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Original Article

Knowledge, Confidence & Experience of Dental Professionals in Treating Patients with Autism Spectrum Disorder

Aiman Niaz*, Brekhna Spogmay, Zeenat Hadi, Ruqayya Sana, Huzaifa Rafi

Sardar Begum Dental College, Peshawar, Pakistan

*Corresponding Author

Aiman Niaz

aiman.niaz57@gmail.com

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Abstract

Objective: To assess the knowledge, self-perceived confidence, and experiences of dental professionals in managing patients with autism spectrum disorder (ASD).

Methodology: A mixed-methods study was conducted among 384 dental professionals at Sardar Begum Dental College, Peshawar. Participants were selected using a simple convenience sampling technique. Data were collected using a semi-structured questionnaire that included both closed-ended and open-ended items. Closed-ended questions assessed knowledge and self-perceived confidence in managing patients with ASD, while open-ended questions explored participants' experiences and perceived challenges. Quantitative data were analyzed using descriptive statistics to report percentages for categorical variables. Thematic analysis of qualitative responses was conducted using Braun and Clarke's framework.

Results: More than half of the respondents (64.9%) reported never having interacted with a patient diagnosed with ASD. Overall, respondents demonstrated a moderate level of knowledge about the condition. Notably, 34.8% of dentists expressed no confidence in treating children or adults with ASD. Challenges related to patient compliance and communication were identified as significant barriers to providing effective dental care for individuals with ASD.

Conclusion: Most dentists reported limited experience in treating patients with ASD, demonstrated moderate understanding of the condition, and expressed low confidence in managing their care. Common challenges included communication barriers and lack of adequate training.

Keywords: Autism Spectrum Disorder, Dental professionals, Knowledge, Confidence, Communication barriers.

Introduction

Autism Spectrum Disorder (ASD) is a complex neurodevelopmental disorder marked by persistent difficulties in social interaction, communication, and behavior.[1] The etiology of autism is not yet known but it is thought to be a combination of neurological, genetic and environmental factors, leading to a diverse range of experiences and challenges.[2] The prevalence of autism is increasing worldwide, and there is evidence suggesting that it is not influenced by geographic, ethnic, or cultural differences.[3] About 1 in every 68 children in United States is diagnosed with ASD.[4]

The link between ASD and oral health is complicated. It is influenced by factors such as sensory sensitivities, behavioral issues and communication imapirments.[5] Individuals with autism frequently experience sensory processing difficulties, which can involve heightened or diminished responses to sensory stimuli in their environment.[4] Difficulties with social interactions, resistance to change, and limited manual dexterity can make it challenging for parents and caregivers to teach and implement effective oral hygiene routines in children with autism. If oral hygiene practices are not part of a child's established daily routine or are performed inconsistently by different caregivers, the child may resist due to their aversion to change.[6]

Evidence states that people who suffer from ASD, across all age groups have a higher prevalence of oral health diseases. The most common oral diseases are dental caries and periodontal problems.[7] Other most commonly reported oral diseases in these individuals are dry mouth, non-nutritive chewing and self-inflicted injury etc.[8] Additionally people with ASD are more likely to suffer from gingival problems, tooth injury and other oral health problems such as lip biting, tongue thrusting and bruxism.[5] People with autism may find dental visits stressful due to factors such as sensory sensitivities to light, noise, and touch, as well as challenges with social interactions and communication. These factors can lead to anxiety, behavioral outbursts, and difficulty cooperating with dental procedures.[9] Effective dental care for children with ASD demands specialized training, a comprehensive understanding of the disorder, and the application of appropriate behavioral management strategies. In certain cases, protective stabilization, sedation, or general anesthesia may be required to facilitate dental treatment.[10] Although sedation and restraint may be necessary for certain dental procedures in individuals with ASD, they are not without risks. Pharmacological sedation can be expensive and may have adverse health effects, while physical

restraint can lead to psychological and physical trauma, particularly in individuals with intellectual disabilities.[11]

Considering the increased prevalence of oral health issues among individuals with ASD, it is essential for dental professionals to be adequately trained to address their specific needs. This study aimed to assess the knowledge, confidence, and experience of dental professionals in managing patients with ASD.

Methodology

A mixed-methods study was conducted on-site among 384 dental professionals at Sardar Begum Dental College, Peshawar, using convenience sampling. Data was collected through a semi-structured, self-administered questionnaire comprising both closed-ended items (quantitative) and open-ended questions (qualitative). Data collection was initiated after obtaining ethical approval from the ethical review board of Gandhara University (Certificate No GU/2024/157). The sample size was calculated assuming a 50% proportion, a 5% margin of error, and a 95% confidence level. A total of 384 dental students and practitioners participated in this study. The study population comprised faculty members, house officers, trainee medical officers, and clinical year dental students. Faculty members from the basic sciences department who were not engaged in clinical practice were excluded from this investigation. Participants were recruited in this study via simple convenience sampling technique. Informed written consent was obtained from each participant. Data was collected by means of a self-administered semi-structured questionnaire adapted from a study conducted in the United Kingdom.[12] The questionnaire was reviewed by subject experts for content validity, cultural relevance, and clarity, and no modifications were made. In the first section, demographic information such as gender, designation, age and years of clinical experience was obtained from them. In the second section, assessment of participants' knowledge in treating an individual with autism was done. Participants were required to respond to a series of dichotomous (true/false) items. Each correct response was assigned one point. The aggregate score of correct responses served as an indicator of knowledge of autism. Knowledge was assessed using a 14-item questionnaire with true/false statements regarding common facts and misconceptions about ASD. Each correct answer was awarded one point, while incorrect or unanswered items received zero points. Thus, the total possible score ranged from 0 to 14. A mean score was calculated across participants, with a higher score indicating better knowledge.

In the third section, participants were asked to rate their level of confidence in eight specific areas related to the treatment of patients with autism. A 7-point Likert scale was used, ranging from 1 (not at all confident) to 7 (extremely confident). Frequencies for each confidence level were reported per item, but no composite score was calculated due to the variability across dimensions of confidence.

Experience was assessed through quantitative measures (frequency and nature of contact with ASD patients) and qualitative exploration using open-ended questions. Participants were asked to list specific techniques they employed when treating patients with autism and to describe their successes, challenges, and overall experiences in working with this patient population. The data was entered and analyzed using SPSS version 26. Frequency tables and percentages were generated for the categorical variables. To analyze the qualitative data, thematic analysis was employed. This involved a systematic approach based on the framework outlined by Braun and Clarke. An inductive approach was adopted, enabling the identification and description of emergent themes directly from the data set.

Results

The mean age of the participants was 24.25 + 3.36 years. The demographic information of the participants is shown in Table 1. Approximately 12.3% of dentists had contact with children with ASD, 7.4% with adults with autism, and 15.4% with both adults and children. Over half (64.9%) of dentists indicated they had never encountered an autistic patient.

Table 1: Demographic nformation of the Participants

Demographic Information	Percentage (n)
Gender	
Male	45.7 (175)
Female	54.3 (209)
Practice setting	
Private teaching hospital	94.6 (363)
Both hospital and private clinic	5.4 (21)
Qualification	
BDS	52.6 (202)
Postgraduate	1.4 (5)
Final year student	33.1 (127)
3rd year student	12.9 (50)
Years of practice	
Less than one year	58.6 (225)
1–3 years	28.9 (111)
3–6 years	11.4 (44)
6–10 years	0.3 (1)
More than 10 years	0.9 (3)
Department	
OPD	8.9 (34)
Periodontics	7.4 (28)
Pedodontics	7.1 (27)
Operative dentistry	10.6 (41)
Oral & Maxillofacial surgery	21.7 (83)
Prosthodontics	26.9 (103)
Orthodontics	17.4 (67)

Table 2: Knowledge Assessment of Dental Professionals about ASD

Statement	Correct Response (True/False)	Percentage of Correct Responses (n)
People with autism can be interested in social interaction.	True	43.7 (168)
Independent living is not possible for autistic people.	False	42.9 (165)
People with autism feel no empathy or affection.	False	70.3 (270)
A lack of eye contact is necessary for a person to be considered autistic.	False	50 (192)
Autism cannot be diagnosed in adulthood.	False	70.9 (272)
Most people with autism also have intellectual disabilities.	False	43.7 (168)
Females are more difficult to diagnose with autism than males.	True	50.3 (193)
People with autism always display challenging behaviors.	False	26.6 (102)
Autistic people have difficulty with non-literal language and non-verbal communication (e.g. body language and gesture).	True	74.6 (286)
Additional mental health conditions (e.g. anxiety, depression) are more prevalent in individuals diagnosed with autism than in the general population.	True	72.9 (280)
People with autism can show unusual reactions to sensory experiences (e.g. lights, touch, sounds etc.).	True	78.6 (302)
Autistic people are more prone to interpersonal violence than non-autistic people.	False	33.1 (127)
Change in routine and uncertainty are often upsetting for autistic people.	True	78.9 (303)
More than half of people diagnosed with autism do not talk.	False	44.0 (169)

The average knowledge score of the participants was 7.8 out of 14 which shows a moderate level of knowledge.

Table 3: Confidence Levels of Dental Professionals in Managing Patients with ASD

Statement	**1 (Not at all confident)**	**2**	**3**	**4 (Somewhat confident)**	**5**	**6**	**7 (Extremely confident)**
Recognizing autism in children (%)	27.7	9.1	10.3	40.5	4.8	1.7	5.7
Recognizing autism in adults (%)	20.8	14.0	15.4	31.9	7.1	4.6	6.3
Treating autistic children (%)	34.8	14.5	12.3	25.6	4.3	2.0	6.3
Treating autistic adults (%)	34.8	13.4	10.9	24.3	7.1	2.6	6.9
Finding guidance on autism care (%)	23.1	12.0	10.3	36.8	8.3	2.8	6.9
Knowing treatment adjustments (%)	25.9	14.0	11.4	29.9	6.6	5.4	6.8
Making practice adjustments (%)	27.8	9.7	10.0	32.5	6.0	3.1	10.9
Knowing local autism services (%)	27.7	9.4	10.0	33.3	5.7	2.6	10.5

The overall distribution of responses indicated low confidence across most domains in treating adults and children with ASD.

Two main themes emerged from the open-ended responses, as illustrated in Figure 1: (1) Techniques for managing patients with ASD, and (2) Experiences of dental professionals in treating these patients.

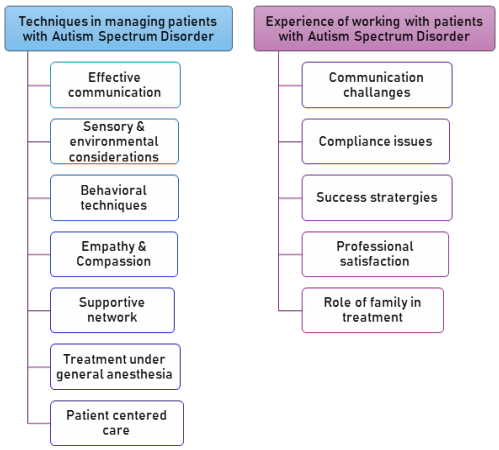

Figure 1: Themes and Sub-Themes Identified from Open-Ended Responses on Techniques and Experiences in Managing Patients with Autism Spectrum Disorder

In describing techniques for successful dental visits, respondents emphasized communication tailored to the patient's needs, including sign language, verbal counseling, and engaging the patient during procedures. Many highlighted the value of sensory-friendly environments—such as dimmed lighting and reduced noise levels. As one participant shared:

"No noise, no direct light on eyes, calming down the patient before seating on dental unit." (Participant 05)
Behavioural strategies like tell-show-do, pre-visit orientation, and psychological support were frequently mentioned. Dentists also underscored the importance of empathy, patience, and personalized care.

"Learn what makes them comfortable, talk to them in a way that most of society doesn't, make them feel like they are normal." (Participant 69)
Family involvement was seen as vital, offering emotional support and assisting with communication. Some dentists felt that in uncooperative cases, treatment under general anesthesia might be necessary.

The second theme focused on practitioners' experiences. Many reported challenges stemming from communication barriers, non-compliance, and the time-intensive nature of care. Others cited insufficient training and financial limitations. Still, several professionals described a deep sense of fulfillment in treating patients with ASD.

"Treating these patients requires education of the whole family." (Participant 105)

Discussion

This study was conducted to assess the knowledge, confidence and experience of dental professionals and clinical dental students in managing a patient with ASD. In this study, more than half of the dentist had never examined a patient suffering from ASD. While only 12.3% of the participants had dealt with a child suffering from autism in their dental setting. This is in contrast to a study conducted in United States, in which around 74% of the dental professionals stated that they have treated a child suffering from ASD.[13] Furthermore, a study conducted in Turkey stated that only 52.2% of the dentists had examined or treated individuals with ASD. The significant disparity in experience treating ASD patients between the regions highlights a need for increased training and awareness among dental professionals in Pakistan.[14] This discrepancy may be due to variations in ASD prevalence, healthcare systems, cultural attitudes, and access to specialized care.

The average knowledge score of 7.8 out of 14 indicates a moderate level of understanding among the participants regarding the topic. This suggests that while participants possess some knowledge, there is potential for further improvement and deeper understanding of the subject matter. However, a study conducted in United Kingdom using the same scale for assessment of knowledge reported that dental professionals had good knowledge about ASD.12 In this study, approximately 50.3% of participants correctly identified that females are more difficult to diagnose with ASD. Similarly, a study conducted in Saudi Arabia found that more than half of the dentists surveyed also responded correctly to this statement.[15]
A significant number of dentists, approximately 34.8%, expressed a complete lack of confidence in their ability to treat individuals with ASD. This lack of confidence highlights a significant gap in the dental profession's preparedness to care for this vulnerable population. Only 6.8% of dentists in our study were extremely confident that they knew what adjustments could be made to facilitate treatment for people with autism. This finding mirrors the results of a Turkish study, where only 4.8% of dentists were aware of special arrangements for individuals with ASD.[14] These results collectively highlight a significant gap in the knowledge and skills of dental professionals regarding the treatment of patients with autism.

The use of a sensory friendly dental setup in which lights and noise are minimized was recommended as a technique for managing patients with ASD. Evidence shows that sensory adapted dental setup affects patients in a positive way.[16]

Dental professionals in our study suggested that general anesthesia may be necessary for patients with ASD due to their uncooperative behavior during treatment. This aligns with findings from another study, which reported that behavioral challenges in individuals with ASD often require general anesthesia to facilitate dental procedures.[17] These findings reflect a gap in non-invasive management strategies, emphasizing the need for further development of desensitization techniques and specialized training for dental professionals to reduce reliance on general anesthesia. Participants highlighted the importance of effective communication, empathy, patient-centered care, and active family involvement in achieving successful dental outcomes for individuals with ASD. These factors help build trust, alleviate anxiety, and create a supportive clinical environment. The findings underscore the value of a collaborative approach that combines professional skills with the support of the patient's family.

Limitations

This study was limited to a single dental teaching hospital, potentially limiting the generalizability of the findings. Future research should include data from a wider range of dental settings, such as dental clinics and more dental teaching hospitals. Additionally, a non-probability sampling technique was used in this study which further limits the generalizability of the results.

Conclusion

Most dentists reported having limited experience in treating patients with ASD, along with moderate knowledge and low confidence in managing their care. Common challenges include insufficient training, time constraints, and communication barriers. To address these, it is recommended that dental school curricula and continuing education programs incorporate training on ASD management, communication strategies, and caregiver collaboration.

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References

1. Hodges H, Fealko C, Soares N. Autism spectrum disorder: definition, epidemiology, causes, and clinical evaluation. Translational pediatrics. 2020;9(1):S55. Doi:10.21037/tp.2019.09.09.

2. Singhi P, Malhi P. Early Diagnosis of Autism Spectrum Disorder: What the Pediatricians Should Know. Indian Journal of Pediatrics. 2023;90(4):364-368. Doi:10.1007/s12098-022-04363-1.

3. Omer R, Mohamed N, Peck C. Oral health practices and challenges facing parents of autistic children in the Western Cape (2021). Pediatric Dental Journal. 2024 ;34(2):55-61.

4. Chistol LT, Bandini LG, Must A, Phillips S, Cermak SA, Curtin C. Sensory Sensitivity and Food Selectivity in Children with Autism Spectrum Disorder. Journal of Autism Developmental Disorders. 2018;48(2):583-591. doi:10.1007/s10803-017-3340-9.

5. Sami W, Ahmad MS, Shaik RA, Miraj M, Ahmad S, Molla MH. Oral Health Statuses of Children and Young Adults with Autism Spectrum Disorder: An Umbrella Review. Journal of Clinical Medicine. 2023;13(1):59. Doi: 10.3390/jcm13010059.

6. Mansoor D, Al Halabi M, Khamis AH, Kowash M. Oral health challenges facing Dubai children with Autism Spectrum Disorder at home and in accessing oral health care. European Journal of Pediatric Dentistry. 2018;19(2):127-133. Doi:10.23804/ejpd.2018.19.02.06.

7. Bernath B, Kanji Z. Exploring barriers to oral health care experienced by individuals living with autism spectrum disorder. Canadian Journal of Dental Hygiene. 2021;55(3):160.

8. Shanmugam J, Ganapathy D. Evaluation of oral hygiene, caries and malocclusion status among children with autism. Annals of the Romanian Society for Cell Biology. 2021;25(3):2562–9.

9. Thomas N, Blake S, Morris C, Moles DR. Autism and primary care dentistry: parents' experiences of taking children with autism or working diagnosis of autism for dental examinations. International Journal of Pediatrics and Dental. 2018;28(2):226-238. Doi:10.1111/ipd.12345.

10. Radovic I, Juloski J, Josic U, Beloica M, Kosanovic D. Oral health difficulties in children and adolescents with autism spectrum disorder: Parental perception. Srpski Arhiv Za Celokupno Lekarstvo. 2018;146(11–12):624–8.

11. Elmore JL, Bruhn AM, Bobzien JL. Interventions for the Reduction of Dental Anxiety and Corresponding Behavioral Deficits in Children with Autism Spectrum Disorder. Journal of Dental Hygiene. 2016;90(2):111-120.

12. Eades D, Leung P, Cronin A, Monteiro J, Johnson A, Remington A. UK dental professionals' knowledge, experience and confidence when treating patients on the autism spectrum. British Dental Journal. 2019;227(6):504-510. Doi:10.1038/s41415-019-0786-5.

13. Taneja N, Litt M D. Barriers for dentists in treating children with autism spectrum disorder. Journal of South Asian Association of Pediatric Dentistry. 2020;3(2);66.

14. Peker İ, Bağcı N, Güner Ö. Awareness, experience, and knowledge of dentists towards dental practices in individuals with autism spectrum disorder. Journal of Stomatology. 2024 ;77(1):34-40. DOI: 10.5114/jos.2024.136128.

15. Alalmaie AJ, Alkhalaf HK, Aldakheel RM, Shehri RRA, Ansari SH. Knowledge, experience and confidence of Saudi dental practitioners towards treating patients on the autism spectrum: a cross-sectional study. Journal of Pharmaceutical and Research International. 2021;33(49A):219–27.

16. Fallea A, Zuccarello R, Roccella M, Quatrosi G, Donadio S, Vetri L, et al. Sensory-Adapted Dental Environment for the Treatment of Patients with Autism Spectrum Disorder. Children (Basel). 2022;9(3):393. Doi: 10.3390/children9030393.

17. Junnarkar VS, Tong HJ, Hanna KMB, Aishworiya R, Duggal M. Qualitative study on barriers and coping strategies for dental care in autistic children: Parents' perspective. International Journal of Pediatrics Dentistry. 2023;33(2):203-215. Doi:10.1111/ipd.13035.