

Knowledge, Attitude and Practices in Treating Children with Special Healthcare Needs among Dental Practitioners in Mumbai Metropolitan Region: A Questionnaire-based Survey

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ABSTRACT

Introduction: Dentistry for children with Special Healthcare Needs (SHCN) is challenging and it is essential to understand the barriers faced by dentists in managing such patients.

Aim: To assess the knowledge, attitude and practice of dental practitioners in Mumbai Metropolitan Region (MMR) in treating Children with Special Healthcare Needs (CSHCN).

Materials and Methods: An observational, cross-sectional questionnaire-based study was conducted in Mumbai Metropolitan Region (MMR) from January 2021 to August 2021. A 19-item questionnaire was sent to 1624 dentists through email and/or WhatsApp. The age, gender, years of clinical practice, the type of special children encountered, the behaviour management modalities and treatment done for these children were recorded. Data collected was entered into the software International Business Management (IBM) Statistical Package for Social Sciences (SPSS) statistics version 20.0 and analysed. Microsoft word and excel (year 2019) were used to generate tables.

Results: Of the 1624 surveys sent, 650 responses were received making it to 40% response rate. Majority of the respondents were between 24-35 years of age with the mean of 29.5±4.6 years. Majority of respondents 67% (n=433) were general dental

practitioners and 64% (n=416) had their own private practice. Only 39% (n=251) dentists had treated CSHCN in their practice. The most commonly encountered disability was mental retardation and cerebral palsy 23% (n=151). Amongst the clinicians referring the case, most of them, 148 (59%) preferred to refer to paediatric dentists. Regarding the method of management, 78% (n=197) of respondents were confident in treating special children with non pharmacological behaviour management methods and 58% (n=146) were confident with pharmacological methods. The frequently performed treatment procedures were restorative and preventive methods. A total 61% (n=399) of respondents had not encountered CSHCN. Among them, 65% (n=261) felt they had inadequate training in their curriculum, 59% (n=157) wished to treat such patients in future and 56% (n=223) were interested in continuing dental education programmes on the same.

Conclusion: Majority of the dentists had treated children with mental retardation, cerebral palsy and physical disabilities than emotional disabilities. Non pharmacological behaviour management methods were preferred, and preventive and restorative procedures were frequently performed. Most of the dentists in the present study reported themselves to lack knowledge in treating children with SHCN.

Keywords: Awareness, Dental education, Oral health, Paediatric

INTRODUCTION

The World Health Organisation (WHO) in 2020 has stated that around 15% of the global population, live with some form of disability [1]. The American Academy of Paediatric Dentistry (AAPD) in year 2020, defined special healthcare needs as any physical, developmental, mental, sensory, behavioral, cognitive, or emotional impairment or limiting condition that requires medical management, healthcare intervention, and/or use of specialised services or programs. The condition may cause limitations in performing daily activities. It may be congenital, developmental, or acquired due to disease, trauma, or environmental cause [2].

Healthcare for children with special needs requires awareness, expertise, adaptation and additional measures beyond what are considered routine [3]. Many general dentists are reluctant or not prepared to treat children with special needs due to the complexity of their medical conditions, patient behaviour, or inadequate training and experience [4,5]. Literature search has revealed that dentists have reported that treatment for children with special needs is stressful and too challenging to treat [6]. Casamassimo PS et al., in year 2004, reported that only 10% of dentists examined children with special healthcare needs (CSHCN) [5].

Few studies have evaluated the quality of education provided in the dental schools for treating patient with special needs. A study

conducted in Malaysian and Australian dental Schools, reported that dentists received inadequate undergraduate training in treating individuals with SHCN [7]. Similar results were reported in another study on members of the Michigan Dental Association [6]. Previous research has also suggested that better quality of education had an impact in increased possibility of treating patients with SHCN [5,6,8]. In India there is limited literature on the attitude and willingness of dentists towards the treating children with special needs [9,10].

Previous research conducted to investigate the knowledge, attitude, and practices of dental practitioners concluded that majority of the dentists who participated had only partial knowledge and insufficient training to effectively manage and treat CSHCN [9]. Another pilot study reported that inadequate training was the primary barrier for treatment of children with SHCN [10]. Therefore, the purpose of this study was to evaluate knowledge, attitude and practice in treating children with Special Healthcare Needs (SHCN) among dental practitioners in MMR.

MATERIALS AND METHODS

This observational, cross-sectional questionnaire-based study was conducted in the Department of Paediatric and Preventive Dentistry, DY Patil University, School of Dentistry, Navi Mumbai, Maharashtra,

India, between January 2021 to August 2021. The study was approved by the Institutional Review Board (No- IREB/2021/PEDO/07).

Inclusion criteria: All dental professionals registered in the Indian Dental Association database from Mumbai Metropolitan Region were included in the study.

Exclusion criteria: Undergraduates, interns and dental professionals who declined to participate in the study were excluded.

Questionnaire

A questionnaire was formulated based on previous studies by Dao LP et al., Casamassimo PS et al., which was modified to suit the current study [4,5]. It was prepared using google forms in English consisting of 19-items. The reliability and validity of the questionnaire was confirmed using a pilot study. The form was given to 10 paediatric dentists and 10 general practitioners/ dental specialist other than paediatric dentists. The same questionnaire was given to same 20 dentists after one month and was reviewed for content validity which showed no requirement of modification in the questionnaire. Cronbach's alpha statistic were used to construct validity and reliability obtaining a value of 0.8.

The questionnaire had 19 items and was divided in three sections:

First section: Included the demographic data: age of the dentist, gender, field of specialty, year of graduation, type of practice, years of clinical experience and the types of disability encountered during practice.

Second section: Assessed the knowledge and attitude of the dentist. The clinician's ability to identify the condition, the type of treatment provided for children with special healthcare needs, the preferred method to carry out the treatment, if referral was required who they refer to, the confidence of practitioner in treating CSHCN with pharmacological and non pharmacological methods and the barriers faced were evaluated in this section.

Third section: Included questions regarding the dentist's interest to treat the patient with SHCN in future, how well they were educated in their undergraduate and postgraduate course and if they were interested in continuing dental education for treating patients with SHCN.

The number of dentists practicing in Mumbai Metropolitan Region (MMR) were obtained from the Indian Dental Association database. (<https://www.ida.org.in/Directories/DentistsDirectory>) The database showed that there are 2825 dentists practicing in the MMR region. Among the registered dentists, contact details could be obtained of 1624 dentists who received the questionnaire via email or WhatsApp. A follow-up reminder was sent after a week to those who did not initially responded.

STATISTICAL ANALYSIS

Data collected was entered into the software IBM SPSS statistics 20.0 (IBM Corporation, Armonk, NY, USA) and analysed (IBM Corporation, Armonk, NY, USA). Descriptive and inferential statistical analyses was carried out in the present study. Microsoft word and Excel (year 2019) were used to generate tables.

RESULTS

Out of 1624 dentists, 650 dentists responded to the questionnaire giving a response rate of 40%. The study population comprised of 650 dentists. Majority of the respondents were between 24-35 years of age with the mean of 29.5±4.6 years. Responses from females were higher 67.5% (n=439) compared to males 32.5% (n=211). Responders from recent graduates from 2016-2021 was higher at 77.9% (n=507) [Table/Fig-1].

Majority of the respondents had clinical experience of 1-5 years which was 58.5% (n=380) [Table/Fig-2].

Year of graduation	Number	%
1978-1989	4	0.6
1990-2000	4	0.6
2001-2005	6	1
2006-2010	38	5.8
2011-2015	91	14.1
2016-2020	507	77.9
Total	650	100

[Table/Fig-1]: Year of graduation of the respondents.

Years of clinical expertise	Number	%
<1 year	115	17.7
1-5 years	380	58.5
6-10 years	124	19.1
11-19 years	23	3.5
≥20 years	8	1.2
Total	650	100

[Table/Fig-2]: Clinical expertise of the respondents.

The mean distribution of participants according to different specialties are represented in [Table/Fig-3]. The type of practice of respondents is shown in [Table/Fig-4].

Respondents	Number	%
Endodontist	34	5.23
General Dental Practitioner	433	66.61
Oral and Maxillofacial Surgeon	20	3.07
Oral Medicine and Radiologist	12	1.84
Oral Pathologist	10	1.54
Orthodontist	26	4
Paediatric Dentist	49	7.53
Periodontist	21	3.23
Prosthodontist	41	6.30
Public Health Dentistry	4	0.6
Total	650	100

[Table/Fig-3]: Distribution of participants according to different speciality.

Type of practice	Number	%
Private dental clinic	416	64
Teaching institute	163	25.07
Hospital setting	51	7.84
Corporate setting	20	3.07
Total	650	100

[Table/Fig-4]: Type of practice.

Among the dentists who responded to the questionnaire, 39% (n=251) of practitioners treated children with SHCN while 61% (n=399) did not treat children with SHCN. Among the ones who encountered CSHCN (39%, n=251), 64.9% (n=162) could identify the syndrome while 35.46% (n=89) were unable to do so. The most commonly encountered disability was mental retardation and cerebral palsy followed by other conditions [Table/Fig-5]. It was also observed that, if the practitioner preferred to refer, 58.96% (n=148) referred to a paediatric dentist [Table/Fig-6]. Non pharmacological method of management was the most preferred method among the respondents 78.48% (n=197) [Table/Fig-7]. The most commonly carried out treatment modalities for CSHCN is given in [Table/Fig-8]. The commonly encountered barriers in treating such patients is shown in [Table/Fig-9]. Amongst those who encountered the CSHCN, primary barrier encountered to manage CSCHN was lack of knowledge 86 (34.26%).

Types of disabilities	Number	%
Mental retardation and cerebral palsy	151	60.15
Physically challenged	144	57.37
Medically challenged	113	45.02
Genetically challenged	108	43.03
Learning disabilities	61	24.30
Emotionally challenged (Child abuse and neglect)	27	10.75

[Table/Fig-5]: Commonly encountered disabilities. (Multiple Options could be chosen by the respondents) (by dentists who encountered CSHCN (39%, n=251).

Referral	Number	%
Paediatric dentist	148	58.96
Teaching institution/Hospital	55	21.91
Private/Government hospital	28	11.15
Do not refer	20	7.96
Total	251	100

[Table/Fig-6]: Respondents who carried out referral (n=251).

Confidence level	Non pharmacological method (Restraint/Mouth prop)		Pharmacological method (General Anaesthesia/Sedation)	
	Number	%	Number	%
Confident	197	78.48	146	58.16
Not confident	54	21.51	105	41.83
Total	251	100	251	100

[Table/Fig-7]: Method of treating children with SHCN (n=251).

Treatment modalities	Number	%
Preventive	200	79.68
Restorative	200	79.68
Endodontics	98	39.04
Extractions	98	39.04
Prosthodontics	40	2.78
Orthodontics	20	7.96

[Table/Fig-8]: Commonly carried out treatment modality. (Multiple options could be chosen by the respondents) (n=251).

Barriers faced	Number (n)	Percentages (%)
Partial/ lack of knowledge in treating patients with SHCN	86	34.26
Patient or the caretaker unwilling to accept the recommended treatment	50	19.92
Treating patients with SHCN is time consuming	47	18.72
No specific barrier, able to treat the patient	41	16.33
Office staff training	14	5.57
Previous bad experience faced while treating patients with SHCN	13	5.17
Total	251	100

[Table/Fig-9]: Commonly encountered barriers while treating patients with SHCN (n=251).

Among the 61% (n=399) percentage of the respondents who did not treat CSHCN, it was seen that 65.41% (n=261) reported that their undergraduate or postgraduate education was inadequate to manage CSHCN. A total of 58.64% (n=234) wished to provide treatment for special children in the future and 55.88% (n=223) were interested in continuing dental education regarding the same [Table/Fig-10].

Questions asked	Respondents who encountered CSHCN (n=251)		Respondents who did not encounter CSHCN (n=399)	
	Yes	No	Yes	No
Wish to treat children in future	164 (65.33%)	87 (34.66%)	234 (58.64%)	165 (41.35%)
Interested in continuing dental education	161 (64.14%)	90 (35.85%)	223 (55.88%)	176 (44.11%)
How well did your education prepare you to treat CSHCN	104 (41.43%)	147 (58.56%)	138 (34.58%)	261 (65.41%)

[Table/Fig-10]: Data of respondents who had/hadnot encountered CSHCN.

DISCUSSION

This study gathered information regarding knowledge, attitude and practice in treating children with Special Healthcare Needs (SHCN) among dental practitioners in MMR, India. The response rate seen in the present study was 40%. Previous studies conducted by Salama FS et al., elicited a response rate of 46% and 41% respectively [4,11]. Amongst the responses received in the present study, 67% were from general dental practitioners followed by other specialities. This is higher than the 52% of responses obtained from general dental practitioners in a study by Loeppky WP and Sigal MJ [12]. In the present study, it was noted that 64% of the respondents were private practitioners. This was similar to the study by Salama FS et al., where 67% were solo practitioners [11].

In the current study, an estimated 39% of participants treated CSHCN. Previous studies conducted among members of Americans with Disabilities Act (ADA) and in Bulgaria reported that 10% and 28.7% of practitioners respectively treated children with special healthcare needs [5,13]. Contrary to this, Halawany HS et al., in year 2011 in Riyadh, Saudi Arabia reported that 85% of the respondents treated CSCHN. They credited this finding to their educational programs which strengthened the resolve those practitioners who already serve these individuals with overwhelming needs [14]. Similar results were seen by a study conducted in Oredugba FA and Sanu OO among Nigerian dentists, where 80% of the respondents treated CSCHN [15]. Considering the data from countries like Riyadh and Nigeria, it appears that's dentists from MMR have a higher degree of hesitancy in treating CSHCN.

The most commonly encountered disability by the respondents in the current study were conditions like mental retardation and cerebral palsy followed by physical disabilities. These were perhaps the most easily distinguishable conditions and 45% of dentists encountered such patients. The least commonly encountered disability was emotionally challenged which included child abuse and neglect. The reason could be that, in many cases, it is quite difficult to recognise such conditions without thorough case history. A Nigerian study reported that the most commonly encountered disability by dentists was physical or motor disabilities which was about 39.3% and a Malaysian study reported it to be 58% [5,16]. It was also observed that if the practitioner preferred to refer, 23% referred to paediatric dentist and only 3% did not carry out any referral.

The 78% of the respondents who treated CSHCN in the present study preferred to treat them using non pharmacological modality. The survey by Rajan S et al., in year 2019, reported that non pharmacological management was performed by 44.5% of practitioners [9]. The use of non pharmacological method does not require additional training and thereby is commonly preferred. In the current study, it was seen that 41% of the practitioners were not confident at all to treat CSHCN using pharmacological means. The use of sedation and general anaesthesia, carries some risks which may not be easily managed without adequate training [15]. It was seen that preventive and restorative treatment were most commonly carried out procedures (30% each). These were seen more in the present study population, probably because they are the easier and effective procedures. This was followed by extraction and endodontic treatment in the present study. The least carried out procedures were prosthodontic and orthodontic treatment, may be since it requires a certain degree of patient compliance. In contrast, studies by Smith G et al., (year 2004), Doichinova L and

Author and year	Place	Sample size, response rate, demographic details of the subjects, years of clinical practice	Disability encountered/treated, treatment done, preferred method of treatment, barriers faced by the dentists	Wish to treat children with special needs in future, UG/ PG education sufficient to treat, willingness to treat
Cassamassimo PS et al., 2004 [5]	United States of America (American dental association database)	4970 dentists, 1257 responded (24%), M>F, average age-49.85 years, clinical experience 23 years	Medically compromised children were more often seen, Nitrous oxide or oral sedation was preferred method, General practitioners felt that patient's behaviour as a barrier to provide treatment, Practitioners who finished their advanced education in general dentistry did not feel that patients' behaviour was a barrier	Majority felt dental school was more lectures only (47%) and 41% desired more training
Dao LP et al., 2005 [4]	Michigan Dental Association Database	500 dentists, response rate 41.3% (208), average 49.85 with clinical experience of 23 years	Preferred to treat CSHCN with hearing impairment	33.8% felt their education was not sufficient to treat CSHCN
Loeppky WP and Sigal MJ, 2006 [12]	Ontario	1000 General practitioners+92 paediatric Dentists, Response rate (52% General practitioners+90% Paediatric dentist) M (79.8%) > F (67.5%), practicing over 10 years.	Down syndrome was frequently treated, Paediatric dentist provided more preventive therapy (Fluoride 94%), Restoration (96.4%), Sealants (90.4%), General practitioners provided more comprehensive treatment	85% received training for special needs in undergraduate programs
Oredugba FA and Sanu OO, 2006 [15]	Nigeria	359 dentists, 280 responses (79.9%), 30-39 years of age (44.3%) M>F, Recent graduates of 10 years and below (78.5%)	Physical disability was more commonly encountered (39.35%); Management of CSHCN is difficult to treat (37.2%)	76.8% were willing to treat CSHCN, 11.8% found UG training adequate.
Halawany HS et al., 2011 [14]	Saudi Arabia	204 responses (20.4%) M>F	Tell show do was favoured (60.8%) and least favoured was general anaesthesia; 65.7% reported time consumption and financial issue as a major barrier	45% felt education in UG enabled them to treat CSHCN
Doichinova L and Peneva M, 2014 [13]	Sofia, Bulgaria	150 dentist, 35-44 year old, 62.7% General practitioner, 67.4% had clinical experience greater than 20 years	Emergency dental aid (58%), followed by restoration (27%) least common was prophylactic, Negative attitude and behaviour (89%) were commonly faced barrier	-
Bindal P et al., 2015 [16]	Kuala Lumpur, Penang and Kuching in Malaysia	150 dentist, response rate 68% (102 responded)	Physical disability was more commonly encountered (58%), emergency dental treatment was provided (41.10%), extraction (36.3%). Barriers faced was lack of training (60.8%), insufficient skill (56.9%) and financial issues (57.8%). 31.4% preferred non pharmacological method.	81.4% reported that they did not have adequate experience for treating children with special needs. 34.3% willing to pursue further education.
Abraham S et al., 2019 [6]	Database of American Academy of Paediatric Dentistry (AAPD)	6132 Paediatric dentists and 1069 paediatric residents were sent an email. Response rate for paediatric dentists 9% (574) and paediatric residents 13% (143). F>M	99% treated children with autism spectrum, preventive therapy was more often used, nitrous oxide was commonly administered. Paediatric dentists and residents were more confident in non-pharmacologic methods (49% and 71.3%)	-
Rajan S et al., 2019 [9]	Thiruvananthapuram, Kerala, India	400 dentists, 374 responses (94.1%), 31-40 years, post graduates more in number (50.21%), 34.5% less than 5 years of clinical experience and 70.8% treated children with special healthcare needs	Tooth extraction (43.1%) was commonly carried. Non-pharmacologic technique was preferred (44.5%) and the barrier faced was lack of training (55.1%)	Additional training was marked by 76.9% of the respondents

[Table/Fig-11]: Details the existing literature available on dentists' willingness to treat children with SHCN [4-6,9,12-16].

M: Male; F: Female

Peneva M (year 2014), Bindal P et al., (year 2015) have reported that emergency dental aid was carried out by 70%, 58% and 30% of clinicians respectively [13,16,17].

The majority of the practitioners mentioned that the primary barrier encountered to manage CSHCN was lack of knowledge (34%) followed by the caretaker not willing to proceed with the recommended treatment. Similar findings were reported by Bindal P et al., (2015) where 60.8% of the dentists found it difficult to treat CSHCN due to lack of training [16]. Patient's behaviour and insufficient training (40%) were the major barriers found in the survey by Salama FS et al., [11].

[Table/Fig-11] [4-6,9,12-16] mentions the key details the existing literature available on dentists' willingness to treat children with SHCN. In the present study, 61% of practitioners did not encounter CSHCN. Amongst these practitioners, 65% responded that their undergraduate and post-graduate training was inadequate for management of CSHCN. In the current study it was seen that 59% wished to treat children in the future and 56% of the dentist were interested in continuing dental education, courses/programs in the field of special health needs. Declerck D et al., in 2006 stated that dentists who had undergone training for treating specially challenged individuals perceived few barriers [18]. Therefore, additional training could provide opportunity to the practitioners to have rapport with such patient's parents and to confront their fears and anxieties about treating them in the future [19].

Limitation(s)

In the present study, the majority of respondents had graduated in the year 2018, having a clinical experience of 1-5 years. This could be a reason why increased number of respondents did not encounter children with special healthcare needs. Stratification of the response by years of experience would give more clarity on willingness of the dentist to treat children with SHCN.

CONCLUSION(S)

Majority of the dentists who encountered CSHCN (39%) reported to have treated children with mental retardation, cerebral palsy and physical disabilities more than emotional disabilities. Most of the dentists (78%) treated CSHCN using non pharmacological behaviour management methods and primarily performed preventive and restorative procedures. It was also seen that majority of the dentists reported that they lacked knowledge in treating children with SHCN.

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