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Evaluation Of Dental Practitioners' Environmental Competence And Confidence In Treating Patients With Special Health Care Needs- A Cross-Sectional Study

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ABSTRACT

Background: *Providing oral health care to individuals with special health care needs (SHCN) requires specific knowledge, skills, and a positive attitude from dental practitioners. However, many practitioners report challenges in delivering appropriate care due to insufficient training and limited exposure.*

Aim: *To evaluate the competence and confidence of dental practitioners and students in managing patients with SHCN and to identify perceived barriers and suggestions for improvement.*

Materials and Methods: *A descriptive cross-sectional survey was conducted among 500 participants, including undergraduate students, postgraduate students, academicians, and medical professionals. A validated questionnaire assessed demographic details, knowledge, self-reported competence and confidence, and perceived barriers. Data were analyzed using descriptive statistics and inferential tests, with significance set at $p < 0.05$.*

Results: *The majority of respondents demonstrated basic knowledge of SHCN but showed varying awareness of comprehensive management strategies. Practical competence and confidence were higher among experienced practitioners and academicians. Common barriers identified included lack of training, inadequate facilities, and insufficient support staff. Most participants recommended more hands-on exposure and curriculum updates to improve readiness to treat SHCN patients.*

Conclusion: *While dental practitioners exhibit foundational knowledge, gaps persist in confidence and practical skills for managing patients with SHCN. Strengthening undergraduate training, offering continued education, and improving practice infrastructure are crucial steps toward delivering equitable and quality dental care for this vulnerable population.*

KEYWORDS: *Competence, Confidence, Special Care, Needs*

INTRODUCTION

Oral health is an integral component of overall well-being and plays a vital role in maintaining the quality of life. However, individuals with special health care needs (SHCN) often face significant barriers in accessing appropriate dental care services. The term "special health care needs" encompasses a wide range of physical, developmental, mental, sensory, behavioural, cognitive, or emotional impairments that necessitate medical management, health care intervention, or specialized services[1,2]. Patients with SHCN frequently encounter difficulties in receiving dental care due to physical limitations, communication barriers, or the need for advanced behavior management techniques. Consequently, these patients are at a heightened risk of oral diseases such as

dental caries, periodontal disease, and oral infections, which may further exacerbate their general health conditions. Globally, it is recognized that oral health inequalities disproportionately affect vulnerable groups, including people with disabilities and special health care requirements[3,4]. Despite advancements in dental technology and treatment protocols, there remains a significant gap in the delivery of dental services to this population. Various studies have highlighted that inadequate training during undergraduate and postgraduate dental education contributes to a lack of preparedness and low confidence among dental practitioners in managing these patients. In addition, a lack of exposure to practical clinical situations involving special needs patients often leaves dental professionals uncertain about the necessary modifications in treatment plans, appropriate behaviour management strategies, and the use of specialized equipment[5,6].

In recent decades, the concept of Special Care Dentistry (SCD) has emerged as a distinct discipline aimed at addressing the unique oral health needs of individuals with SHCN. Many dental schools across the world have recognized the importance of integrating SCD into the curriculum to sensitize budding dentists to the challenges faced by this underserved group[7,8]. However, despite curriculum enhancements, there is still considerable variation in the quality and extent of training provided. Consequently, dental practitioners often report feeling inadequately equipped to deliver effective and compassionate care to these patients, resulting in suboptimal oral health outcomes. The competence of dental practitioners in treating special needs patients is a multifaceted construct that includes adequate knowledge, appropriate clinical skills, effective communication abilities, and a positive attitude towards patients who may require extra time and resources[9,10]. Equally important is the confidence of the practitioner, which greatly influences their willingness to treat such patients in general practice settings rather than referring them unnecessarily to specialized centers. A lack of confidence can result in delayed care, increased treatment costs, and additional stress for patients and their caregivers[11].

Several barriers hinder the delivery of dental care to individuals with SHCN. These include insufficient training, limited clinical experience, inadequate infrastructure within general practice settings, and a lack of interdisciplinary collaboration with other health care providers. Moreover, societal stigma and misconceptions about the capabilities of individuals with disabilities may inadvertently affect the attitude of dental professionals. Therefore, a comprehensive understanding of the existing knowledge levels, competence, and confidence among dentists is essential to bridge these gaps and to develop targeted educational and policy interventions[12]. Given the rising prevalence of chronic diseases and disabilities due to increased life expectancy and improved survival rates of individuals with complex medical conditions, it is imperative for general dental practitioners to be adequately prepared to meet the oral health needs of this growing patient population. Enhancing dentists' competence and confidence not only improves patient care but also fosters inclusivity within dental practices and strengthens the community's trust in the profession[13].

This study aims to evaluate the current level of competence and confidence among dental practitioners in treating patients with special health care needs. By identifying existing strengths and weaknesses, the findings of this research can inform curriculum development, continuing dental education programs, and policy decisions aimed at ensuring equitable access to dental care for all, regardless of physical or mental ability[14,15]. In addition, understanding dentists' perceptions and experiences can provide valuable insights into practical challenges faced in routine practice and help develop supportive frameworks that encourage practitioners to expand their service delivery to include patients with special needs. Addressing the oral health care disparities faced by individuals with special health care needs requires a collaborative effort involving educational institutions, health care policymakers, and practicing dental professionals[16]. Empowering dentists with the necessary knowledge, skills, and confidence is a critical step toward achieving this goal. This study endeavors to contribute to this vital area of research by evaluating the preparedness of dental practitioners and highlighting areas that demand attention to ensure that no patient is left behind in the pursuit of optimal oral health[17].

MATERIALS AND METHODS

Study Design

A descriptive, cross-sectional questionnaire-based study was conducted to assess the competence and confidence of dental practitioners in managing patients with special health care needs (SHCN). This design was chosen as it allows the collection of data at a single point in time to evaluate the current level of knowledge, preparedness, and perceived barriers among practicing dentists.

Study Setting and Duration

The study was carried out among dental practitioners working in various private clinics, teaching institutions, and public health centers within Chennai, Tamil Nadu. Data collection was conducted over a period of three months, from (March-May 2025).

Study Population

The target population included qualified dental practitioners registered with the [specify relevant dental council, e.g., Dental Council of India. and actively engaged in clinical practice. Both general dentists and specialists were eligible to participate. Dental interns and practitioners not currently engaged in patient care were excluded from the study.

Sample Size and Sampling Method

The sample size was determined using a standard formula for cross-sectional studies, considering a 95% confidence interval, an assumed proportion of adequate knowledge of 50% (due to the lack of similar regional data), and a 5% margin of error. To account for non-response, an additional 10% was added to the calculated sample size.

A convenience sampling technique was employed to reach out to eligible participants through professional networks, dental associations, and institutional contacts.

Data Collection Tool

A structured, self-administered questionnaire was developed based on an extensive review of the literature and existing validated instruments used in similar studies. The questionnaire consisted of four sections:

1. **Demographic Details:** Age, gender, qualification, years of clinical experience, practice setting (private, public, or academic), and prior exposure to patients with SHCN.
2. **Knowledge Assessment:** Multiple-choice and true/false questions covering definitions, common conditions requiring special care, behaviour management techniques, and necessary modifications in dental procedures.
3. **Competence and Confidence:** Statements rated on a 5-point Likert scale (ranging from strongly disagree to strongly agree) to gauge self-reported competence in clinical skills and confidence in managing various scenarios involving SHCN patients.
4. **Perceived Barriers and Training Needs:** Items exploring perceived challenges in treating special needs patients and suggestions for additional training or resources.

The draft questionnaire was reviewed by a panel of subject experts in special care dentistry and public health dentistry for content validity and clarity. A pilot test was conducted with 15 dental practitioners to ensure reliability and to make necessary modifications before final dissemination. Data from the pilot test were not included in the main analysis.

Data Collection Procedure

The final questionnaire was distributed electronically via email and online survey platforms (e.g., Google Forms) and, where feasible, as printed copies during dental association meetings and continuing dental education (CDE) programs. An introductory note explaining the study's purpose, ensuring confidentiality, and emphasizing voluntary participation was provided. Participants were asked to give informed consent before completing the survey.

Ethical Considerations

Ethical approval for the study was obtained from the Institutional Ethics Committee of [name of institution]. Participation was entirely voluntary, and anonymity was assured. No personal identifiers were collected, and data were used solely for research purposes.

Statistical Analysis

Collected data were entered into a spreadsheet and analyzed using [specify software, e.g., IBM SPSS version XX]. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were computed to summarize demographic variables and questionnaire responses. Associations between demographic factors and competence/confidence scores were tested using appropriate statistical tests such as Chi-square test, t-test, or ANOVA. A p-value of less than 0.05 was considered statistically significant.

RESULTS

A total of 500 dental practitioners and students participated in this study. The demographic distribution showed that the majority of respondents were in the age group of 20–30 years (40%), followed by equal proportions in the 31–40, 41–50, and above 50 age groups (20% each). Female respondents constituted 75.4% of the participants, indicating a higher response rate among female practitioners and students.

Regarding educational status, 40% were undergraduate students, 20% postgraduate students, 20% medical professionals, and 20% academicians. In terms of professional experience (applicable to practicing dentists and academicians), 36% had 4–6 years of experience, 34% had 1–3 years, 22% had more than 6 years, and 8% reported less than 1 year of experience.

Knowledge Assessment: When asked about the definition of special health care needs, 70% of undergraduate students correctly identified physical disabilities as an example, while 67% of postgraduate students did the same. Interestingly, a higher percentage of academicians (62%) selected the comprehensive answer "all of the above," demonstrating a broader understanding.

Regarding behavior management techniques, the majority of undergraduate students (75%) and postgraduate students (69%) recognized "physical restraint" as a commonly used method. However, academicians and medical professionals showed more diverse choices, with some opting for "Tell-Show-Do" and "Voice Control." For the preferred treatment setting for patients with mild intellectual disability, 70% of undergraduate students and 67% of postgraduate students agreed that treatment can be provided in a general dental clinic with appropriate modifications, aligning with recommended practice. Knowledge about managing patients with autism showed variation: 42% of undergraduates and 48% of postgraduates understood the need for clear, simple instructions, while 62% of academicians emphasized minimizing sensory stimuli.

Perceived Barriers: The most frequently reported barriers across groups were lack of support staff (50% among undergraduates), lack of training (60% among postgraduates), and inadequate facilities. Time constraints and behavioral issues were also commonly cited. Significant associations between professional level and knowledge about SHCN ($p = 0.014$), considerations for treating autistic patients ($p = 0.032$), perceived barriers ($p = 0.039$), and opinions about mandatory curriculum inclusion ($p = 0.044$).

TABLE 1: ASSESSMENT OF DEMOGRAPHIC DETAILS

QUESTIONAIRRE	OPTIONS	FREQUENCY (N)	PERCENTAGE (%)
Age distribution	20-30	200	40
	31-40	100	20
	41-50	100	20
	Above 50	100	20
Gender distribution	Male	123	24.6
	Female	377	75.4
What is your current level of education/professional status?	Undergraduate Student	200	40
	Postgraduate Student	100	20
	Medical professional	100	20
	Academician	100	20
	Less than 1 year	16	8

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How many years of experience do you have in the dental field? (Applicable for dental surgeon and academician)	1-3 years	68	34
	4-6 years	72	36
	More than 6 years	44	22

GRAPH 1: CURRENT LEVEL OF EDUCATON/PROFESSIONAL STATUS

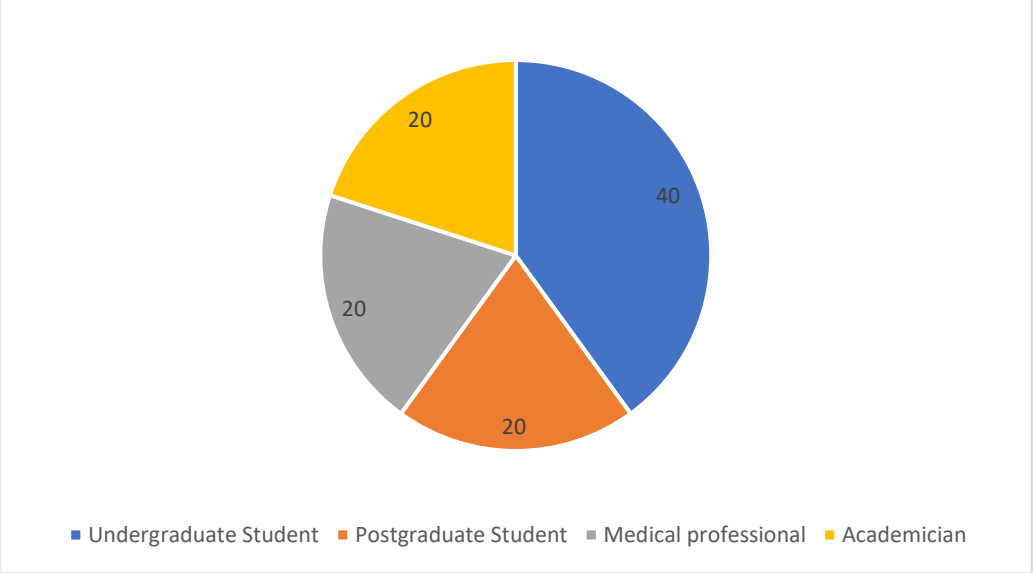

TABLE 2: Knowledge Assessment

Questionairre	Options	Undergraduate students		Post graduate students		Academician		Medical professional		P-value
		Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	
Patients with special health care needs may include individuals with	Physical disabilities	140	70	67	67	0	0	32	32	0.014*
	Intellectual disabilities	45	22.5	14	14	19	19	16	16	
	Chronic medical conditions	15	7.5	10	10	4	4	32	32	
	All of the above	0	0	9	9	62	62	20	20	
Which of the following is a common behavior management technique for patients with SHCN	Physical restraint	150	75	69	69	52	52	20	20	0.67
	Tell-Show-Do method	45	22.5	12	12	19	19	16	16	
	Voice control	5	2.5	14	14	15	15	31	31	
	All of the above	0	0	5	5	14	14	33	33	
For patients with mild intellectual disability, the preferred treatment setting is:	General dental clinic with modifications	140	70	67	67	62	62	32	32	0.32
	Only a hospital under general anesthesia	45	22.5	14	14	19	19	16	16	
	Home care only	15	7.5	11	11	15	15	32	32	

	No treatment needed	0	0	8	8	4	4	20	20	
Which of the following is an important consideration when treating patients with autism spectrum disorder?	Minimize sensory stimuli	72	36	39	39	62	62	54	54	0.032*
	Use clear, simple instructions	84	42	48	48	31	31	41	41	
	Allow familiar caregivers in the operatory	44	22	13	13	7	7	5	5	
	All of the above	0	0	0	0	0	0	0	0	

TABLE 3: Perceived Barriers and Suggestions

Questionairre	Options	Undergraduate students		Post graduate students		Academician		Medical professional		P-value
		Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	
What challenges do you face while treating patients with SHCN?	Lack of training	15	7.5	60	60	20	20	20	20	0.039*
	Inadequate facilities/equipment	40	20	10	10	15	15	14	14	
	Time constraint	20	10	10	10	20	20	14	14	
	Behavioral issues	25	12.5	10	10	20	20	15	15	
	Lack of support staff	100	50	10	10	25	25	37	37	
In your opinion, what would help you feel more competent and confident in managing patients with SHCN?	Hands-on clinical exposure	120	60	50	50	43	43	49	49	0.47*
	Availability of specialist referral centers	17	8.5	40	40	29	29	32	32	
	Better equipment and infrastructure	63	36.5	10	10	28	28	29	29	
Do you think special care dentistry training should be mandatory in the undergraduate curriculum?	NO	120	60	50	50	43	43	49	49	0.044*
	YES	17	8.5	40	40	29	29	32	32	
	NOT SURE	63	36.5	10	10	28	28	29	29	

DISCUSSION

The present study provides valuable insight into the current state of knowledge, competence, and confidence among dental practitioners and students regarding the management of patients with special health care needs. The results highlight both encouraging trends and critical gaps that require targeted attention. A prominent observation is that while a considerable proportion of participants, especially undergraduate students, correctly identified examples of SHCN, deeper understanding—such as selecting a comprehensive definition and appropriate management protocols—was more prevalent among academicians and those with advanced training.

This indicates that increased clinical exposure and experience contribute positively to broadening knowledge and refining clinical judgment[18,19].
In terms of behavior management, the reliance on physical restraint as the most recognized technique among undergraduates suggests a need to emphasize less invasive, patient-centered approaches during training. Techniques like Tell-Show-Do and the use of desensitization should be reinforced to align with contemporary best practices in special care dentistry[20,21]. Confidence in delivering treatment in general practice settings was relatively high among all groups for cases involving mild intellectual disability. This is encouraging, as it reflects a willingness to treat patients with minor special needs within the community, thereby reducing unnecessary referrals and promoting inclusivity. However, when addressing more complex conditions like autism spectrum disorder, the responses revealed inconsistent awareness of practical adaptations such as sensory management and communication strategies. This finding underscores the importance of structured training modules focusing on behavioral and environmental modifications tailored to different disabilities[22,23].

The barriers identified align with observations from global studies: inadequate training remains a predominant hurdle, compounded by the lack of specialized equipment, support staff, and suitable infrastructure in routine practice[24,25]. These systemic shortcomings contribute to practitioners feeling underprepared and hesitant, which can compromise the quality and accessibility of care for this vulnerable population[26,27]. Encouragingly, a substantial proportion of participants acknowledged the need for curriculum enhancement, with many advocating for mandatory special care dentistry training at the undergraduate level. This consensus highlights the profession's readiness to adapt and underscores the importance of integrating theoretical knowledge with practical exposure through workshops, case-based discussions, and supervised clinical rotations[28]. The results also emphasize the need for continuing education programs targeting practicing dentists[29]. Such programs can bridge the gap between theoretical knowledge and real-world application, fostering greater confidence and competence in delivering patient-centered care to individuals with special health care needs[30]. In summary, while the study reveals satisfactory baseline knowledge in certain areas, it also exposes critical areas that need strengthening, particularly practical skills and confidence-building measures. Addressing these gaps through curriculum reforms, structured training, and supportive practice environments will be pivotal in ensuring equitable oral health care access for patients with special health care needs.

CONCLUSION

This study highlights that while dental practitioners and students possess basic knowledge about managing patients with special health care needs, significant gaps remain in practical competence and confidence. Limited clinical exposure, lack of training, and inadequate infrastructure are key barriers to providing optimal care. Participants expressed a strong need for enhanced hands-on training and better support facilities. Incorporating mandatory special care dentistry modules at the undergraduate level could bridge existing knowledge and skill gaps. Continuous professional development programs are also essential to update practitioners on best practices. Addressing these areas will contribute to more inclusive and equitable oral health services for patients with special health care needs.

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