

Original Article

Autistic children's parents and hospital dentistry

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ABSTRACT

Background: It is difficult to perform dental procedures in autistic children, and parental involvement is necessary for successful hospital dental services. Therefore, in order to promote oral health in autistic children, this study was aimed to explore the knowledge, attitude, and performance of autistic children's parents with respect to hospital dentistry.

Materials and Methods: This cross-sectional study was conducted with the parents of 100 autistic children aged 2–6 years selected from among the children of Isfahan autism treatment centers. A self-administered questionnaire, including parental demographic information and 22 items on the assessment of knowledge, attitude, and performance of autistic children's parents regarding hospital dental procedures under general anesthesia, was completed by 100 parents. $P < 0.05$ was considered statistically significant. Data were analyzed by SPSS software using Chi-square test.

Results: A total of 100 parents of autistic children, with an average age of 37.4 ± 6.1 years, were recruited in this study. The results showed that 56%, 50%, and 3% of parents had poor knowledge about dental hospital services, dental complications, and hospital dentistry rules, respectively. Further, 51% of parents believed that general anesthesia was dangerous to their children. In addition, 69% of children had little or no cooperation with the dentist. There was also a significant relationship between the knowledge, attitude, and performance of autistic children's parents regarding hospital dentistry and the parents' age and sex.

Conclusion: This study showed that autistic children's parents had poor knowledge, attitude, and performance with respect to hospital dentistry.

Key Words: Autistic disorder, behavior control, child, dentistry, general anesthesia

Received: 28-Feb-2021
Revised: 15-May-2021
Accepted: 03-Jun-2021
Published: 10-Dec-2021

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INTRODUCTION

Autism is a mental illness defined as introversion or a type of depression in children. In the U.S., one out of 200 children suffers from autism.^[1] Research has shown that autistic children are not different from normal children in dental structures. However, tendency to eat sweet foods, weakness of muscles around the mouth, tendency to keep food bites in the

mouth for a longer time, inability in toothbrushing, failure to report tooth pain (due to verbal and communicative problems), dry mouths caused by anti-autism drugs, high frequency of vomiting, and attenuation of enamel increase the incidence of caries and gingival inflammation in these children.^[2-4] Jaber noted that dental caries was more prevalent in autistic children than in healthy children.^[5] Vishnu

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How to cite this article: Tahririan D, Shariati S, Nilchian F. Autistic children's parents and hospital dentistry. *Dent Res J* 2021;18:105.

Rekha *et al.* also indicated a higher prevalence of caries (24%) than other oral diseases in the autistic children aged <6 years.^[6]

The oral health of these children needs special attention due to lack of social communications, deficient learning, and speech disorder.^[7,8] Dental interventions are difficult to perform in autistic children.^[9] Many of these children do not like to be touched or cannot sit quietly in a dental chair for a long time.^[10] Marshall *et al.* reported that autistic 65% of autistic children had poor cooperation in a dental office.^[11] Therefore, they need to undergo general anesthesia or take sedatives during dental treatments.^[12] Jabarifar *et al.* and Kaviani *et al.* revealed that quality of life and fear were improved in autistic children in Isfahan after performing dental treatment under general anesthesia.^[13,14]

Hence, dental treatment is one of the challenges for families with autistic children.^[15-17] Parents have the main responsibility of establishing good oral health.^[18,19] Unfortunately, many parents do not have proper knowledge, attitude, and performance with respect to their autistic children's dental procedures.^[9,11,20] Kaviani and Fadaeei contend that it is necessary to provide people with more information about pharmaceutical methods of anxiety control during pediatric dental treatment.^[21] Razavi and Poortagi noticed that mothers had low acceptance of general anesthesia (33%) for dental treatments.^[22] de Castro *et al.* showed that autistic children's parents had poor acceptance of general anesthesia during dental treatments.^[9]

Therefore, given the high prevalence of oral problems of autistic children^[5] and scarcity of studies and information about hospital dentistry for these children, it is necessary to determine the rate of knowledge, attitude, and performance of autistic children's parents regarding hospital dentistry in order to promote their knowledge, attitude, and performance, and improve their autistic children's oral health. This study was conducted to investigate the knowledge, attitude, and performance of 2–6-year-old autistic children's parents with respect to hospital dentistry.

MATERIALS AND METHODS

This descriptive, cross-sectional study was carried out in the School of Dentistry, Isfahan University of Medical Sciences. A total of 100 parents who were willing to participate were recruited from among the parents

of 2–6-year-old autistic children at autism treatment centers of Isfahan, Iran. After referring to an autism center and making the required arrangements, the researchers randomly selected 100 children from among the 2–6-year-old autistic children. Having provided the required explanation for their parents, a parent of every child (either father or mother) was asked to complete a questionnaire related to their knowledge, attitude, and performance about hospital dentistry. Parents filled the written consent in order to use their data in the research. Parents who avoided responding to more than 20 questions or were unwilling to continue their cooperation in the project for any reason were excluded from the study and replaced.

Data were collected by a self-administered questionnaire, which was a translated and modified version of a similar questionnaire in Kuwait. It contained 22 items in three parts: knowledge (7 items), attitude (7 items), and performance (8 items). Its validity and reliability were confirmed, running Cronbach's alpha: 0.76 and kappa coefficient: 0.8.

For ease of data analysis, the 22 items of the questionnaire were classified into 9 categories: knowledge of hospital dental services, knowledge of hospital dentistry complications, knowledge of hospital dentistry rules, attitude toward hospital dental services, attitude toward hospital dental complications, parents' performance in hospital dentistry, presence and absence of the child's companion during dental treatment, reasons for referral to a dentist, and cooperation of the autistic child during dental treatments.

The validity of the questionnaire was analyzed and confirmed by 15 dental specialists. The reliability of the knowledge items was measured through the split-half method, attitude items through Cronbach's alpha, and performance items by using the test–retest method on 20% of sample population. The demographic data of the parents were also collected using a checklist. The parents' knowledge was classified into three categories of “very good,” “good,” and “poor.” Their attitude was assessed by 7 items with “yes,” “somewhat,” and “no” responses, and their performance was evaluated by 8 items. The collected data were fed into SPSS-23 software (Armonk, NY: IBM Corp.)

and analyzed for descriptive statistics, including frequency distribution and percentage, and inferential statistics, including *t*- and Chi-square tests.

RESULTS

A total of 100 autistic children's parents, with a mean age of 37.4 ± 6.1 , participated in this study. Their knowledge, attitude, and performance with respect to dental treatment under general anesthesia were investigated.

Of the participants, 56% had poor knowledge about hospital dental services, 50% had poor knowledge about hospital dental complications, and 3% had poor knowledge about general anesthesia rules [Table 1]. The difference between male and female parents' knowledge of hospital dental services was not statistically significant ($P = 0.132$), but mothers had better knowledge of hospital dental complications ($P = 0.007$) and fathers had better knowledge of general anesthesia rules ($P = 0.014$). The parents aged <30 years showed the highest percentage of good knowledge ($P = 0.000$), and those aged >40 years were the highest percentage with poor knowledge ($P = 0.002$) about hospital dental services and hospital dental complications, while those who aged 30–40 years showed the highest percentage of poor knowledge about general anesthesia rules ($P = 0.024$).

The results of the attitude of the autistic children's parents toward hospital dentistry are presented in Table 2. As for items 1 and 2, more fathers ($P = 0.035$) than mothers ($P = 0.041$) were agreeable, but the statistical distribution of other results indicated no significant difference between the parents by gender. The results of parents' attitudes by age showed statistically significant differences in most cases [Table 3].

Only 18% of the parents indicated that their children had undergone dental treatment under general anesthesia, 90% of whom were satisfied

Table 1: Frequency distribution of knowledge of autistic children's parents about different domains of hospital dentistry

Knowledge domain	Knowledge level	n (%)
Hospital dental services	Poor	56 (56)
	Good	30 (30)
	Very good	14 (14)
Hospital dental complications	Poor	50 (50)
	Good	34 (34)
	Very good	16 (16)
Hospital dentistry	Poor	3 (3)
	Good	49 (49)
	Very good	48 (48)

with the outcome of dental treatment under general anesthesia. Further, 89% of the parents reported that they always accompanied their children during their dental treatment, 93% preferred to stay with their children in the dental room, and the rest were not inclined to do so. Fathers were more inclined to accompany their children to dental clinics ($P = 0.000$), while mothers were more willing to stay with their children in the dental room ($P = 0.044$). In addition, parents aged 30–40 years had better performance in both of the mentioned domains ($P = 0.000$).

Regarding the reasons for referral to dentists, based on the autistic children's parents' reports, 53% of the children had been referred to a dentist for restorative services, 30% for oral examination, 14% for other services, and 3% for preventive services [Figure 1].

As for the cooperation of autistic children in dental treatments, based on the parents' reports, 41% had low, 28% had no, 17% had moderate, and 14% had high levels of cooperation with their dentist. Furthermore, for the feeling of autistic children in the dental office, according to their parent's reports, 46% of the children were anxious, 26% were scared, 19% were angry, and 9% were happy.

Of the parents who had referred to the hospital dentistry department for their autistic children, 66.7% had submitted written consent, 16.7% had consented orally, and 16.7% had consented.

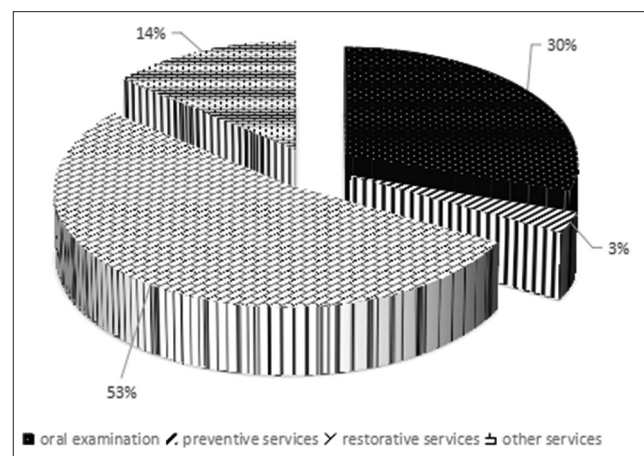


Figure 1: Frequency distribution of reasons for referral of autistic children's parents to dentist.

Table 2: Frequency distribution of attitude of autistic children's parents toward hospital dentistry

Question	Attitude		
	Yes (%)	Somewhat (%)	No (%)
1. I believe hospital dentistry is a conventional method for behavior control during dental treatment	34	41	25
2. I believe hospital dentistry is a safe and secure method for behavior control during dental treatment	33	41	26
3. I believe general anesthesia is necessary for providing dental services to my child	37	30	33
4. Do you think general anesthesia has a negative effect on your child?	31	38	31
5. Do you think general anesthesia is dangerous and has to be used a little?	51	29	20
6. Do you think dentists should use other methods of anesthesia rather than general anesthesia in the operation room?	60	25	15
7. Is general anesthesia is an acceptable method among Iranian Dental Society?	57	36	7

Table 3: Frequency distribution of attitude of autistic children's parents toward hospital dental services according to age

Questions number	Age range (year)	Yes, <i>n</i> (%)	Somewhat, <i>n</i> (%)	No, <i>n</i> (%)	<i>P</i>
1	>30	7 (70)	0	3 (30)	0.005
	30-40	24 (36.9)	25 (38.5)	16 (24.6)	
	<40	3 (12)	16 (64)	6 (24)	
2	>30	7 (70)	0	3 (30)	0.043
	30-40	20 (30.8)	28 (43.1)	17 (26.2)	
	<40	6 (24)	13 (52)	6 (24)	
3	>30	3 (30)	3 (30)	4 (40)	0.002
	30-40	31 (47.7)	21 (32.3)	13 (20)	
	<40	3 (12)	6 (24)	16 (64)	
6	>30	6 (60)	0	4 (40)	0.020
	30-40	36 (55.4)	18 (27.7)	11 (16.9)	
	<40	18 (72)	7 (28)	0	
7	>30	7 (70)	3 (30)	0	0.154
	30-40	41 (63.1)	20 (30.8)	4 (6.2)	
	<40	9 (36)	13 (52)	3 (12)	
4	>30	0	3 (30)	7 (70)	0.001
	30-40	19 (29.2)	32 (49.2)	14 (21.5)	
	<40	12 (48)	3 (12)	10 (40)	
5	>30	3 (30)	0	7 (70)	0.000
	30-40	30 (46.2)	29 (44.6)	6 (9.2)	
	<40	18 (72)	0	7 (28)	

DISCUSSION

Autistic children's parents play a key role in meeting the oral health requirements of their children. Convincing the parents that these children need hospital dental services and general anesthesia is highly important because it seems that parents' poor knowledge and performance and negative attitude lead to poor oral health and reduce the quality of life of their autistic children.

The results of the present study showed that autistic children's parents had poor knowledge about hospital dentistry and its complications because most of them had no information about the oral needs and hospital dental services of their children. This lack of knowledge prevented the parents from referring to

dentistry due to the uncooperativeness of their autistic children in dental treatments and consequently put their oral health at risk. The parents aged > 40 years had significantly more knowledge about these two domains, which might be due to their age and outdated information. Lack of knowledge and fear of hospital dental complications can be the cause of the parents' incorrect decisions. Our study also indicated that most parents had good and very good knowledge about hospital dentistry rules. Fathers had significantly more knowledge than mothers in this regard, which might be because of familiarity of men with legal issues in the society.

About two-thirds of the parents believed that the use of general anesthesia for dental treatment was not a common behavior control method of children,

was not safe, had negative complications, and was not an appropriate method for their children, so they preferred substitute methods. This attitude of the parents can be due to lack of knowledge about the target group of hospital dentistry and specific conditions of autistic children, incorrect information about the complications of general anesthesia, and lack of information about its advantages. It seems that this negative attitude is mostly due to fear of general anesthesia in children. The parents aged >40 years had significantly more negative attitudes than other age groups. de Castro *et al.* showed that autistic children's parents had a higher level of acceptance to use simple communicative techniques than general anesthesia to manage their children's behaviors during dental treatments.^[9] Razavi and Poortagi reported that general anesthesia had the lowest rate of acceptance among mothers,^[22] which confirms the results of our study. About half of the parents believed that hospital dentistry is an acceptable method for the Iranian Dental Society. This result indicates the necessity of promoting the knowledge of parents and society about hospital dentistry.

The negative attitude of autistic children's parents toward hospital dentistry leads to not meeting the pediatric dentistry needs and diminished oral health.

Despite the low percentage of parents who had used hospital dentistry for their autistic children, the majority of them (90%) were satisfied with the results of hospital dentistry. Poureslami *et al.* showed that more than 80% of parents were satisfied with this treatment modality.^[23] Eshghi *et al.* reported an above-average level of overall satisfaction with dental treatment under general anesthesia among more than 80% of parents,^[24] which is in line with our findings.

The present study showed a good performance for the autistic children's parents about the physical support and companionship of their children during dental treatments. This indicates the parents' knowledge of and sensitivity to the specific needs of these children. In this regard, mothers had a significantly better performance than fathers, indicating more support for autistic children on the part of mothers, and the fact that mothers bear more burdens with raising these children.

Most autistic children (53%) reported restorative services as a reason for dental referral, indicating the high prevalence of dental caries in autistic children. Only 3% of these children referred to a dentist to prevent oral diseases, which is a low rate. Owing

to the specific conditions of autistic children, which increased the incidence of caries and other oral diseases, and the difficult application of restorative treatments, it is highly important to prevent oral diseases in these children. Hence, it is essential to pay special attention to training programs for parents regarding preventive dental services. Jaber showed that the prevalence of dental caries was higher in autistic children than other children, possibly due to poorer oral health in these children,^[5] which confirms the results of our study. Further, Vishnu Rekha *et al.* reported that the prevalence of dental caries in the autistic children aged < 6 years was 24% higher than other oral diseases,^[6] which is in line with the findings of our study.

About 30% of the parents found their children uncooperative during dental treatment and about 40% found them low cooperative. This necessitates the use of advanced behavior control methods of these children during dental services. Marshall *et al.* reported poor cooperation of autistic children in dental offices,^[11] which supports our results of this study.

Approximately half of the parents described their children as anxious, scared, and angry during dental procedures, respectively. This is indicative of autistic children's high level of anxiety and fear of dental procedures and therefore their uncooperativeness. This result necessitates the use of behavior control methods of these children. Kaviani and Fadaeei found that dental fear was significantly reduced in children undergoing dental procedures under general anesthesia.^[21]

CONCLUSION

It should be noted that it was not possible to make an exact comparison between the results of this study and those of some other studies, due to the absence of similar domestic or international studies. Yet, the results of our study showed that most autistic children's parents had sufficient knowledge, relatively poor attitude, and inappropriate performance with respect to hospital dentistry. This is indicative of their lack of knowledge about the significance and necessity of general anesthesia for dental procedures when necessary. It seems essential to enhance the knowledge of autistic children's parents about general anesthesia and its indications, advantages of hospital dentistry for autistic children, and importance of counseling with parents of children requiring or

referral to hospital dentistry. Increasing the knowledge of parents in this regard can improve their attitude and therefore their performance. Improving the performance of parents in hospital dentistry can also promote the oral health of autistic children.

A limitation of this study was incorrect responses from the parents to the questionnaire items, which was compensated for by full justification for the interlocutors by the researcher. Future studies are suggested to investigate other possible factors, such as parents' education and job, the child's rank in the family, and etc., which are involved in the knowledge, attitude, and performance of autistic children's parents regarding hospital dentistry, because these factors can determine the etiology of poor knowledge, attitude, and performance of autistic children's parents with respect to hospital dentistry.

Acknowledgment

The authors would like to appreciate Mrs. Mansoureh Hematian, the manager of autism center, and the trainers of the center for their sincere cooperation in this study. All procedures performed in this study were in accordance with the ethical standards of the Research Committee of Medical University of Isfahan and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study. There is no conflict of interest for authors in this research.

Financial support and sponsorship

The financial support for conducting this study was provided by Isfahan University of Medical Science, Dental Research Center.

Conflicts of interest

The authors of this manuscript declare that they have no conflicts of interest, real or perceived, financial or nonfinancial in this article.

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