ORIGINAL RESEARCH PAPER

Dentistry

BARRIERS FOR PEDIATRIC DENTISTS IN TREATING CHILDREN WITH AUTISM SPECTRUM DISORDERS: AN ONLINE QUESTIONNAIRE-BASED SURVEY

KEY WORDS: special care dentistry, dental education, postgraduate training, autism spectrum disorders

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ABSTRACT

Background and objectives: Dentists managing patients with Autism Spectrum Disorder (ASD) require tailored behavior control and communication strategies for successful appointments, considering the neurocognitive and behavioral issues these patients present with. This study aims to investigate the difficulties that pediatric dentists have when treating children with ASD for dental issues. Responses to these queries would enhance our understanding of the practical and educational obstacles dentists face when dealing with patients with ASD. **Methodology:** 105 pediatric dentists were surveyed online to identify various challenges encountered in treating children with ASD. These challenges included the absence of established practice standards, the belief that ASD children exhibit disruptive behavior, and limitations in time or perceived competence in managing these patients. **Results:** 69% of pediatric dentists reported providing treatment to children with ASD, with 61% of them seeing 1-2 ASD patients annually. The average number of barriers endorsed by dentists treating children with ASD was slightly higher than those not treating ASD children, although this difference was not statistically significant (p= 0.146). Most participants concurred on the absence of practice guidelines for treating children with ASD as a barrier. **Conclusion:** Pediatric dentists who handle the treatment of these children, must undergo enhanced training to effectively address the behavioral difficulties presented by children with ASD.

INTRODUCTION

Autism Spectrum Disorder (ASD) is a complex neurodevelopmental condition characterized by challenges in social interaction, communication, and repetitive behaviours. While the exact cause of autism remains unknown, genetic or environmental factors contribute to autism incidence. To date, there is no cure for autism [1]. However, some behavioural, sensory and educational techniques as well as drug therapies have been found to improve the condition[2].

Children with ASD often experience oral health issues at higher rates compared to their neurotypical peers. These issues may include dental caries, periodontal disease, bruxism, and oral hypersensitivity. Additionally, sensory sensitivities and difficulties with communication can exacerbate dental anxiety and make it challenging for these children to receive proper dental care [3]. Due to difficulties with understanding verbal instruction dental treatment within a clinical setting can be challenging [2].

Pediatric dentists face numerous barriers when treating children with ASD. These barriers encompass both logistical and educational challenges. Logistically, there is a lack of established practice standards specifically tailored to managing the unique needs of ASD patients in the dental setting. Moreover, the perception that ASD children may behave disruptively during dental appointments can lead to apprehension among dentists and dental staff. Furthermore, time constraints and a perceived lack of expertise in handling ASD patients further compound these challenges.

According to the World Health Organization 2019 factsheet, one in every 100 children worldwide is diagnosed with ASD [4]. Raina et al. [5] conducted a two-phase study in Himachal Pradesh, India, screening 11,000 children aged one–10 years and found an ASD prevalence rate of 0.9 per 1000 using ISAA for initial screening followed by clinical evaluations. In the Indian context, where the prevalence of ASD is also significant, these barriers are particularly pronounced. Limited access to specialized care and resources, coupled with societal stigma and misconceptions surrounding ASD, pose additional hurdles for pediatric dentists in providing effective dental treatment to children with ASD in India. Addressing these barriers is important in ensuring that all children, regardless of neurodevelopmental status, receive equal access to quality dental care.

Therefore, the present study was conducted with the objective to investigate barriers in providing dental care for children with autism spectrum disorder for the pediatric dentists.

Methodology

This observational questionnaire-based, cross-sectional study was conducted in the Department of Pediatric Dentistry, H.P. Government Dental College and Hospital, Shimla. Prior ethical approval from the Institutional Ethical Committee was obtained. A 17-item self-administered questionnaire was developed and distributed online through various social media platforms. The validity of the questionnaire was confirmed with similar articles with some modifications [6,7,8]. The questionnaire was distributed among 105 randomly selected pediatric dentists from various parts of the country and consent from the participants was obtained along with the web-based questionnaire. Survey items included demographics, designation, years in practice, and setting in which training in ASD management, if any, was received. Perceived barriers to provide care to ASD children were assessed with 10 items. Potential barriers assessed were: Do not get these patients in my practice; ASD children are uncooperative; Lack of sufficient training to manage these children; Lack of practice guidelines to manage children with ASD; Behaviour management/treatment preparations take too long; Do not want to manage complex medical problems associated with ASD; Caregivers of ASD children are not reliable; Office staff is not trained; Psychological stress/physical burden experienced while treating ASD patients; and Practice is not set up for the treatment of ASD patients.

Data were entered into Microsoft Excel and analysed using IBM SPSS Statistics for Windows, Version 20 (IBM Corp., Armonk, N.Y., USA). Data was investigated for normality using the Kolmogorov - Smirnov test. The total perceived barriers were scored on a three-point Likert Scale (Zero-Disagree, One-Neutral, Two-Agree) that ranged from zero – 20 for each individual. The endorsed barriers were the number of barriers that was endorsed as a problem (Barriers scored as two or agree by dentists; with total endorsed barriers scores ranging from 10 - 20). The designation and the experience treating ASD patients were compared with perceived barriers using Chi-square test. Likewise, the difference in total perceived barriers score and number of endorsed barriers between the dentists who treat and do not treat ASD patients were analysed using Independent t-test. The level of statistical significance was determined at $p<0.05$.

RESULTS

Table 1: Characteristics of pediatric dentists in the study population

Characteristics (n = 105)		All Dentists (n = 105) n (%)	Dentists - Treat ASD		
			No [n=33, (31.4%)] n (%)	Yes [n=72, (68.6%)] n (%)	Chi-square test value (p-value)
Gender	Male	33 (31.4)	9 (27.3)	24 (33.3)	0.386 (0.535)
	Female	72 (68.6)	24 (72.7)	48 (66.7)	
Designation	2nd yr PG	34 (32.4)	25 (75.8)	9 (12.5)	42.741 (0.000*)
	Final yr PG	29 (27.6)	5 (15.2)	24 (33.3)	
	Senior Resident	14 (13.3)	1 (3)	13 (18.1)	
	Faculty	13 (12.4)	0	13 (18.1)	
	Private practitioner	15 (14.3)	2 (6.1)	13 (18.1)	
Experience of treating paediatric patients	1-5 yrs	77 (73.3)	32 (97)	45 (62.5)	14.047 (0.003*)
	5-10 yrs	13 (12.4)	0	13 (18.1)	
	10-15 yrs	10 (9.5)	1 (3)	9 (12.5)	
	>15 yrs	5 (4.8)	0	5 (6.9)	
If treated ASD patients: a)No. of patients per year	1-2	-	-	44 (61.1)	No statistics is computed because Treated pts with ASD is a constant
	3-4	-	-	17 (23.6)	
	5 or more	-	-	11 (15.3)	
b)Type/Spectrum of ASD patients treated	Mild	-	-	24 (33.3)	No statistics is computed because Treated pts with ASD is a constant
	Mild-Moderate	-	-	26 (36.1)	
	All severity	-	-	22 (30.6)	
Training Source for ASD Management	Experience in practice	47 (44.8)	2 (6.1)	45 (62.5)	31.726 (0.000*)
	Dental School	25 (23.8)	13 (39.4)	12 (16.7)	
	Residency/ Fellowship	22 (21)	10 (30.3)	12 (16.7)	
	CME	0	0	0	
	Others	0	0	0	
	None	11 (10.5)	8 (24.2)	3 (4.2)	

"*"- statistically significant

Table 1 outlines the demographic and professional characteristics of 105 dentists, divided into those who treat (68.6%) ASD patients and those who do not. A stark difference in designation was seen, with 75.8% of second year postgraduates not treating ASD patients, whereas senior residents (18.1%) and faculty members (18.1%) were more involved in treating the same. 61.1% respondents reported that they treated fewer than three patients with ASD per year.

Table 2: Relationship between perceived barriers and pediatric dentists treating/not treating ASD patients

Perceived Barriers		Dentists - Treat ASD		All Dentists (n=105) n (%)	Chi-square test value (p-value)
		No (n=33) n (%)	Yes (n=72) n (%)		
Do not get ASD pts in my practice	Disagree	19 (57.6)	57 (79.2)	76 (72.4)	5.280 (0.071, NS)
	Neutral	13 (39.4)	14 (19.4)	27 (25.7)	
	Agree	1 (3)	1 (1.4)	2 (1.9)	
ASD children are uncooperative	Disagree	7 (21.2)	16 (22.2)	23 (21.9)	1.441 (0.486, NS)
	Neutral	18 (54.5)	31 (43.1)	49 (46.7)	
	Agree	8 (24.2)	25 (34.7)	33 (31.4)	
Lack of sufficient training to manage these children	Disagree	1 (3)	10 (13.9)	11 (10.5)	3.892 (0.143, NS)
	Neutral	12 (36.4)	17 (23.6)	29 (27.6)	
	Agree	20 (60.6)	45 (62.5)	65 (61.9)	
Lack of practice guidelines to manage children with ASD	Disagree	2 (6.1)	11 (15.3)	13 (12.4)	2.832 (0.243, NS)
	Neutral	9 (27.3)	12 (16.7)	21 (20)	
	Agree	22 (66.7)	49 (68.1)	71 (67.6)	
Behaviour management/ treatment preparations take too long	Disagree	2 (6.1)	10 (13.9)	12 (11.4)	1.984 (0.371, NS)
	Neutral	9 (27.3)	23 (31.9)	32 (30.5)	
	Agree	22 (66.7)	39 (54.2)	61 (58.1)	
Do not want to manage complex medical problems associated with ASD	Disagree	23 (69.7)	42 (58.3)	65 (61.9)	1.270 (0.530, NS)
	Neutral	6 (18.2)	19 (26.4)	25 (23.8)	
	Agree	4 (12.1)	11 (15.3)	15 (14.3)	
Caregivers of ASD are not reliable	Disagree	19 (57.6)	46 (63.9)	65 (61.9)	0.979 (0.613, NS)
	Neutral	13 (39.4)	22 (30.6)	35 (33.3)	
	Agree	1 (3)	4 (5.6)	5 (4.8)	
Office staff is not trained	Disagree	6 (18.2)	11 (15.3)	17 (16.2)	0.181 (0.913, NS)
	Neutral	9 (27.3)	19 (26.4)	28 (26.7)	
	Agree	18 (54.5)	42 (58.3)	60 (57.1)	
Psychological stress/physical burden experiences while treating ASD patients	Disagree	6 (18.2)	16 (22.2)	22 (21)	0.600 (0.741, NS)
	Neutral	10 (30.3)	17 (23.6)	27 (25.7)	
	Agree	17 (51.5)	39 (54.2)	56 (53.3)	
Practice is not set up for the treatment of ASD patients	Disagree	7 (21.2)	26 (36.1)	33 (31.4)	8.097 (0.017*)
	Neutral	17 (51.5)	17 (23.6)	34 (32.4)	
	Agree	9 (27.3)	29 (40.3)	38 (36.2)	

"*"- statistically significant,"NS"- non-significant

Table 2 analyses the perceived barriers to treating ASD patients among pediatric dentists. Commonly perceived barriers included the lack of practice guidelines and lack of sufficient training to manage children with ASD. Majority respondents who treated ASD (40.3%) patients agreed that their practice was not set up for the treatment of such patients (p=0.017).

Table 3: Relationship between perceived barriers and designation of pediatric dentists

Perceived Barriers		Designation					All Dentists (n=105) n (%)	Chi-square test value (p-value)
		2nd yr PG student (n=34) n (%)	Final yr PG student (n=29) n (%)	Senior resident (n=14) n (%)	Faculty (n=13) n (%)	Private practitioner (n=15) n (%)		
Do not get ASD pts in my practice	Disagree	21 (61.8)	22 (75.9)	13 (92.9)	8 (61.5)	12 (80)	76 (72.4)	9.599 (0.294, NS)
	Neutral	12 (35.3)	7 (24.1)	1 (7.1)	5 (38.5)	2 (13.3)	27 (25.7)	
	Agree	1 (2.9)	0	0	0	1 (6.7)	2 (1.9)	
ASD children are uncooperative	Disagree	8 (23.5)	4 (13.8)	3 (21.4)	2 (15.4)	6 (40)	23 (21.9)	12.600 (0.126, NS)
	Neutral	17 (50)	14 (48.3)	7 (50)	3 (23.1)	8 (53.3)	49 (46.7)	
	Agree	9 (26.5)	11 (37.9)	4 (28.6)	8 (61.5)	1 (6.7)	33 (31.4)	
Lack of sufficient training to manage these children	Disagree	3 (8.8)	1 (3.4)	2 (14.3)	2 (15.4)	3 (20)	11 (10.5)	9.263 (0.321, NS)
	Neutral	11 (32.4)	9 (31)	6 (42.9)	1 (7.7)	2 (13.3)	29 (27.6)	
	Agree	20 (58.8)	19 (65.5)	6 (42.9)	10 (76.9)	10 (66.7)	65 (61.9)	
Lack of practice guidelines to manage children with ASD	Disagree	2 (5.9)	3 (10.3)	2 (14.3)	2 (15.4)	4 (26.7)	13 (12.4)	9.120 (0.332, NS)
	Neutral	10 (29.4)	4 (13.8)	1 (7.1)	2 (15.4)	4 (26.7)	21 (20)	
	Agree	22 (64.7)	22 (75.9)	11 (78.6)	9 (69.2)	7 (46.7)	71 (67.6)	
Behaviour management/treatment preparations take too long	Disagree	1 (2.9)	2 (6.9)	6 (42.9)	1 (7.7)	2 (13.3)	12 (11.4)	28.064 (0.000*)
	Neutral	8 (23.5)	15 (51.7)	3 (21.4)	1 (7.7)	5 (33.3)	32 (30.5)	
	Agree	25 (73.5)	12 (41.4)	5 (35.7)	11 (84.6)	8 (53.3)	61 (58.1)	
Do not want to manage complex medical problems associated with ASD	Disagree	22 (64.7)	20 (69)	10 (71.4)	5 (38.5)	8 (53.3)	65 (61.9)	8.527 (0.384, NS)
	Neutral	8 (23.5)	7 (24.1)	1 (7.1)	4 (30.8)	5 (33.3)	25 (23.8)	
	Agree	4 (11.8)	2 (6.9)	3 (21.4)	4 (30.8)	2 (13.3)	15 (14.3)	
Caregivers of ASD are not reliable	Disagree	20 (58.8)	18 (62.1)	10 (71.4)	6 (46.2)	11 (73.3)	65 (61.9)	7.648 (0.469, NS)
	Neutral	12 (35.3)	11 (37.9)	3 (21.4)	5 (38.5)	4 (26.7)	35 (33.3)	
	Agree	2 (5.9)	0	1 (7.1)	2 (15.4)	0	5 (4.8)	
Office staff is not trained	Disagree	8 (23.5)	4 (13.8)	1 (7.1)	2 (15.4)	2 (13.3)	17 (16.2)	6.115 (0.634, NS)
	Neutral	10 (29.4)	8 (27.6)	2 (14.3)	5 (38.5)	3 (20)	28 (26.7)	
	Agree	16 (47.1)	17 (58.6)	11 (78.6)	6 (46.2)	10 (66.7)	60 (57.1)	
Psychological stress/physical burden experiences while treating ASD patients	Disagree	5 (14.7)	7 (24.1)	4 (28.6)	2 (15.4)	4 (26.7)	22 (21)	4.590 (0.800, NS)
	Neutral	12 (35.3)	6 (20.7)	3 (21.4)	2 (15.4)	4 (26.7)	27 (25.7)	
	Agree	17 (50)	16 (55.2)	7 (50)	9 (69.2)	7 (46.7)	56 (53.3)	
Practice is not set up for the treatment of ASD patients	Disagree	7 (20.6)	11 (37.9)	6 (42.9)	4 (30.8)	5 (33.3)	33 (31.4)	12.196 (0.143, NS)
	Neutral	15 (44.1)	9 (31)	6 (42.9)	1 (7.7)	3 (20)	34 (32.4)	
	Agree	12 (35.3)	9 (31)	2 (14.3)	8 (61.5)	7 (46.7)	38 (36.2)	

"*"- statistically significant,"NS"- non-significant

Table 3 further explores how perceived barriers differed across various designations of pediatric dentists. Significant barrier across all designations included statement "Behaviour management/treatment preparations take too long"(p=0.000).

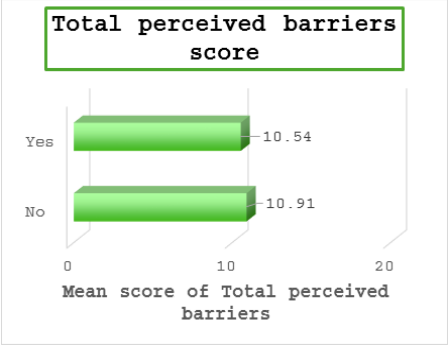

Figure 1: Total perceived barriers score between general dentists treating/not treating ASD patients

Figure 1 shows no significant difference in the total perceived barriers score between dentists who treat ASD patients and those who do not. This suggests that the decision to treat ASD patients may not be greatly influenced by perceived barriers but could be affected by other factors also.

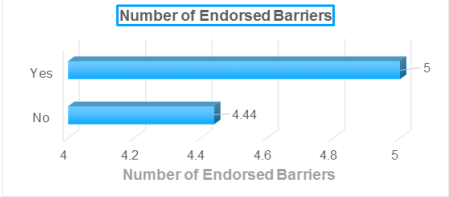

Figure 2: Number of endorsed barriers between pediatric dentists treating/not treating ASD patients

Similar to figure 1, figure 2 shows that there is no significant difference in the number of barriers endorsed (scored as 'agree') between those who treat and those who do not treat ASD patients. This further supports the notion that while barriers exist, they do not significantly deter dentists from treating ASD patients.

DISCUSSION

The result of this study throws light on the barriers faced by pediatric dentists in treating children with ASD. In the present study, 31.4% of the pediatric dentists reported not treating any patients with ASD, while 68.6% reported treating these children. This is a notably large percentage of dentists who provide care for children with ASD, significantly higher than the percentage reported by general dentists in an earlier study [9].

The current study revealed that dentists treating children with

ASD only slightly more often reported barriers compared to those who do not treat ASD patients, a difference that was not statistically significant.This minimal variation can be linked to two main reasons. Firstly, the dentists surveyed treated a relatively small number of ASD patients annually, typically fewer than three, indicating limited exposure to the ASD demographic. Secondly, only about one-third of the participating pediatric dentists dealt with ASD patients of mild to moderate severity, who generally require less intensive behavioural management compared to those with severe conditions. Therefore, these dentists might not view treating ASD children as very challenging, leading to a view of fewer barriers in providing care. This result was similar to previous research carried out by Taneja et al. (2021) [6] on a population of Connecticut based general dentists.

The barriers, primarily centred around insufficient training, lack of specialized practice set ups, and the sensed complexity of medical and behavioural needs associated with ASD, highlight significant gaps in current pediatric dental practice and education. Training in caring for special needs patients seems to be inadequate in dental students [10]. The findings align with previous research, which also identified similar barriers in the dental treatment of children with special needs. Adyanthaya et al. (2017) [8] emphasized a lack of adequate training and resources as major obstacles in providing care to children with special needs in Kerala, India. Similarly, Salama et al. (2011) [11] reported that the personal comfort and training of healthcare providers play a crucial role in their willingness to treat patients with special needs in Nebraska. Like these studies, our results highlight training deficiencies as a key barrier to effective ASD patient management. Research findings by Stein et al. (2013) [12] demonstrated that targeted training significantly improves provider attitudes towards children with ASD. This supports the need for integrated ASD-specific modules within dental education curricula to enhance both competence and confidence among practicing dentists.

The importance of the practice set up in managing ASD patients has been well documented. According to Cumella et al. (2000), [13] adapting physical spaces to the needs of ASD patients can significantly reduce behavioural incidents and facilitate treatment. Our study adds to this narrative by highlighting that non-specialized environments can heighten perceived barriers, suggesting an urgent requirement for adaptations like Sensory Adapted Dental Environments (SADE) [3] to make dental settings more accommodating for ASD patients.

Very little is known about the actual perceptions of dental staff in regard to their expertise or psychological distress or physical burden, or in regard to their attitudes towards their daily work in dental practices, regardless of whether these are general practices or practices with a focus on paediatric and adolescent dentistry [14,15]. Addressing the psychological and physical stress on dentists, Chang and Chou (2012) [16] found that practitioners with access to supportive resources and peer consultations felt less stressed and more equipped to handle challenging patient populations. This emphasizes the need for comprehensive support systems within clinical settings to mitigate stress and promote a more inclusive approach to dental care.

The complexity of treating ASD patients warrants further research into comprehensive interventions. Future studies should explore the effectiveness of training programs, the impact of changing dental set up, and the role of support systems in reducing dentist stress. Longitudinal research could also assess how these factors influence the quality of care over time. One way to increase the number of dentists who will provide care to ASD children is through establishing a set of practice guidelines. There are no published guidelines from the American Academy of Pediatric Dentistry (AAPD) or the American Dental Association (ADA) establishing gold standard techniques on this topic. Efforts to establish standard guidelines and research in testing various behavioural strategies for ASD patients in the dental setting would be an important step toward improving care for this population [6].

CONCLUSION

Our study highlights the critical gaps in training and resources for pediatric dentists treating ASD patients. By addressing these barriers through improved educational programs and practice adaptations, the dental care community can better cater to the unique needs of ASD patients. This will not only improve care quality but also ensure broader access to dental services for this underserved population.

In addition, the experience and designation of the dentist play a crucial role in their willingness and capability to treat ASD patients, emphasizing the need for targeted training and resources at all levels of professional development to reduce these barriers effectively.

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