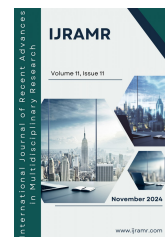




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RESEARCH ARTICLE

PERCEPTION & AWARENESS OF SPECIAL CARE DENTISTRY AMONG DENTAL UNDERGRADUATES OF INDIA: A CROSS- SECTIONAL STUDY

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ABSTRACT

Aim: This study provides critical insights into the perception and awareness of Special Care Dentistry (SCD) among dental undergraduate students in India. **Materials & Methodology:** This cross-sectional study aimed to assess the awareness and perceptions of Special Care Dentistry (SCD) among dental undergraduate students in India. A total of 400 students from various dental colleges participated in the study, which was conducted by the Department of Public Health Dentistry at SGT University, Gurugram. Data were collected using a self-prepared, closed-ended, structured questionnaire distributed electronically via social media platforms. The questionnaire, hosted on Google Forms, consisted of 15 items, including demographic information and specific questions about SCD awareness. Only students who provided informed consent were included in the study. Descriptive statistics and Chi-square tests were performed using SPSS software to analyze the data, with a focus on understanding the influence of demographic factors on students' perceptions and awareness of SCD (p -value ≤ 0.05). The findings provide valuable insights into the current level of knowledge and attitudes towards SCD among dental students in India. **Results:** This study surveyed 400 dental students, finding that age and academic year significantly impact familiarity with Special Care Dentistry (SCD) and confidence in treating special needs patients. Gender had a less consistent influence. Results highlight the need for enhanced SCD education to improve students' competence and awareness. **Conclusion:** This study identifies gaps in Special Care Dentistry (SCD) awareness among Indian dental students, emphasizing the need for enhanced SCD training in dental curricula. Improved education and infrastructure are essential to better prepare future dentists to provide equitable oral healthcare to patients with special needs.

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INTRODUCTION

In 2020, the World Health Organization (WHO) reported that approximately 15% of the global population lives with some form of disability. In the same year, the American Academy of Pediatric Dentistry (AAPD) defined special healthcare needs as encompassing any physical, developmental, mental, sensory, behavioral, cognitive, or emotional impairment or limiting condition that necessitates medical management, healthcare intervention, and/or specialized services or programs. These conditions, which can be congenital, developmental, or acquired due to disease, trauma, or environmental factors, often result in limitations in performing daily activities.¹

In order to meet the oral health needs of people with physical, intellectual, medical, emotional, sensory, or social disabilities, special care dentistry, or SCD, is an essential area of dentistry. In order to ensure accessibility and high-quality care for those who might otherwise encounter major hurdles to getting dental services, this discipline of dentistry strives to provide comprehensive and customised oral health care. In spite of its significance, little is known about how undergraduate dental students view SCD, which makes a deeper comprehension necessary in order to effectively incorporate SCD into dental practice and education.²Over the past few decades, the idea of "special care dentistry" has been more well-known as the complex and varied demands of different patient groups have come to light.

Patients in need of special care frequently have medical issues that make dental treatment more difficult, requiring dental professionals to have specific knowledge, abilities, and treatment plans. These patients include those with mental health problems like anxiety and depression, chronic medical ailments like diabetes and cardiovascular diseases, and developmental disabilities like autism and Down syndrome.³ Furthermore, as the world's population ages, further difficulties arise since elderly patients frequently have complex medical and dental issues that call for integrated care. By ensuring that these marginalised populations receive the appropriate rehabilitative, restorative, and preventive dental treatment, special care dentistry helps to improve the overall health and quality of life of these populations.⁴ Despite the evident need, the inclusion of SCD in dental curricula worldwide is inconsistent and often limited. Various studies indicate that dental students receive insufficient training in managing patients with special needs, leading to a lack of confidence and preparedness in treating these individuals. The gap in education results in a significant disparity in the availability and quality of care provided to patients with special needs. Enhancing SCD education within dental schools is imperative to equip future dentists with the competencies required to address the unique challenges posed by these patient populations effectively.⁵ There are few studies examining dental students' perception about SCD in practice. This research is the initial multicentric survey carried out in academic settings involving dental undergraduate students to assess the perception & awareness of special care dentistry among them.

MATERIALS AND METHODOLOGY

This cross-sectional study was conducted among 400 dental undergraduate students. The data were collected using a self-prepared, closed-ended and structured questionnaire consisting of 15-items. The study was conducted by investigators from the Department of Public Health Dentistry at the Faculty of Dental Sciences, SGT University, Gurugram. The target population comprised of dental undergraduate students from various dental colleges in the country. All students who provided informed consent prior to commencement of the research were included in the study. The questionnaire (google form) was distributed electronically using different social media platforms to reach a broad range of participants.

QUESTIONNAIRE: The questionnaire consisted of 15 questions divided into several sections: an introduction to the study with a consent form, demographic information (including gender, age, year of study, college name, and state of residence), and specific questions designed to gauge students' awareness and perceptions of Special Care Dentistry. To ensure confidentiality and encourage honest responses, the questionnaire will be anonymous.

STUDY PARTICIPANTS: Target Population: Dental undergraduate students from various dental colleges in India. Inclusion Criteria: All undergraduate dental students who gave consent to participate in the study.

DATA COLLECTION: Data for this cross-sectional study were gathered from a sample of 400 dental undergraduate

students across various dental colleges in India. The collection process involved the use of a self-prepared, closed-ended, and structured questionnaire comprising 15 items. The questionnaire was electronically distributed through different social media platforms to ensure a wide reach among the target population. The questionnaire was hosted on a Google Form, allowing for easy access and completion by participants. Only those students who provided informed consent were included in the study. The data collected through this process were then analyzed to gain insights into the awareness and perceptions of Special Care Dentistry among dental undergraduate students in India.

STATISTICAL ANALYSIS: Descriptive statistics and Chi-square tests were performed using SPSS Software. Chi-square test was performed to assess the effect of demographic details on perception and awareness of respondents towards SCD (p-value ≤ 0.05).

RESULTS

The study included 400 dental undergraduate students, with a higher proportion of females (64.5%) compared to males (35.5%). The majority of participants were aged between 22-25 years (71.8%), followed by those aged 18-21 years (26.8%), and a small percentage aged 26 years and above (1.5%). Regarding their academic year, most students were in their 3rd year (30.3%), followed by 2nd year students (28.5%), interns (22.8%), 4th year students (13.3%), and 1st year students (5.3%). A significant portion of the participants were from SGT University (70.5%), with the remaining students distributed across other institutions: Sharda University (16.5%), Manav Rachna Dental College & Research Centre (7.5%), ITS Dental College, Ghaziabad (2.5%), ITS Dental College, Muradnagar (2.0%), and Institute of Dental Sciences, Jammu (1.0%). Additionally, most students resided in Haryana (74.5%), while 25.5% were from other states. (Table 1). The study results reveal that a significant majority of the participants (64.3%) are familiar with Special Care Dentistry (SCD), while 35.8% expressed interest in learning more about it. When asked if they were aware of their institution's involvement in providing oral healthcare for children with special care needs, 50.8% responded affirmatively, 21.5% were unaware, and 27.8% were uncertain. Regarding the categories of patients most frequently encountered under SCD in their institutions, nearly half (47.3%) reported encountering paediatric patients with special needs most often. This was followed by adult patients with special needs (37.8%), geriatric patients (10.0%), and a smaller percentage (5.0%) who most frequently encountered patients from institutional settings, such as nursing homes or rehabilitation centres. Regarding the availability of specialized equipment, 14.3% of respondents reported having a bariatric chair, 21.3% mentioned a compact dental unit, 20.0% indicated access to a wheelchair-accessible dental chair, and only 2.5% had a shifter base for patient transfer. A significant portion, 42.0%, were either unaware or did not have any of these specialized tools available. When it comes to awareness of professional organizations or associations that focus on providing care for patients with special needs, 22.0% of the respondents were actively involved in such organizations, while 37.0% were aware of these organizations but were not actively involved.

Table 1. Descriptive data of the study participants

DEMOGRAPHIC DETAILS		FREQUENCY	PERCENT
GENDER	Male	142	35.5
	Female	258	64.5
Age	18-21 years	107	26.8
	22-25 years	287	71.8
	26 and above	6	1.5
Year of study	BDS Ist Year	21	5.3
	BDS IInd Year	6	1.5
	BDS IIIrd Year	114	28.5
	BDS IVth Year	206	51.5
	BDS Intern	53	13.3
College Name	SGT University	282	70.5
	Manav Rachna Dental College & Research Centre	31	7.8
	Sharda University	66	16.5
	ITS Dental College, Muradnagar	8	2.0
	ITS Dental College, Ghaziabad	9	2.3
	Institute of Dental Sciences -Shora, Jammu	4	1.0
State	Haryana	298	74.5
	Outside Haryana	102	25.5

Table 2. Descriptive statistics about perception and awareness about special care dentistry

QUESTIONS	OPTIONS	FREQUENCY	PERCENTAGE
Are you familiar with Special Care Dentistry (SCD)?	Yes, I have knowledge about SCD	257	64.3
	No, but I am interested in learning more	143	35.8
Are you aware, if your institution is directly working for children to provide oral health care for people with special care needs?	Yes	203	50.8
	No	86	21.5
	Maybe	111	27.8
Which category of patients under Special Care Dentistry (SCD) do you most frequently encounter in your institution?	Paediatric patients with special needs	189	47.3
	Adult patients with special needs	151	37.8
	Geriatric patients (elderly)	40	10.0
	Patients from institutional settings (e.g., nursing homes, rehabilitation centers)	20	5.0
Are you familiar with the availability of specialized equipment in your institution for treating patients with special needs?	Bariatric chair	57	14.3
	Compact dental unit	85	21.3
	Wheelchair-accessible dental chair	80	20.0
	Shifter base for patient transfer	10	2.5
	None of the above / Unaware	168	42.0
Are you aware of any professional organizations or associations that specialize in providing oral care for patients with special needs?	Yes, I am actively involved with such an organization	88	22.0
	Yes, I am aware of such organizations, but not actively involved	148	37.0
	No, but I am interested in learning more and potentially getting involved	134	33.5
	No, and I am not interested in learning more	30	7.5
According to you, What communication approach is best for patients with special needs?	Direct patient communication	146	36.5
	Audio-visual aids	134	33.5
	Caregiver communication	66	16.5
	Visual manuals (pictorial/braille)	54	13.5
Special Care Dentistry (SCD) provides oral health care to individuals with special needs, including:	Physical disabilities	41	10.3
	Intellectual and developmental disabilities	58	14.5
	Medical conditions (e.g., HIV, cancer, multiple sclerosis)	25	6.3
	Pediatric and geriatric patients	16	4.0
	All of the above	260	65.0
How would you rate the quality of infrastructure in dental clinics in India?	Extremely unsatisfactory	19	4.8
	Unsatisfactory	60	15.0
	Average	186	46.5
	Satisfactory	126	31.5
	Exceptional	9	2.3
On a scale of 1-5, how confident do you feel in your ability to handle patients with special care needs?	1 - Need significant training and support	70	17.5
	2 - Somewhat confident, but require occasional guidance	94	23.5
	3 - Confident in my skills, but open to feedback	154	38.5
	4 - Very confident, with a high level of expertise	36	9.0
	5 - Extremely confident, with exceptional expertise	46	11.5

Table 3. Relation between gender, age, year of study and perception and awareness about special care dentistry

QUESTIONS	Gender	Age	Year of Study
	p-value (Sig.)	p-value (Sig.)	p-value (Sig.)
Are you familiar with Special Care Dentistry (SCD)?	.497	.030	.000
Are you aware, if your institution is directly working for children to provide oral health care for people with special care needs?	.663	.037	.000
Which category of patients under Special Care Dentistry (SCD) do you most frequently encounter in your institution?	.630	.093	.000
Are you familiar with the availability of specialized equipment in your institution for treating patients with special needs?	.000	.000	.000
Are you aware of any professional organizations or associations that specialize in providing oral care for patients with special needs?	.000	.000	.000
According to you, What communication approach is best for patients with special needs?	.017	.844	.000
Special Care Dentistry (SCD) provides oral health care to individuals with special needs, including:	.000	.001	.000
How would you rate the quality of infrastructure in dental clinics in India?	.027	.000	.000
On a scale of 1-5, how confident do you feel in your ability to handle patients with special care needs?	.651	.000	.000

As for communication approaches, 36.5% of the respondents believed that direct patient communication is the best approach, 33.3% favoured the use of audio-visual aids, 16.5% preferred caregiver communication, and 13.5% supported the use of visual manuals, such as pictorial or braille formats. In terms of the specific needs addressed by SCD, 10.3% of respondents indicated that they provide oral health care to individuals with physical disabilities, 14.5% to those with intellectual and developmental disabilities. Regarding the quality of infrastructure in dental clinics across India, 4.8% of respondents rated it as extremely unsatisfactory, 15.0% as unsatisfactory, 46.5% considered it average, 31.5% found it satisfactory, and only 2.3% deemed it exceptional. When assessing their confidence in handling patients with special needs on a scale of 1 to 5, 17.5% of respondents felt they need significant training and support, 23.5% were somewhat confident but require occasional guidance, 38.5% were confident in their skills but open to feedback, 9.0% were very confident with a high level of expertise, and 11.5% considered themselves extremely confident with exceptional expertise. (Table 2).

Regarding familiarity with SCD, age and year of study significantly influence familiarity, while gender does not ($p = 0.497$). Awareness of institutional efforts to provide oral health care for people with special care needs is significantly associated with both age and year of study ($p = 0.037$ and $p = 0.000$, respectively), but not with gender ($p = 0.663$). The category of patients most frequently encountered under SCD is significantly associated with age ($p = 0.093$) and year of study ($p = 0.000$), though not with gender ($p = 0.620$). Familiarity with specialized equipment for treating patients with special needs is significantly associated with all three factors—gender, age, and year of study ($p = 0.000$ for each). There are no significant associations between awareness of professional organizations specializing in oral care for patients with special needs and any of the factors ($p = 0.000$ for all).

Preferences for communication approaches with patients having special needs are significantly associated with age ($p = 0.344$), gender ($p = 0.017$), and year of study ($p = 0.000$). The belief that the institution provides care for individuals with special needs is significantly associated with age and year of study ($p = 0.100$ and $p = 0.000$, respectively), but not with gender ($p = 0.000$). Students' ratings of the quality of infrastructure in dental clinics are significantly associated with gender ($p = 0.027$), year of study ($p = 0.000$), and age ($p = 0.000$). Finally, confidence in handling patients with special care needs is significantly associated with all three factors—gender ($p = 0.651$), age ($p = 0.000$), and year of study ($p = 0.000$). These results suggest that age and year of study are consistently significant factors influencing students' knowledge and confidence in SCD, while gender plays a less consistent role. (Table 3)

DISCUSSION

The study provides an insightful understanding of the perception and awareness of Special Care Dentistry (SCD) among dental undergraduate students in India. It highlights several critical aspects of the current state of SCD education and the preparedness of future dental professionals to address the unique needs of patients requiring special care. The study shows that gender does not significantly influence the awareness and perception of SCD among dental students. This finding aligns with previous research, such as the study by Parker and Hew (2013) in the USA², which found no significant gender differences in attitudes towards SCD. This consistency across different geographical locations suggests that gender may not play a substantial role in shaping dental students' perspectives on SCD, thereby implying that educational interventions and training can be uniformly applied across genders without needing gender-specific adjustments.

A significant association was found between the students' age and year of study and their familiarity with SCD. Older students and those in advanced years of their dental education were more likely to be familiar with SCD concepts and practices. This trend is expected as students progress through their education, gaining more exposure to diverse patient groups and complex clinical cases. Similar findings were observed in studies by Derbi and Borromeo (2016)⁶ in Australia and Vainio et al. (2011)⁷, where advanced training and experience were associated with increased confidence and competence in managing special care patients. The study reveals a concerning lack of awareness regarding the availability of specialized equipment and institutional efforts to provide oral healthcare for special needs patients. This finding indicates a potential gap in the practical training and exposure that students receive during their education. While some institutions may have the necessary tools and programs in place, the lack of student awareness suggests that these resources may not be adequately integrated into the curriculum or clinical rotations. This observation is consistent with the findings of Ahmad et al. (2014)⁸ in Malaysia, where SCD as a specialty was underdeveloped due to a lack of institutional focus and expertise.

The study participants expressed varied preferences for communication approaches with special care patients, with a significant portion favoring direct patient communication. This preference highlights the importance of teaching effective communication skills tailored to the needs of special care patients within the dental curriculum. Furthermore, the study found that students' confidence in handling special care patients increased with experience and exposure, similar to the results of Watters et al. (2015)⁹, where clinical exposure significantly improved students' confidence and competence. The findings underscore the need for enhanced SCD education within dental schools. The inconsistency in awareness, preparedness, and confidence among students indicates that current curricula may not be sufficient to equip future dentists with the necessary skills and knowledge to treat special care patients effectively. There is a clear need for more comprehensive and hands-on training in SCD, including increased exposure to special care patients and the use of specialized equipment. Educational interventions, such as workshops, simulations, and clinical rotations focused on SCD, could significantly improve students' competence and confidence, as evidenced by the positive outcomes observed in studies like Salama et al. (2015)¹⁰.

CONCLUSION

This study highlights significant gaps in the awareness, perception, and preparedness of dental undergraduate students regarding Special Care Dentistry in India. The findings suggest that while students' familiarity with SCD increases with age and educational advancement, there remains a substantial need for improved training and education in this area. Dental schools should consider integrating more focused SCD training into their curricula, ensuring that students receive adequate exposure to the challenges and requirements of treating special care patients. By addressing these gaps, dental education can better prepare future dentists to provide high-quality care to all patients, including those with special

needs, thereby improving overall public health outcomes. Moreover, the study's findings align with international trends, indicating a universal need for more structured and comprehensive SCD education across dental programs globally. Institutions should prioritize the development and implementation of specialized training modules and invest in infrastructure to support the needs of special care patients. This approach will not only enhance the competence and confidence of future dental professionals but also ensure equitable access to oral healthcare for all individuals, regardless of their physical, intellectual, or developmental challenges.

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