing the level of awareness and motivation of dental specialists.

The results of the present study showed that most of the participants examined in the present study had a positive attitude toward most of the categories related to dental treatment related to GA. Their main concern was related to the lack of facilities and conditions for performing this treatment method in hospitals, as well as the anxiety and worry of parents and the low acceptability of this treatment method by the parents of children. The negative attitude of some people related to the FYDS and GD groups, as participants in this study, can be due to the lack of sufficient awareness about the dental treatment method under GA and the possible complications of this treatment method. This wrong attitude in children's dentists can lead to incorrect advice from children's parents who are recommended to GA for a dental practice.^[25]

Among the participants, 19.3% of them did not consider the use of dental treatment methods under GA in accordance with professional ethics, and 23.3% of them did not consider this treatment method to be safe. This negative attitude is probably due to the lack of awareness about the necessity of using hospital dentistry in the target group and its related benefits. The lack of awareness of the real advantages and disadvantages of this treatment method has led to a negative attitude among children's dentists, which leads to a negative attitude of society and parents toward this treatment method.^[21]

About 90% of the participants of this study stated that the use of dental treatment under GA can facilitate the work of dentists and create a better process and speed up the treatment. This shows that dentists are inclined towards such a treatment method and this can make them more inclined to pursue this treatment method and learn more about it.

Almost half of the participants of this study believed that parents had an insufficient level of awareness about dental treatment under GA, and about half of the studied dentists believed that this treatment method was not acceptable for parents. This result shows that it is necessary to raise the level of awareness of society and parents about dentistry under GA through appropriate educational methods.

Conclusion

Based on the results of the present study, it can be concluded that almost half of the participants of present study, including general dentists and dental students, have little to moderate awareness of

dentistry under general anesthesia (GA). This issue has caused their attitude to be negative about some aspects of this treatment method. In addition, from the point of view of the dentists participating in the present study, the dental treatment method under GA has not been well accepted among the parents of children, and from their point of view, parents have insufficient awareness in this field. According to the findings, it can be concluded that it is necessary to use appropriate educational methods to improve the level of awareness of children's dentists and children's parents.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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