ORIGINAL ARTICLE

Attitude and Practice of General Dental Practitioners and other Dental Specialties towards Pediatric Dentistry in Pakistan

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OBJECTIVE: Pediatric patients have high unmet treatment needs in Pakistan. There are only a handful of pediatric dentists in Pakistan. Thus, the dental services to child patients have to be dependent on general dentists and other dental specialists. The aim of this study was to assess the attitude and practice of the dentists towards clinical pediatric dentistry in Pakistan.
METHODOLOGY: A cross-sectional, questionnaire-based study was conducted among the dentists in Pakistan.
RESULTS: A total of 372 dentists participated in the study. These included 122 (32.8%) males and 250 (67.2%) females. The majority of the participants (n = 272, 73.1%) were between the ages of 25 to 35 years. As compared to other dentists, a significantly greater number of general dentists ($p < 0.008$) had received any training in the behavioral management of children. Operative dentists reported practicing more of the various procedures in child patients (pit and fissure sealants, stainless steel crowns, pulpectomies, fluoride varnishes, pulpotomies and restorations), as compared to the other dentists. Even though the operative dentists performed more of these procedures, more than 50% of them still did not frequently perform any of the procedures. A total of 244 (65.6%) dentists wanted to attend pediatric dentistry courses, if available.
CONCLUSION: There is a major gap in the needs and availability of pediatric dentistry services. More training needs to be conducted at both the undergraduate and postgraduate levels in pediatric dentistry.
KEYWORDS: Pediatric dentistry, general dentists, other dental specialists, attitude and practices.
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INTRODUCTION

Pediatric patients are reported to have high unmet dental needs.[1] Although the prevalence of dental caries among children has dramatically seen a downwards trend in the developed countries, the prevalence remains high in many developing countries.[2] Moreover, in developing countries like Pakistan the dental caries prevalence has not seen much of a decline.[3] However, there are no dental surveys available at a national level.

Pediatric dentistry is a specialty that provides dental care to children from infancy till adolescence including those with special care needs. Pediatric dentists also serve as a source of preventive dental education for the parents. Pediatric dentists treat the children in the best way possible by building a positive relation with the child, gaining their confidence and by helping them develop an overall positive dental attitude.[4] Although, most pediatric dental patients are referred to pediatric dentists; general dental practitioners and dentists from other dental specialties frequently encounter young patients. The greatest challenge generally faced by these dentists while performing any dental procedure on children is achieving the cooperation of the these patients.[5] Fear and anxiety invoked in children as a result of a previous traumatic experience in a dental clinic may make it difficult for the dentist to manage the child. It also makes the child more likely to avoid dental care in the future.[6] The dental treatment

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provided to pediatric patients is often left incomplete either due to an uncooperative behavior of the child or the lack of knowledge, skills and attitude of the dentist.

To carry out a dental treatment safely and effectively, it is often necessary to modify the child's behavior.[7] Each child exhibits a wide range of intellectual, physical, social and emotional attributes accompanied by a range of temperaments and attitudes.[8] Therefore, it is imperative for a dentist to have an extensive range of behavior guidance strategies to cater the needs of each child, in addition to having the tolerance and flexibility in the implementation of these strategies.[9] Moreover, the support clinical staff should be welcoming and friendly while making sure the communication carried out with the child is age-specific.[10] Establishing effective communication, reducing fear and anxiety, delivering quality dental service and building a trustworthy relationship between the dentist, child and the parents inculcates a positive attitude in the child towards dental health.[7]

Training in pediatric dentistry at undergraduate and postgraduate level shapes the attitudes and professional behavior of dentists in terms of treatment of pediatric patients.[11] The choice of treatment modalities for involved teeth in children differs between general dentists, postgraduate residents and consultants of various dental specialties when compared to pediatric dentists. Knowledge and skills in pediatric dental care is a much needed but frequently neglected area in dentistry in Pakistan. The general dentists should be encouraged to update and improve their skills and attitudes in dealing with young dental patients. This can be achieved by reading relevant literature, watching video presentations or by attending continuing education programs in pediatric dentistry.[12]

There is a scarcity of literature investigating the attitude and practice of pediatric dentistry by general dental practitioners, postgraduate residents and consultants from different dental specialties in Pakistan. Therefore, the aim of this study was to determine the attitudes and practices of general dentists, postgraduate residents and consultants of various other dental specialties towards treatment of pediatric dental patients.

METHODOLOGY

This was a cross-sectional study, conducted in Pakistan from September 2020 to November 2020, after obtaining approval from ethical review board (ERB/SZABMU/755). A sample size of 372 was selected using WHO calculator. An online form was distributed to more than 400 dentists fulfilling the inclusion criteria. Upon attaining the required sample size of 372 participants, data were entered into a computer for analysis. The questionnaire assessed the attitude and practices of pediatric dentistry among dentists from different specialties. Self-administered pre-validated questionnaires was derived from questions used in previous studies. Different dentists in various cities across Pakistan were approached using convenience sampling. Practicing dentists who treat children having a clinical experience of three or more years were included in our study. Those with less than three years of clinical experience were excluded from the study. Consent form was signed before filling the form and identity of the participants were kept confidential by keeping the collected data in a password protected file on the principal investigator's personal computer. Only the principal investigator had access to the data file.

A total of 13 items for practice and four items for attitude were included in the questionnaire. All data were entered and analyzed using SPSS v 25.0. Frequencies and percentages were derived for different responses, gender and age groups. The frequency distributions between different dentists' categories were compared using Chi-squared tests. In case where at least one expected frequency was less than five, Fisher's exact test using Monte Carlo method was used. A p-value of less than 0.05 was considered to be significant.

RESULTS

A total of 372 dentists participated in this study. These included 122 (32.8%) males and 250 (67.2%) females. A total of 89 (23.9%) of the participants were less than 25 years old. This age group primarily comprises of house officers. Moreover, 272 (73.1%) were between 25 and 35 years old. This group consists represents postgraduate trainees, young general practitioners or early career specialists. Finally, only 11 (3.0%) were above 35 years of age. This age group represents consultants/specialists and experienced general practitioners.

There were 207 general dentists; 83 dentists were specialists in Operative dentistry; 38 were Orthodontists or Prosthodontists; while 44 were Oral and Maxillofacial surgeons. Since the Orthodontists and Prosthodontists in this study were small in number, they were categorized into one group for the purpose of data analysis.

The frequency distribution of responses by the dentists from different specialties for the 13 items pertaining to the practice of pediatric dentistry are presented in Table #1. Except for the variable "number of pediatric patients treated per week," significant differences were observed between the different specialties regarding responses for the rest of the variables. A greater number of general dentists had received training in the behavioural management of children (n = 84, 40.6%), as compared to the other specialties. A

Table 1: Specialty Wise Frequencies of Items Describing the Practice of Pediatric Dentistry

Variable		Specialty					P- Value
		General Dentists (%)	Operative Dentists (%)	Orthodontists/ Prosthodontists (%)	Oral & Maxillofacial Surgeons (%)	Total (%)	
Routine Dental Treatment of Children	Rarely	45 (21.7%)	13 (15.7%)	13 (34.2%)	7 (15.9%)	78 (21.0%)	0.018
	Sometimes	121 (58.5%)	49 (47.0%)	17 (44.7%)	23 (52.3%)	200 (53.8%)	
	Regularly	41 (19.8%)	31 (37.3%)	8 (21.1%)	14 (31.8%)	94 (25.3%)	
Number of Pediatric Patients per Week	Less than 10	154 (74.4%)	64 (77.1%)	34 (84.2%)	26 (59.1%)	276 (74.2%)	0.056
	Between 10-20	46 (22.2%)	13 (15.7%)	6 (15.8%)	16 (36.4%)	81 (21.8%)	
	More than 20	7 (3.4%)	6 (7.2%)	0 (0%)	2 (4.5%)	15 (4.0%)	
Placing Stainless Steel Crowns	Never	152 (73.4%)	34 (41.0%)	22 (57.9%)	34 (77.3%)	242 (65.1%)	< 0.001
	Sometimes	43 (20.8%)	41 (49.4%)	15 (39.5%)	8 (18.2%)	107 (28.8%)	
	Frequently	12 (5.8%)	8 (9.6%)	1 (2.6%)	2 (4.5%)	23 (6.2%)	
Placing Pit and Fissure Sealants	Never	66 (31.9%)	15 (18.1%)	16 (42.1%)	18 (40.9%)	115 (30.9%)	0.003
	Sometimes	101 (48.8%)	41 (49.4%)	14 (36.8%)	24 (54.5%)	180 (48.4%)	
	Frequently	40 (19.3%)	27 (32.5%)	8 (21.1%)	2 (4.5%)	77 (20.7%)	
Fluoride Varnish Usage	Never	98 (47.3%)	27 (32.5%)	21 (55.3%)	26 (59.1%)	172 (46.2%)	0.032
	Sometimes	83 (40.1%)	45 (54.2%)	14 (36.8%)	17 (38.6%)	159 (42.7%)	
	Frequently	26 (12.6%)	11 (13.3%)	3 (7.9%)	1 (2.3%)	41 (11.0%)	
Performing Pulpectomy in Primary Teeth	Never	56 (27.1%)	11 (13.3%)	15 (39.5%)	17 (38.6%)	99 (26.6%)	< 0.001
	Sometimes	96 (46.4%)	37 (44.6%)	16 (42.1%)	24 (54.5%)	173 (46.5%)	
	Frequently	55 (26.6%)	35 (42.2%)	7 (18.4%)	3 (6.8%)	100 (26.9%)	
Treat Children with	Never	66 (31.9%)	15 (18.1%)	16 (14.2%)	18 (40.9%)	115 (30.9%)	
Special Health Care Needs	Sometimes	101 (48.8%)	41 (49.4%)	14 (36.8%)	24 (54.5%)	180 (48.4%)	< 0.001
	Frequently	40 (19.3%)	27 (32.5%)	8 (21.1%)	2 (4.5%)	77 (20.7%)	
Use of Rubber Dam in Children	Yes	28 (13.5%)	12 (14.5%)	0 (0%)	3 (6.8%)	43 (11.6%)	0.032
	No	179 (86.5%)	71 (85.5%)	38 (100%)	41 (93.2%)	329 (88.4%)	
Training Received in Behaviour Management of Children	Yes	84 (40.6%)	28 (33.7%)	8 (21.1%)	8 (18.2%)	128 (34.4%)	0.008
	No	123 (59.4%)	55 (66.3%)	30 (78.9%)	36 (81.8%)	244 (65.6%)	
Managing Dental Trauma	Never	50 (24.2%)	11 (13.3%)	10 (26.3%)	3 (6.8%)	74 (19.9%)	< 0.001
	Sometimes	128 (61.8%)	46 (55.4%)	24 (63.2%)	7 (15.9%)	205 (55.1%)	
	Frequently	29 (14.0%)	26 (31.3%)	4 (10.5%)	34 (77.3%)	93 (25.0%)	
Place Restorations in Primary Teeth	Never	13 (6.3%)	3 (3.6%)	6 (15.8%)	5 (11.4%)	27 (7.3%)	0.003
	Sometimes	77 (37.2%)	29 (34.9%)	16 (42.1%)	26 (59.1%)	148 (39.8%)	
	Frequently	117 (56.5%)	51 (61.4%)	16 (42.1%)	13 (29.5%)	197 (53.0%)	
Perform Pulpotomy in Primary Teeth	Never	6 (7.2%)	15 (39.5%)	11 (25.0%)	69 (18.5%)	37 (17.9%)	< 0.001
	Sometimes	42 (50.6%)	14 (36.8%)	22 (50.0%)	172 (46.2%)	94 (45.4%)	
	Frequently	35 (42.2%)	9 (23.7%)	11 (25.0%)	131 (35.2%)	76 (36.7%)	
Practice Interceptive Orthodontics	Never	129 (62.3%)	59 (71.1%)	13 (34.2%)	30 (68.2%)	231 (62.1%)	0.003
	Sometimes	57 (27.5%)	17 (20.5%)	14 (36.8%)	12 (27.3%)	100 (26.9%)	
	Frequently	21 (10.1%)	7 (8.4%)	11 (28.9%)	2 (4.5%)	41 (11.0%)	
	Total	207 (100%)	83 (100%)	38 (100%)	44 (100%)	372 (100%)	

The frequency distribution of responses by the dentists from different specialties for the four items pertaining to the attitude related to pediatric dentistry have are presented in Table #2. A significantly greater proportion of oral and maxillofacial surgeons performed treatments under physical restraints, if a child patient showed tantrums and exhibited uncooperative behaviour (n = 29, 65.9%), as compared to other specialties. No significant difference (p>.05) in any of the other attitude-related items was reported between the specialties.

Table 2: Specialty Wise Frequencies of Items Describing the Attitudes Regarding Pediatric Dentistry CDE = Continuing Dental Education)

Variable		Specialty					P Value
		General Dentistry	Operative	Orthodontics/ Prosthodontics	Oral & Maxillofacial Surgery	Total	
Most Difficult Task in Managing Pediatric Dental Patients	Controlling behaviour	92 (44.4%)	42 (50.6%)	22 (57.9%)	22 (50.0%)	178 (47.8%)	0.833
	Administering LA	66 (31.9%)	22 (26.5%)	11 (28.9%)	11 (28.9%)	13 (29.5%)	
	Use of rubber dam isolation	22 (10.6%)	12 (14.5%)	2 (5.3%)	3 (6.8%)	39 (10.5%)	
	Using high speed handpiece	25 (12.1%)	6 (7.2%)	3 (7.9%)	6 (13.6%)	40 (10.8%)	
	Placing a restoration	2 (1.0%)	1 (1.2%)	0 (0%)	0 (0%)	3 (0.8%)	
Treat Very Uncooperative Patients	Yes I try	135 (65.2%)	57 (68.7%)	21 (55.3%)	31 (70.5%)	244 (65.6%)	0.172
	No, I do not	33 (15.9%)	17 (20.5%)	5 (13.2%)	5 (11.4%)	60 (16.1%)	
	Refer to pediatric dentist	39 (18.8%)	9 (10.8%)	12 (31.6%)	8 (18.2%)	68 (18.3%)	
Like to Attend CDE Programs in Pediatric Dentistry	Yes	195 (94.2%)	78 (94.0%)	37 (97.4%)	42 (95.5%)	352 (94.6%)	0.944
	No	12 (5.8%)	5 (6.0%)	1 (2.6%)	2 (4.5%)	20 (5.4%)	
Treat under physical restraints if a child patient shows tantrums and exhibits uncooperative behaviour	Yes	71 (34.3%)	27 (32.5%)	10 (26.3%)	29 (65.9%)	137 (36.8%)	< 0.001
	No	136 (65.7%)	56 (67.5%)	28 (73.7%)	15 (34.1%)	235 (63.2%)	
	Total	207 (100%)	83 (100%)	38 (100%)	44 (100%)	372 (100%)	

greater proportion of general dentists frequently performed pulpotomies in primary teeth as compared to other specialties (n = 35, 42,2%). Oral and maxillofacial surgeons reported frequently managing the greatest proportion of trauma patients (n = 34, 77.3%), as compared to the other specialties. A significantly greater proportion of orthodontists reported frequently practicing interceptive orthodontists (n = 11, 28.9%), as compared to other specialties. Out of the 334 dentists who were not orthodontists, only 30 (8.9%) dentists practiced interceptive orthodontics. For all other items, a significantly greater proportion of specialists in operative dentistry performed the various procedures, as compared to other specialties.

DISCUSSION

This study assessed the attitude and practice towards pediatric dentistry by general dentists, operative dentists, prosthodontists/orthodontists and oral & maxillofacial surgeons. Operative dentists reported to be treating the greatest number of child patients regularly. Overall, only one in every four (25.3%) dentists reported treating child patients regularly. This ratio is quite alarming as it suggests that majority of the child patients are left untreated due to the lack of willingness/training of the dentists to treat them.

A similar trend was prevalent (IN) different procedures performed on the child patients. Operative dentists reported to be more frequently performing the following procedures,

as compared to other dentists: stainless steel crowns, pit and fissure sealants, fluoride varnish application, pulpectomies in primary teeth, and restorations in primary teeth. However, these frequencies are still low. Stainless steel crowns are the restorative method of choice in multi-surface lesions in primary molars. If the majority of the dentists in this study have never placed these crowns, the quality of dental health care services provided to the child population can only be expected to be poor. A great majority of the dentists do not frequently perform a procedure as basic as placing a pit and fissure sealant. Similarly, 90% of the dentists do not frequently provide preventive services such as topical fluoride application. About half of the dentists do not even frequently place simple restorations in primary teeth. All these figures suggest the dire lack of services provided to the pediatric population of Pakistan.

Interestingly, only 25.3% of the dentists regularly treat child patients. Among operative dentists, 37.3% treat child patients regularly, which is still a low figure. Moreover, only about 36.7% of the dentists frequently perform pulpotomies in primary teeth. Also, only 19.8% of the general dentists frequently performed the routine treatment of pediatric patients. A study conducted in Karachi reported only 38% dental surgeons provide dental treatment to children.[7] Similarly, a study by Thomas et al reported 46% general dentists and consultants from different dental specialties aside from pediatric dentists from Chennai, India to be apprehensive in providing healthcare to child patients,[13] whereas around 79% general dentists from Kerala[5] and 85% dental surgeons from Saudi Arabia were reported to treat pediatric patients on a routine basis.[14] These statistics vary widely between different countries and regions and reflect the tendency among dentists to generally avoid treating child patients. While it has serious implications regarding the unmet dental needs of pediatric dental patients, it also reflects on adequacy of training in the subject of pediatric dentistry at the undergraduate level.

A very low proportion of the dentists treats pediatric patients with special care needs. A study by Aras and Dogan reported 63% of the general dentists performing incorrect or incomplete treatment and, in some cases, avoiding the treatment of young patients and patients with special care needs owing to the insufficient knowledge and training.[11] A study conducted in Saudi Arabia by Halawani et al reported that around 57% of the dentists treat children with special needs.[14] According to Dao et al, there is a direct relationship between education in dental care for patients with special care needs and the willingness of dentists to treat such patients as those who receive sufficient undergraduate education on the subject are more well prepared to treat children with special care needs.[15] Lack of training in behavioural management techniques coupled with the lack of confidence to treat these patients are possible reasons for not treating these patients.[16] Many dentists simply refer these patients to other dentists or to be treated under general anesthesia.[8,17] A study conducted by McQuistan et al has shown that almost 50% of general dentists referred children younger than 3 years to pediatric dentists.[18]

The percentage of operative dentists (14.5%) and general dentists (13.5%) using rubber dam in children was greater than the other dentists. An overall alarming 88.4% of the dentists do not use rubber dam in children. This indicates towards extremely low usage of rubber dam in children by the dentists in our study. Roshan et al reported that 9% of dentists in the UK routinely used rubber dams in their patients and only 5% dentists used them in children.[19] It is alarming that such a large number of dentists do not use proper isolation in children despite the advantages of its use. Lack of cooperation among child dental patients is a highly probable reason for dentists avoiding the use of rubber dam among pediatric patients.[20]

Most pediatric patients can be effectively managed by implementing the basic behavior guidance techniques.[7] In our study, overall, only 34.4% of the dentists had received any training in the behavior management of children. Behavior management in children is the most common reason dentists reject endodontic treatment in primary teeth.[21] This implies a greater need for training the dentists in the behaviour management of children.

Orthodontists more frequently practiced interceptive orthodontics than other dentists. This is because of their specialty. Also, oral and maxillofacial surgeons managed dental trauma in children more frequently than other specialties. This is also because dental surgeons generally manage trauma cases. Among the other dentists, overall only 15.9% dentists frequently managed dental trauma in child patients.

Oral and maxillofacial surgeons were more likely to treat patients using physical restraints than other specialties. This is possibly because children are most uncooperative during dental extractions than any other procedure, and oral surgeons usually perform extractions.

The majority of the dentists reported to have tried treating uncooperative children. A great majority of the participants (94.6%) were likely to attend a Continuing Dental Education (CDE) program in pediatric dentistry, if offered one. This shows that dentists generally do try to deal with pediatric patients. However, due to lack of training and expertise in managing these patients, they often fail to provide successful treatment and end up referring these patients, or even avoiding them. A study by Mathews et al. reported that around 43% dentists believed one of the barriers faced by them in treating child patients was the lack of undergraduate pediatric dentistry training.[5]

This study has the limitation of recruiting a small sample size. Many of the sub-groups had a small representation. Nevertheless, the study has provided an insight into attitude and practices of general dentists and other dental specialists regarding children's dentistry. There is a dire lack of pediatric dentistry training programs in Pakistan. Currently, there is only one MDS degree program in pediatric dentistry available in the whole of Pakistan. With a population of more than 220 million people where more than 35% of the population is under the age of 15 years, a large proportion of the Pakistani population is currently being deprived of dental health care services. Pediatric dentistry needs to be incorporated in the undergraduate dental curriculum as an independent examinable subject. Also, CDE programs need to be organized. As evident in our study, dentists are quite keen on getting training in the basics of pediatric dentistry. However, due to lack of any such courses they are deprived of this training. Finally, more postgraduate programs need to be introduced all over Pakistan.

CONFLICT OF INTEREST

None declared

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