Dentistry Section

Knowledge, Attitude and Practice Survey on Special Care Dentistry: A Cross-sectional Study

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ABSTRACT

Introduction: Special Care Dentistry (SCD) is a dentistry branch that advocates equal dental Patient with Special Care Needs (PSCN). In several countries, it is a separate specialty. In India, it is still in its infancy. Few studies have explored the dentists' perception regarding SCD.

Aim: To determine the knowledge and attitude about SCD, also the practice measures followed by the dentists in Chennai colleges.

Materials and Methods: This cross-sectional observational study was conducted in three dental colleges in Chennai from September 2019 to October 2019. A total of 230 dentists were enrolled using random sampling. A set of 20 close ended multiple choice questions were formulated and administered to dentists {Undergraduates (UGs) and Postgraduates (PGs)}. Descriptive statistics and Chi-square test

was performed using MATLAB software (Mathworks, 2015), with p<0.05.

Results: A 78.8% of respondents got good scores of ≥7 in knowledge based questions, 25.6% of the participants showed overall positive attitude. Educational qualification did not affect respondents' knowledge and attitude about SCD (p>0.05). Only 21.95% of UGs and 22.31% of the PGs have good self-confidence in treating patients with special needs. More than 80% have not administered Domiciliary Care (DC). A total of 65% of participants denied getting any training in their UGs/PGs curriculum.

Conclusion: Dentists in the present study are aware about SCD. Clinical measures adopted by dentists and their confidence in treating these patients are suboptimal. Training in SCD should become integral part of future dental education.

Keywords: Disabled population, Domiciliary care, People with special care needs, Special children, Special needs dentistry

INTRODUCTION

Special needs Dentistry/SCD is the management of oral health, especially for patients with special needs, by employing alternate methods [1]. The Commission on Dental Accreditation (CODA) considers patients with special needs to be medically, physically, psychologically and socially incapacitated. It recommends specialised training for oral health professionals [2]. The British Society of Disability and Oral Health (2006) advocates equal and DC for Special Care Needs (SCN) patients [3].

Census 2011 (updated 2016) shows that India houses 2% of the world's disabled population [4]. According to the Welfare of Differently Abled Tamil Nadu, Chennai's disabled population is 90,064. The absence of proper oral health care for SCN in India can be attributed to the physical, geographical, and economic barriers accompanied by inadequate clinical infrastructure and sparse training among dentists [5,6].

Despite the staggering number of dentists in India, World Health Organisation (WHO) 2014 data showed dentists' ratio to population is 1:10000. Fewer still are trained in treating patients with special needs [5,7]. All India Institute of Medical Sciences (AIIMS) and WHO gave oral healthcare guidelines for PSCN; yet, more concrete initiatives are imperative. SCD is also not part of the academic curriculum given by the Dental Council of India for dental students [8].

Studies exploring the awareness and practice among dentists towards SCD are scarce. The present study is the first multicentric Knowledge, Attitude and Practice (KAP) survey conducted amongst dentists and students in academic settings. The current KAP survey aimed to assess the knowledge and practice measures adopted by dentists in Chennai and to know the various treatment modalities followed by dentists in treating PSCN.

MATERIALS AND METHODS

The present cross-sectional observational study was conducted in SRM University, Ramapuram, Chennai, Tamil Nadu, India between

September 2019 to October 2019, following the Institutional Review Board's Ethical Committe approval (RMU/M&HS/SRMDC/2019/PG/007). The reporting of the study followed "STROBE Statement" [9], and a total of 230 participants were included in the study. The study was explained in detail and informed written consent was obtained from the study participants.

Questionnaire

A set of 20 multiple choices (close ended) questions were formulated after the literature search [1,3,10]. The face and content validation (Content Validation Ration CVR= 0.60) of the questions were done by three oral medicine and two public health dentistry experts [11]. Reliability was checked using the test-retest method. Based on the queries and suggestions received, few questions were revised and redistributed amongst the study sample. Overall reliability of the questionnaire was calculated using Cronbach's alpha and was found to be 0.71 [12]. The revised set of 20 questions, as shown in [Annexure 1], were divided into three groups Knowledge (5), Attitude (6), and Practice (9) based questions.

Sample size calculation: Sample size was manually calculated based on the previous survey with prevalance=6.44 Q=1-p 35.6 L precision of the estimate=6.44 Z α =standard normal variate 2=3.84 [13]. The present study was conducted among dental students (UGs and PGs) and faculty of three different dental colleges in Chennai, based on the following inclusion and exclusion criteria:

Inclusion criteria: All dentists with at least one year of clinical experience, dentists who were working in colleges, interns attending clinics (UGs), Postgraduate students (PGs) were included in the study.

Exclusion criteria: Dentists with no clinical experience and not working in any institution, duplicate answers, incomplete answers and participants not willing to participate in the study were excluded from the study.

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Data Collection

The printed forms were distributed among the voluntary participants. knowledge and attitude based questions were scored with minimum score for each question being 1 and maximum being 5. Opinion based questions were scored using Likert scale (1-5) [14]. Scores of knowledge and attitude based questions were added to get an overall score. Overall score was then multiplied by 0.4 and was plotted using a cumulative graph on a scale of 1-10. Participants with score ≥ 7 was categorised as good knowledge score. Similarly, the scores ≥ 7 was considered as positive attitude.

STATISTICAL ANALYSIS

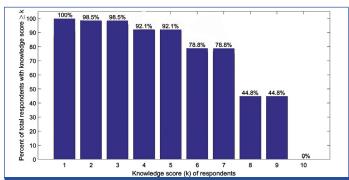
Descriptive statistics and Chi-square tests were performed using MATLAB Software (MathsWorks, 2015). Chi-square test was performed to assess the effect of educational qualification on knowledge and Attitude of respondents towards SCD (p-value ≤0.05).

RESULTS

Final data included 205 out of 230 data samples with a response rate of 89.13%. A total of 25 forms were excluded (13 incomplete records, and 12 duplicate answers). Out of 205 respondents, 121 were PGs and 84 were UGs.

Knowledge among Dentists about SCD

A 78.8% of the participants scored ≥7, for knowledge based questions, as shown in [Table/Fig-1]. Around 52% UGs and 48% PGs were not aware of the colleges, which offer a course in SCD in India. Majority of the participants (34.15% UGs, 23.97% PGs) were unaware about the practice of DC, as shown in [Table/Fig-2].



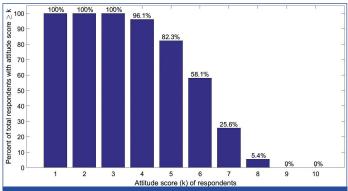
[Table/Fig-1]: Cumulative graph showing scoring of knowledge based questions. k=is knowledge score (1-10). Scores are calculated for both UGs & PGs combined

Attitude about SCD

A 25.6% dentists scored ≥7 in attitude-based questions [Table/ Fig-3]. Both PGs and UGs (32.32%, 39.02%) were moderately satisfied with the disability confidence among the dentists in handling special needs patients. While PGs (39.67%) were willing to enroll in SCD course if offered in India, UGs (31.70%) were mostly indecisive. Maximum participants (71.95% UGs, 61.15%

Descriptive data % (N) about knowledge among dentists of SCD based on their responses							
Q1} SCD includes	Physically handicap	Intellectually impairment	HIV, cancer, multiple sclerosis	Children and elderly	All of them		
UG	13.09 (11)	2.38 (2)	3.57 (3)	3.57 (3)	77.39 (65)		
PG	4.13 (5)	8.26 (10)	3.31 (4)	0.83 (1)	83.47 (101)		
Q2} Awareness of CODA	Not aware	Slightly aware	Moderately aware	Very much aware	Extremely aware		
UG	55.95 (47)	28.57 (24)	8.34 (7)	2.38 (2)	4.76 (4)		
PG	60.33 (73)	31.41 (38)	4.13 (5)	1.65(2)	2.48 (3)		
Q3} Domiciliary Care (DC) familiarity	Not familiar	Slightly familiar	Moderately familiar	Very much familiar	Extremely familiar		
UG	33.33 (28)	40.48 (34)	13.10 (11)	2.38 (2)	10.71 (9)		
PG	23.97 (29)	46.28 (56)	17.36 (21)	4.13 (5)	8.26 (10)		
Q4} Colleges offering SCD in India	1	2	>5	None	-		
UG	14.28 (12)	17.85 (15)	16.67 (14)	51.20 (43)	-		
PG	13.22 (16)	21.49 (26)	17.36 (21)	47.93 (58)	-		
Q5} Countries with SCD as speciality	UK	New Zealand	Australia	All of the above	-		
UGs	28.57 (24)	13.10 (11)	8.33 (7)	50 (42)	-		
PGs	19.01 (23)	11.57 (14)	5.78 (7)	63.64 (77)	-		

[Table/Fig-2]: Descriptive statistics of knowledge amongst dentists (%/N). UGs: Undergraduates (84); PGs: Postgraduates (121); %: Percentage of dentists having knowledge about SCD; N: Number of samples (205); SCD: Special care dentistry; CODA: Commission on dental accreditation



[Table/Fig-3]: Cumulative graph showing scoring of attitude based questions. k=score of the attitude (1-10). Scores are calculated for both UGs and PGs combined

PGs) felt the clinical infrastructure for treating PSCN is of fair quality [Table/Fig-4].

Practices Followed by Dentists for PSCN

Most of the respondents (64.41% PGs, 63.41% UGs) answered they had not received any specific training for SCD. Most of the participants (81.70% UGs, 78.69% PGs) had never given DC. Dentists (68.30% UGs, 51.24% PGs), majorly don't have any specialised equipment in their clinics for treating PSCN [Table/Fig-5].

Descriptive statistics about attitude among dentists % (N)								
Q6) Interest in SCD course	Yes	No	In India	Can't say	-			
UGs	19.05 (16)	21.43 (18)	27.38 (23)	32.14 (27)	-			
PGs	19.83 (24)	15.70 (19)	39.67 (48)	24.80 (30)	-			
Q7) Disability confidence	Not satisfactory	Slightly satisfactory	Moderately satisfactory	Very much satisfactory	Extremely satisfactory			
UG	19.05 (16)	27.38 (23)	38.10 (32)	7.14 (6)	8.33 (7)			
PG	26.45 (32)	28.10 (34)	32.23 (39)	5.78 (7)	7.44 (9)			
Q8) Quality of clinical infrastructure	Very poor	Poor	Fair	Good	Excellent			
UG	4.76 (4)	2.38 (2)	69.05 (58)	21.43 (18)	2.38 (2)			
PG	4.96 (6)	13.22 (16)	61.16 (74)	17.36 (21)	3.30 (4)			
Q9) Self confidence rating scale	1 Poor	2 Fair	3 Good	4 Very good	5 Excellent			
UG	13.10 (11)	52.38 (44)	21.43 (18)	3.57 (3)	9.52 (8)			
PG	14.88 (18)	41.32 (50)	22.31 (27)	5.79 (7)	15.70 (19)			

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Q10) Following the ABC rules	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
UG	22.62 (19)	57.14 (48)	20.24 (17)	0	0
PG	34.71 (42)	37.20 (45)	14.05 (17)	10.74 (13)	3.30 (4)
Q11) Need for remuneration and re-imbursements	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
UGs	15.48 (13)	8.33 (7)	28.57 (24)	29.76 (25)	17.86 (15)
PGs	14.05 (17)	8.27 (10)	25.62 (31)	31.40 (38)	20.66 (25)

[Table/Fig-4]: Descriptive statistics about dentists' attitude (%).

UGs: Undergraduates (84); PGs: Postgraduates (121); % =Percentage of dentists' attitudes towards SCD; N: Number of samples (205); SCD: Special care dentistry; ABC: Access barrier removal and communication

Descriptive statistics about practices among dentists with respect to SCD % (N)								
Q12) SCD patients encountered	Children	Adults	Elderly	Institutional	-			
UG	33.33 (28)	26.20 (22)	27.38 (23)	13.09 (11)	-			
PG	34.71 (42)	21.49 (26)	38.84 (47)	4.96 (6)	-			
Q13) Patients treated in three months	<10	10-50	50-100	>100	-			
UG	69.05 (58)	21.43 (18)	9.52 (8)	0 (0)	-			
PG	72.73 (88)	19.83 (24)	4.13 (5)	3.31 (4)	-			
Q14) Delivery of domiciliary care	Yes	No	-	-	-			
UG	19.05 (16)	80.95 (68)	-	-	-			
PG	21.49 (26)	78.51 (95)	-	-				
Q15) Presence of specialised equipments	Bariatric chair	Compact chair	Wheel chair	Shift base chair	None			
UG	2.38 (2)	0 (0)	23.81 (20)	7.14 (6)	66.67 (56)			
PG	2.48 (3)	9.92 (12)	32.23 (39)	4.13 (5)	51.24 (62)			
Q16) Emergenccy care for SCD	Hospital	Expert help	Self competent	Never faced situation	-			
UG	23.18 (19)	12.19 (11)	12.19 (11)	52.44 (43)	-			
PG	26.45 (32)	15.70 (19)	15.70 (19)	42.15 (51)	-			
Q17) SCD training received	Never	Rare	Some-times	Often	Always			
UG	61.90 (52)	15.48 (13)	11.91 (10)	10.71 (9)	0 (0)			
PG	63.64 (77)	14.04 (17)	15.70 (19)	3.31(4)	3.31 (4)			
Q18) Type of communication used	With patients	Use of A-V aids	With Caregiver	Use of manuals	-			
UG	44.05 (37)	21.43 (18)	29.76 (25)	4.76 (4)	-			
PG	31.40 (38)	23.14 (28)	38.02 (46)	7.44 (9)	-			
Q19) Mode of payment	EMI	Usual fees	Discount	Never faced situation				
UG	13.09 (11)	20.24 (17)	20.24 (17)	46.43 (39)				
PG	4.96 (6)	34.71(42)	17.35 (21)	42.98 (52)				
Q20) Member of SCD organisation	Yes	Not aware	Interested in future	Not interested	-			
UGs	5.95 (5)	26.20 (22)	55.95 (47)	11.90 (10)	-			
PGs	9.92 (12)	28.93 (35)	40.49 (49)	20.66 (25)	-			

[Table/Fig-5]: Descriptive statistics about practices followed by dentists (%).

UGs: Undergraduates (84); PGs: Postgraduates (121); %: Percentage of dentists adopting various practices in treating patients; N: Number of samples (205); A-V: Audio-Visual; EMI: Equated monthly installment

Association between Educational Qualification and Awareness about SCD

Chi-square test showed no relation between educational qualification (UGs or PGs) and knowledge and attitude of the respondents towards SCD with p=0.519 and p=0.184, respectively [Table/Fig-6].

S. No.	Parameters	N	Chi-square test	p-value
1.	Knowledge	205	0.5028	0.0519
2.	Attitude	205	6.1995	0.184

[Table/Fig-6]: Relation between educational qualification and awareness amongst UGs and PGs.

Chi-square test showed no relation between degree and dentists' knowledge and attitude about SCD, p-value >0.05

DISCUSSION

More elders and disabled people are retaining their natural dentition, which necessitates modifications in routine dental procedures which

benefits them [15]. Environmental and attitudinal factors are the main barriers that restrict disabled people from getting equal dental care [16]. There is a need to have a patient-centric approach towards treatment planning preceded by evidence-based dentistry [10]. Dental colleges and academia are the main source of information about SCD. They should include virtual workshops, CDEs, hands on training on SCD as integral part of education, thus empowering students with the confidence to treat PSCN [8].

There are several international surveys conducted among dental healthcare workers about SCD, but only few studies has been conducted in India [Table/Fig-7], especially in dental colleges [2,13,15,17-25]. There is a need to know the level of awareness among students and academicians about SCD.

The participants in the current study had good knowledge about SCD. Majority of the dentists showed neutral to positive attitude towards SCD. Despite this, there is a lack of appropriate clinical infrastructure

Study	Questionnaire	Participants	Settings	Aim	Findings
Parker SS and Hew JK, 2013, USA [2]	Modified DSATHS Reliability and validity checked	65 dental hygeine students and faculty	Four dental Hygeine programs centres	Attitude	Both students and faculty showed positive attitude
Chadha G et al., 2015, India [13]	Modified questionnaire. Validated and reliability checked	264 practising dentists	Mangalore	Attitude, practices and demographics of dentists.	Most treated SCN patients. Felt improvement in academic and clinical exposure is necessary.
Derbi HA and Borromeo GL, 2016, Australia [15]	Previous Questions. Validated Reliability not mentioned	286 general dentists	Dentists registered in australian Dental association	Perception of dentists about SCD	More than half of the participants felt competent in treating SCN patients. Overall they shared a positive attitude.

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Chavez EM et al., 2011, U.S.A [17]	Development and validation not mentioned	526 Alumni	One dental school	Perception about SCD	Alumni with more experience and educational knowledge treat more SCN patients
Clemetson JC et al., 2012, U.S.A [18]	Self developed Face validated and relaibility not mentiones	104 dental students	54 dental schools	Knowledge, infrastructure, and compliance of schools with CODA	Most schools were working on implementing CODA, further work needed.
Vainio L et al., 2011, USA [19]	Self developed Face validation. Reliability not mentioned	397 dental students and deans	54 dental schools	Perception and attitude	Dental education helped preparing students. Participants are motivated in treating SCN
Alkahtani ZM et al., 2014, Saudi Arabia, USA [20]	Self developed Validated and reliability checked	214 students	2 dental universities	Attitude, knowledge and experience	Students with previous experience and exposure show positive attitude towards SCN.
Ahmad MS et al., 2014, Malaysia and Australia [21]	Based on previous paper Validated, but reliability not mentioned	Deans	14 dental schools	Education and perception	SCD as speciality in Malaysian schools is low. Lack of expertise present.
Watters AL et al., 2015, USA [22]	Self developed Validated and reliability checked	127 students	One dental school	Role of exposure on attittude and awareness about SCD	Clinical exposure helped in improving the confidence in treating patients.
Kapoor S et al., 2019, India [23]	Modified questionnaire Validated and reliability checked	117 dental students	One dental college	Preparedness of dental students	Positive attitude and comfort level among students
Salama F et al., 2015, Saudi Arabia [24]	Self developed. Validated and reliability cheked.	Sophomere students	One dental school	Knowledge and awareness pre and post test	Educational intervention helped in empowering students regarding SCD
Dighole MS et al., 2019, India [25]	Self administered Validity and Reliability not mentioned	250 general dentists	Dentists practising in Nagpur	Attitude and practice employed	Overall sample have positive attitude and reported financial restrictions

[Table/Fig-7]: National and International surveys on SCD in the past decade [2,13,15,17-25].
DSATHS: Dental student's attitudes towards the handicapped scale; SCD: Special care dentistry; SCN: Special care needs; CODA: Commission on dental accreditation

and training among dentists, which hinders the proper oral healthcare opportunities for PSCN. In this study, knowledge and attitude of the participants were not affected by their educational qualification.

Majority of the participants have moderate level disability confidence in treating SCN patients and are willing to undergo training and attend CDEs if offered in India. The results are similar with that of a survey conducted by Watters AL et al., and Kapoor S et al., [22,23].

Lack of training and education in the curriculum is the primary deterrent for building confidence among dentists [16]. Participants in the present study scored good in knowledge based questions which is in contrast to study by Salama F et al., where only 5% of students had moderate knowledge about SCD [24].

Majority of the participants have limited clinical exposure and have never given DC to patients. Similar to the study by Chadha G et al., dentists in the present study have never attended any formal training during their academic curriculum for SCD and feel the need of more exposure to SCN patients in college life [13]. This is in contrast to the study by Kapoor S et al., where students had attended lectures on SCD in their college [23]. The participants, share neutral to positive attitude towards SCD, but physical barriers hinder them in providing better oral health care, as also seen by Dighole MS et al., in their study [25].

Limitation(s)

The study's limitations include a cross-sectional study design, and the smaller sample size, which prevents the generalisation of the results. The close ended format of questionnaire might have lead to response bias.

CONCLUSION(S)

Participants in the present study had good knowledge about SCD and are open to new information. They lacked practical experience and confidence. Inclusion of SCD in academic curriculum and more clinical exposure will ameliorate students' attitude and help in building their confidence while treating patients with special needs. Further studies with larger sample size and with pre and posteducational training should be conducted. Studies with evidence-based treatment modifications pertaining to SCD should be encouraged.

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ANNEXURE

Close Ended Questionnaire on SCD

Knowledge based Questions

- Q1. "Special care Dentistry (SCD)" is a field of dentistry concerned with providing oral health care to people with special needs like
 - [a] Physical handicap [b] Intellectual impairment
 - [c] HIV, Cancer and multiple sclerosis [d] Children & elderly
 - [e] All of the above
- Q2. Are you aware of CODA (Commission on Dental Accreditation) rules regarding SCD?
 - [a] Not at all aware [b] Slightly aware [c] moderately aware [d] very much aware [e] Extremely aware
- Q3. Are you familiar with the term Domiciliary Care (Care at home)
 - [a] Not at all familiar [b] Slightly familiar [c] Moderately familiar [d] Very much familiar [e] Extremely familiar
- Q4. How many colleges in India offer training in SCD in either UG or PG?
 - [a] one [b] Two [c] >5
 - [d] no college in India offer such courses
- Q5. SCD as a specialty has been recognized in which countries? [a] UK [b] New Zealand [c] Australia [d] All of the above

Attitude based Questions

- Q6. Would you like to enroll yourself in such PG/Diploma courses on SCD in the future?
 - [a] Yes [b] No [c] Would like to enroll if offered in India
 - [d] Cannot say
- Q7. What do you think about the Disability confidence (confidence in treating these patients) among dentists in India?
 - [a] Not satisfactory [b] Slightly satisfactory [c] Moderately satisfactory [d] Very satisfactory [e] Completely satisfactory
- Q8. What do you think about the quality of infrastructure in dental clinics in India?
 - [a] Very poor [b] Poor [c] Fair [d] Good [e] Excellent
- Q9. On a score of 1-5 rate yourself on confidence level in handling patients with special care needs
 - [a] 1-poor [b] 2-fair [c] 3-Good [d] 4- Very Good
 - [e] 5- Excellent
- Q10. ABC {Access, Barrier removal and Communication} should be followed while treating these patients
 - [a] strongly agree [b] Agree [c] neutral [d] disagree
 - [e] strongly disagree

- Q11. Remunerations, reimbursements etc. should be provided to both patients and doctors by the government to improve awareness about oral health care to these patients
 - [a] Strongly disagree [b] Disagree [c] Neutral [d] Agree
 - [e] Strongly agree

Practice based Questions

- Q12. Which patients under SCD do you encounter more in your clinical practice?
 - [a] Children with special needs [b] Adults with special needs
 - [c] Elderly [d] Patients from institutional set up
- Q13. How many patients requiring special care have you treated within 3 months in your clinical practice? [a] <10 [b] 10-50 [c] 50-100 [d] >100
- Q14. Have you given domiciliary care to any of your patients? [a] Yes [b] No
- Q15. Have you used any special equipment in your clinic for treating these patients?
 - [a] Bariatric chair [b] Compact [c] Wheel chair
 - [d] Shifter Base [e] None of the above
- Q16. How do you manage these patients in case of emergency during treatment?
 - [a] Connected to a nearby hospital in case of emergency
 - [b] Have experts in the clinic to handle the situation
 - [c] Have confidence to handle the situation myself
 - [d] Never faced such situation
- Q17. Have you attended CDE program {special training} in your UG/PG College for special care dentistry?
 - [a] Never [b] Rare [c] Sometimes [d] Often [e] Always
- Q18. Which type of communication do you follow while treating these patients?
 - [a] Directly communicate with patient
 - [b] Use of audio-visual aids
 - [c] Communicate with the caregiver
 - [d] Use of manuals {pictorial, braille}
- Q19. Which mode of payment do you take from these patients?
 - [a] EMI payments using credit cards [b] Usual fees
 - [c] Reduction of the cost by providing 20-25% discount
 - [d] Never faced such a situation
- Q20. Are you a member of any organisation, which deals in catering oral care these patients?
 - [a] Yes [b] Not aware of any such body
 - [c] No, would be interested in the future [d] Not interested