ORIGINAL ARTICLE

Educational Experience, Perception and Attitude of Dental Students Towards Treating Patients with Special Health Care Needs

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ABSTRACT

Background: Patients with special health care needs (SHCN) frequently face challenges in accessing quality oral health care, often due to a lack of preparedness and confidence among dental professionals. This gap is largely attributed to limited clinical exposure and inadequate training during undergraduate education. The undergraduate dental curriculum therefore plays an important role in shaping students' educational experience and professional attitudes toward managing individuals with SHCN. The objective of this study is to determine the educational experience, attitude and perceptions of dental students towards treating patients with SHCN.

Methods: This cross-sectional descriptive study was carried out in dental colleges of Lahore, Pakistan. A total of 143 eligible participants were included, selected through a non-probability convenience sampling method. The study population consisted of 3rd, 4th year dental students and house officers of both genders. Data was collected using a self-administered questionnaire distributed both manually and through Google Forms. The questionnaire assesses educational experience, perception and attitude.

Results: A total of 143 dental students participated in the study, including 116 females and 27 males. The majority of participants were house officers. Most students (80.6%) supported inclusion of additional SHCN related content in the curriculum. Statistical analysis demonstrated strong positive associations between domains ($p < 0.001$).

Conclusion: Dental students reported generally positive educational experience, perception and attitudes towards treating the patient with SHCN. Strong associations between domains suggest substantial overlaps among constructs measured. The findings highlight the need for structured curricular refinement and improved assessment tools with better discriminant validity.

Keywords: *dental perception, dental education, person with disabilities, special needs dentistry*

Introduction

Oral health is an essential component of overall well-being, playing a crucial role in comfort, communication, and quality of life. However, certain populations, particularly individuals with disabilities, face unique challenges that can significantly affect their oral health status. Evolution and advancement in healthcare have led to an increase in the number of senior citizens and patients with chronic medical conditions. Declines in mortality rates have consequently resulted in longer life spans for individuals with disabilities and other conditions requiring special health care needs (SHCN).[1]

Disability is defined as "any physical, developmental, mental, sensory, behavioral, cognitive, emotional impairment or limiting condition that requires medical management, healthcare intervention, and/or use of specialized services or programs"[2]. According to the World Health Survey, a 10% rise was observed from 1970 to 2010 in the difficulties faced by people with disabilities[1]. According to recent studies, about 15% of the world's population lives with people having some form of disability or condition requiring special healthcare needs[3].

Despite global progress in medicine and healthcare delivery, oral health remains one of the most neglected aspects of care for individuals with SHCN. This neglect arises from physical, psychological, social, and economic barriers that limit access to regular dental services. Many individuals with SHCN seek dental care primarily during emergencies, and preventive oral health practices are often deprioritized[2].

Providing dental care for individuals with SHCN presents multiple clinical and behavioral challenges, one of the most significant being the limited number of adequately trained dental professionals. This shortage restricts access to essential oral healthcare services[4, 5]. Some dentists report feeling unprepared or anxious when managing patients with special needs due to insufficient undergraduate training and limited clinical exposure, contributing to unmet oral healthcare needs and preventable disease burden[6, 7].

Special health care needs dentistry (SHCN) is defined by the Royal College of Surgeons of Edinburgh as "the specialty in dentistry concerned with the oral health care of patients with special needs for whatever reason." During their clinical years, dental students encounter patients with SHCN and require appropriate educational

exposure, clinical skills, and professional confidence to manage their care effectively[1]. A study conducted in Saudi Arabia demonstrated that limited undergraduate training leads to hesitation among students when managing patients with SHCN, whereas a well-structured didactic and clinical curriculum enhances students preparedness and confidence[4, 8].

Despite the increasing demand for inclusive oral healthcare, gaps remain in the extent and consistency of SHCN training across dental schools. This limited preparation restricts opportunities for interprofessional collaboration and weakens the development of a multidisciplinary approach to patient care[9]. Previous research demonstrates that students who receive both theoretical instruction and supervised clinical exposure in special care dentistry report higher confidence, improved awareness and stronger practical competence, which may enhance access to care and treatment outcomes for individuals with SHCN[10].

Recognizing the importance of specialized training, several countries such as Brazil, Australia, and the United Kingdom have formally established special care dentistry as a recognized specialty to address these gaps[11]. Although awareness of oral health disparities among persons with disabilities has increased over recent decades, many newly graduated dentists continue to report limited preparedness to provide comprehensive care[12, 13]. Integration of SHCN training into undergraduate curricula has therefore become increasingly important, although the extent and depth of implementation vary across institutions[11].

To deliver comprehensive, patient-centered care, dental professionals must develop empathy, effective communication skills, and an understanding of individual patient needs. These competencies contribute to improved treatment experiences and promote inclusivity within the profession[14, 15]. Despite increasing recognition of SHCN dentistry globally, limited data are available regarding dental students' educational experiences and professional attitudes toward SHCN in Pakistan. Therefore, this study aims to assess the educational experience, perceptions, and attitudes of dental students in Lahore toward treating patients with SHCN.

Methodology

This is a cross-sectional descriptive study which was conducted in dental college of Lahore, Pakistan from 8th March 2025 to 28th July 2025. A formal sample size was calculated based on a target population of N = 225 (total eligible 3rd and 4th year students and house officers across the selected colleges), with ʒ=1.96 (z-score for 95% confidence), ʒ=0.5 (expected proportion, assuming maximum variability), ʒ=0.05 (margin of error). The minimum required sample of 143 participants, assuming a 95% confidence level and a 5% margin of error. All eligible students available during the data collection period were invited to participate. Institutional Ethical Review Board Committee of CMH LMC & IOD granted ethical approval for the study (Case#,135/ERC/CMH/LMC). Written informed consent was obtained from all participants prior to data collection. Participation was voluntary, anonymity was ensured, and no identifying information was recorded to maintain confidentiality.

During the study data was collected from the undergraduate 3rd & 4th year dental students and house officers working in clinical departments of the various dental colleges. The data was collected without gender bias and health care professionals from different disciplines were excluded from the study. Data was collected by distributing self-administered questionnaires manually and through Google forms. The study was conducted on 143 eligible participants, and the reliability of the questionnaire was checked through a pilot study and Cronbach's alpha reliability was calculated as 0.71, indicating acceptable internal consistency. Domain-specific reliabilities were not computed separately, which is a limitation.

The data was analyzed by using the software IBM SPSS version 27. Quantitative outcomes were reported as mean with standard, while qualitative outcomes were represented as frequency distributions and percentages with p value ≤ 0.05 was taken as threshold for statistical significance.

Results

A total of 143 dental students participated in the study comprising of 116 females and 27 males. During the data collection most of the participants were house officers (68), which was 47.6% of the total population, followed by 4th year students (46) and 3rd year students (29). Most students (69.5%) feel their education has adequately addressed the needs of differently-abled patients, with 50.7% agreeing and 18.8% strongly agreeing. Over half of students (55.6%) rated their courses and clinical teaching on special needs patients positively however 18.8% of students expressed dissatisfaction (6.3% strongly disagreeing and 12.5% disagreeing). There's a mixed perception of instructor enthusiasm as only 40.3% of students agreed that their instructors showed enthusiasm. 54.2% of students agree that their instructors are knowledgeable about the psychological, social, and emotional aspects of treating SHCN. However, only 9.7% of participants (n=14) indicate low strong confidence in treating SHCN. Only 9.7% of participants (n=14) indicated low confidence in treating SHCN as shown in Table 1.

The majority of students remained neutral (38.9%) when asked about the instructor's interest. Regarding instructor's role in educating students on the treatment of SHCN, most of the students remained neutral (31.9%) while 26.4% agreed and 10.4% strongly agreed.

According to our study, 43.7% of students felt prepared (36.1% agreed and 7.6% strongly agreed), but 35.4% were neutral, and 20.2% disagreed to some extent. On the other hand 46.6% of students feel that their dental school clinics provide an environment sensitive to SHCN.

Table 1. Educational experience, Perception, and Attitude regarding special health care needs (SHCN)

Section	Question	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
Educational Experience	My educational experience has taught me about the dental needs of the differently abled patient.	2.8	7.6	20.1	50.7	18.8
	The courses/clinical teaching on treatment of the differently abled are very good at my school.	6.3	12.5	25.0	41.7	13.9
	The instructors at my school are very knowledgeable in the psychological, social, and emotional characteristics regarding the treatment of SHCN patients.	2.8	12.5	30.6	43.8	10.4
	My educational training has made me confident in the treatment of SHCN patients.	5.6	13.2	33.3	38.2	9.7
	Curriculum should include more about treating SHCN.	0.7	2.1	16.0	43.1	37.5
	It is essential to educate students about the treatment of patients with SHCN.	1.4	2.8	13.9	40.3	41.7
Perception	I feel comfortable treating patients with SHCN.	0.7	9.0	31.9	43.8	13.9
	My school clinics provide an environment that is sensitive to treating patients with SHCN.	2.8	11.8	38.2	40.3	6.9
	My instructors showed great enthusiasm about working with SHCN patients.	1.4	17.4	30.6	40.3	10.4
	My instructors are/were nervous or uninterested during the treatment of SHCN patients.	7.6	24.3	38.9	20.8	8.3
	My instructors have not taught me how to treat SHCN patients appropriately.	5.6	25.7	31.9	26.4	10.4
Attitude	My clinical training prepared me well for treating patients with SHCN.	2.8	17.4	35.4	36.1	7.6
	I will include SHCN patients in my future practice.	1.4	2.8	13.9	59.7	20.8

The questionnaire contains 6 items to assess educational experience, 5 items to assess the perception of the students and 2 items related to the attitude of the dental students toward treating patients with SHCN. According to the normality of the study majority of the dental students (80.6%) agree to add SHCN education in the undergraduate curriculum. Currently, 43.8% of students feel comfortable and many are neutral in treating patients with special needs in dental colleges. After highlighting the importance of SHCN education, the dental students (59.7%) showed behavioral intentions, to include SHCN in their future practice.

Likert-scale items were combined to generate domain scores, which were treated as continuous variables. Therefore, mean and standard deviation were reported. The overall mean (M) and standard deviation (SD) scores for the three domains were relatively high, indicating generally positive responses across educational experience, perception, and attitude domains in table 2 and figure 1.

Table 2. Descriptive Statistics for Domain Score

Domain	Mean	± SD
Educational experience	3.91	0.56
Perception	4.01	0.54
Attitude	4.03	0.55

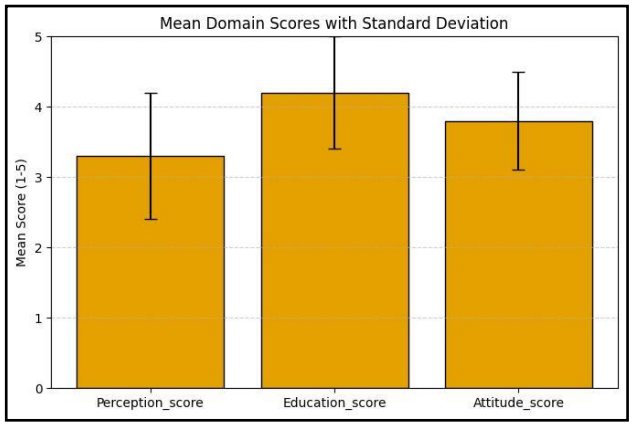

Figure 1. Mean Domain Score with ± Standard Deviation

According to this study, non-parametric tests (Spearman correlation) were used due to the ordinal nature of the data and the spearman correlation analysis demonstrated strong positive monotonic associations among educational experience, perception, and attitude domains (Table 3). Correlation coefficients ranged from 0.877 to 0.962 ($p < 0.001$), indicating substantial overlap among the measured constructs. These very high correlations, particularly between Perception and Attitude ($r = 0.962$), suggest limited discriminant validity; thus the three domain scores may not represent entirely distinct constructs. These results indicate that higher perception scores were consistently linked with more positive

behavioral intentions and stronger education-related attitudes.

Table 3. Spearman Correlations Between Educational experience, Perception and Attitude (N = 143)

Domain	Educational Experience	Perception	Attitude
Educational experience	1.000	0.937	0.877
Perception	0.937	1.000	0.962
Attitude	0.877	0.962	1.000

Discussion

The purpose of this study was to investigate educational experience, perceptions, and attitudes of dental students toward treating patients with special healthcare needs (SHCN). The results indicated that students reported generally positive views regarding their training, have moderate self-reported confidence in their ability to treat patients, even with special needs. However, there were significant differences in confidence, inclination, faculty and academic dedication that needed to be reduced through modern teaching methods. Greater number of students agree on the importance of learning SHCN, and positive intentions are required to offer special health care need patients.

Large number of students acknowledged that their education involved exposure towards treating and managing patients with disabilities. About 70% of participants agreed that their courses covered different angles of SHCN, which is a positive sign that dental schools are taking this seriously and including it in the curriculum. However, a very negligible number (30%) remained neutral & disagreed, which indicates that the education regarding SHCN is not adequate. This dissimilarity is common with previous studies conducted on special health care needs in dentistry,[16,17] showing that the undergraduate programs give little importance (7%) to the special care dentistry which leaves students unready for the challenges that await them in treating such patients in clinical practice.

While 69.5% of students felt that their education generally addressed SHCN needs, only 43.7% explicitly agreed that their clinical training had prepared them well. This gap highlights the difference between theoretical coverage and hands-on readiness. The results also showed that the theoretical findings might not be enough. Students who participated in both practical and theoretical components were more confident and prepared to treat such patients. Therefore, in literature it is frequently reported that clinical experiences and interactive learning are more useful to reinforce knowledge about SHCN rather than just lectures or only the part of curriculum.

One of the study's most noticeable interpretations has to do with the teaching behavior of the instructors[19]. About 50% of the students described their teaching faculty as passionate and well informed when teaching about SHCN. While about one third felt neutral and almost one fifth disagreed. This disparity brings the focus to a crucial point: teachers play an essential role in shaping how students recognize and evaluate the care of patients with special needs. Teachers convey the important message about the value of all encompassing care by showing kindness, empathy, self-confidence, and commitment. Similarly, if teachers show signs of being uninterested, students will lose their own motivation and commitment which ultimately reduces the confidence in treating the SHCN patients. Therefore, more than one-third of the participants were unsure, and less than half felt that their training had prepared them enough to treat and manage patients with SHCN. Less exposure to a clinical environment is closely associated with lack of confidence. When compared to students who had practical experiences with theoretical studies. However, dental students who had little or no direct involvement with SHCN patients were less confident.

These results are a point of commonality with previous studies that dental students and even professional dentists are sometimes not confident enough to deal with patients having complicated issues if they don't have any practical experience before[20,21]. According to literature review, students in dental practice communication, managing different behaviors, and compliance in their clinical skills only by dealing with real cases[21]. Therefore, treating SHCN patients cannot be experienced without practical knowledge, theoretical learning alone does not provide confidence in treating the patients.

According to this study, there were strong relations between the three domains measured: education, perception and attitude. (Table 3) Students who had affinity towards their education more positively also tended to have positive perception and an intent to treat patients with SHCN. ($p= 0.94$-0.96, $p <0.001$). This pattern increases the significance of well-structured educational programs that bridge theoretical and clinical practice. Majority of students showcased great professional attitudes even if unprepared[22]. More than 80% of participants said that special needs care should be covered in dentistry curriculum. A comparable number said that they are willing to work with SHCN patients if the opportunity arises in future and student's shows strong willingness and responsibility in treating the patients. These findings suggest a positive professional orientation toward inclusive care.

These results are consistent with global research that show SHCN education in undergraduate courses produce professionals who are more sympathetic and comforting, self-confident and motivated[23]. Good clinical experiences with SHCN patients were more likely to be described as professionally rewarding, meaningful, which also hinted towards a stronger commitment to all-inclusive and comprehensive care in future dental practice[23,24].

It seems that the clinical patient experience serves to bridge the gap between performance and comprehension. According to studies conducted in Canada about 89% of general dentists who dealt with SHCN patients during training were also motivated to provide such care after graduation[25]. These practical experiences prove to reduce apprehension, clarify clinical management approaches and improve social and clinical abilities. Through these practical instructions students can look beyond the impairment, care and provide for the patient just like a complete individual with distinct needs and strengths. This kind of education is important to foster professionalism, kindness and competency among communities, that are essential components in any healthcare system.

The exceptionally high correlation coefficients observed between domains may indicate construct overlaps or limited discriminant validity of the

instrument. Future studies should consider more comprehensive multi-item scales for perception and attitude domains and perform factor analysis to confirm domain independence.

Conclusion

Dental students reported generally positive educational experiences, perceptions, and behavioral intentions toward treating patients with SHCN. Strong associations between domains suggest substantial construct overlap, likely due to limited discriminant validity of the instrument. The findings highlight the need for structured curricular refinement and improved assessment tools with distinct, validated scales. Broader, multi-center studies with validated instruments are recommended to strengthen evidence in this area.

Limitations

This study was conducted in dental colleges within Lahore using convenience sampling, which limits generalizability. The predominance of female participants further restricts demographic representation. Additionally, there are different SHCN groups, this study did not compare or classify different SHCN groups, which lessened the ability to give insights into how ready and prepared students are to handle a variety of patient circumstances. The limited number of items assessing perception and attitude and the lack of differential diagnosis between types of SHCN (e.g., physical vs. intellectual disabilities) may also restrict construct validity.

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Authors' Contribution:

HMON & BH: Data Collection, data analysis, manuscript writing
MAN: Data analysis and manuscript writing
SZJ: Conception and design of the study and data analysis.
UA: Acquisition, and interpretation of data
LQ: Data collection
MSA: Critical review of the manuscript for important intellectual content

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