

Assessing the Pediatricians' Role in Improving Young Children's Oral Health in Telangana State: A Cross-sectional Study

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ABSTRACT

Background: Primary precautionary approaches for oral health is an essential tool concerning public health, as dental caries is one of the eminently prevailing chronic diseases among children across the globe. As pediatricians and pediatric healthcare professionals are more likely to encounter children when compared to general dentists, it is crucial for them to be acquainted with possible risk factors and diseases occurring in early childhood. Therefore, it is highly advocated to take necessary steps at an initial stage to help promote pragmatic results during childhood and succeeding adulthood phases.

Objectives: The pediatrician's attitude toward dental health and his dental screening, counseling, and referral practices.

Material and methods: This was a cross-sectional study in the Hyderabad district, following area sampling on a sample of 200 child healthcare professionals, as calculated based on a pilot study. A definitive and validated questionnaire was used for the collection of data, and pediatric health professionals were approached in their workplaces.

Results: About 44.5% of pediatricians usually check teeth during routine tongue and throat examinations. Around 59.5% of them suspect cavities when the child looks undernourished. A total of >80% of them voted that oral health cannot be neglected, as it is an integral part of a child's general health and dental screening, and referral at regular intervals of time is their responsibility. Only 8.5% advised fluoridated toothpaste, whereas only 62.5% counseled parents on the dental ill effects of nighttime bottle-feeding and digit sucking.

Conclusion: Although all the pediatricians had appropriate attitudes toward oral health, they were not put into action by many.

Dental public health significance: Pediatricians play a vital role as potential partners in the oral health promotion of children and their families. A pediatric primary care provider's regular screening, counseling, and referral would help his/her patients in getting the right treatment done at the right time.

Keywords: Counseling, Early referral, Oral health promotion, Pediatrician, Screening.

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INTRODUCTION

Dental caries constitutes one of the most prevalent and preventable chronic diseases concerning children across the globe, with significant short and long-term health consequences.¹ There is collective evidence that, in order to accomplish the goal of preventing dental diseases, it is of utmost importance to provide preventive interventions during the initial years of life.² It is recommended that initiatives begin with young children in order to encourage productive outcomes during childhood and succeeding adulthood.^{3,4} It can provide great benefits if the dental care commences around 6 months of age, with the eruption of the primary teeth. Recall visits are required annually in order to determine whether prevention or treatment is required.⁵⁻⁷ Pediatricians are poised to initiate this oral healthcare process with an early oral health assessment and provide the patients with proactive advice, including information about future dental appointments, in addition to routine medical appointments.⁸ Pediatricians are among the first healthcare professionals to examine newborn individuals and to be responsible for their holistic health condition until adolescence.⁹ Regular visits to a pediatrician or a primary healthcare provider on a regular basis, which begin early in infancy and take place on a consistent, well-accepted schedule, would allow for initial assessment of risk and prevention of a child's oral

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disease. Moreover, pediatricians and other primary healthcare providers already play a crucial role in the prevention and treatment of health problems. Early detection of health problems and routine

age-appropriate anticipatory guidance on an extensive range of topics could potentially be expanded to include caries prevention counseling and assessment, as well as referral for dental problems. Early professional intervention can significantly lessen or eliminate the consequences of dental disease.¹⁰ Pediatricians are in a unique position to contribute to the oral health of their young patients and parents would follow their recommendations. Early intervention allows parents to be educated on a variety of topics, including appropriate oral cleanliness, healthy feeding practices, and the avoidance of nursing caries and tooth traumas.¹¹ Pediatricians' knowledge and skill in addressing children's oral health would enable early detection, referral, and intervention for children needing dental care.¹² Comprehensive health care cannot be achieved unless dental care is a strong priority in all health service programs.¹³ Pediatric visits provide a critical opportunity to advise families, identify high-risk children, establish prompt dental referrals, and ensure preventive measures are delivered.^{13,14} As with immunizations, pediatricians can help construct the first lines of defense against oral disease. Pediatricians may be able to improve their patient's dental health by increasing their active participation in oral health prevention during well-baby checkups and well-child care visits.¹⁵ This approach would benefit most children who never visit a dentist until they are in pain and several poor children who are lacking access to dental care at all.¹⁶ Little evidence to date is available on dental screening, oral health counseling, and early dental referral practices of pediatricians in India.¹⁶⁻¹⁸ Thus, the present study was undertaken to assess their attitude and practices toward dental health, screening, counseling, and referral.

MATERIALS AND METHODS

This was a cross-sectional study conducted among pediatric healthcare professionals of the Hyderabad district to assess their role in oral health. Hyderabad district of Telangana, India, consists of the twin cities of Hyderabad and Secunderabad. Ethical clearance was obtained from the Institutional Review Board of Sri Sai College of Dental Surgery. The district comprised 16 mandals, which are divided into five zones; central, east, south, west, and north. These five zones constitute 18 circles with 150 wards.

The data collection tool was self-administered to pediatricians who were approached at their workplaces. Informed consent (verbal) for the study was obtained from the participants. Pediatricians who were not available on the day of study in a particular area were consulted again on the day of availability and data was collected, but those who were not willing to participate were excluded. A pilot study was conducted on a sample of 30 pediatricians in 10 different areas selected by randomly spotting on a map, which was obtained from the official website of the Greater Hyderabad Municipal Corporation. A 13-item self-designed, pretested, and a close-ended questionnaire assessing the pediatrician's attitude and practices toward oral health, oral health screening, counseling, and referral was constructed based on previous literature and objectives of the study. Demographic details included gender, years in practice, qualification, and the number of patients being attended/day. Validity was assessed using a content validity ratio of 0.92 and reliability by Cronbach's α , which was found to be 0.85, indicating that the data collection tool is valid and reliable. Based on a pilot study, the required sample size was estimated to be 97. Since the area sampling method was carried out for the study, the sample was doubled ($97 \times 2 = 194$) and rounded to 200. An area sampling procedure was followed to reach the final sample for the

study. At the beginning of the study, 40 randomly spotted areas (anticipating at least five pediatricians in each area) were distributed proportionally over five zones (eight areas from each zone) of Hyderabad were considered for the study. All the pediatricians in those particular areas were included in the study. As the sample required was not obtained, another 20 areas were randomly chosen from all the zones proportionally for the study.

RESULTS

The demographic details of the study population. Out of 200 subjects, the majority, 163 (81.5%), were male practitioners. Based on the number of years in pediatric practice, about half, 93 (46.5%), were in the <5 years group. Diploma in child health care and doctorate of medicine in pediatrics were almost in equal numbers, 45.5% and 47.5%, respectively. Only 7% were in the superspecialization group (Table 1).

Table 2 shows the attitudes of the pediatrician sample toward oral health. Attitude items were scored on a 3-point Likert scale (good attitude score 3, neutral attitude score 2, and bad attitude score 1). The mean attitude score was 19.29 ± 2.80 . A total of >85% population agreed that oral health is an integral part of the overall health of children, that it is their responsibility to screen oral cavities, and also early referral to a dentist will help in maintaining good oral health. Only 64% of pediatricians agreed that dental caries is the most prevalent chronic childhood disease with long-term health consequences. All (100%) of the pediatricians agreed that primary healthcare physicians could play a vital role in helping families seek early dental care through referral and help in oral health promotion. About 31% of pediatricians felt that their time could be better spent attending to other patients, than spending on oral health counseling.

Table 3 shows the oral health-related practices of pediatricians during their routine clinical practice. About 53% of them referred to a dentist only when they were told about teeth problems by their patients. Only 44.5% of subjects were actually performing oral health screening, and about 59.5% of pediatricians suspect cavities in children who look undernourished. About 62.5% of subjects discourage putting a child to bed with a bottle, as it is responsible for early childhood cavities, and educate about dental ill effects of habits like thumb-sucking/finger-sucking beyond the age of 3 years during their routine counseling to parents. Very less, that is, only 8.5% of subjects recommend using fluoridated toothpaste for children.

Table 4 shows the association of attitude scores with demographic variables like gender, years in practice, qualification,

Table 1: Distribution of demographic variables of pediatricians

Characteristic		Number	Percentage
Gender	Male	163	81.5
	Female	37	18.5
Years in practice	<5	93	46.5
	6-10	69	34.5
	>10	38	19
Qualification	Diploma	91	45.5
	PG	95	47.5
	Superspecialization	14	7
No of op/day	<30	47	23.5
	31-60	88	44
	>60	65	32.5

Table 2: Distribution of attitudes of pediatricians regarding oral health (mean 19.29 ± 2.80)

Sl. no.	Statement	Agree		Uncertain		Disagree	
		n	%	n	%	n	%
1	Oral health is an integral part of the overall health of children	179	89.5	6	3	15	7.5
2	As a professional responsible for overall health of child, I feel dental screening is also my responsibility	173	86.5	3	1.5	24	12
3	Dental cavities are the most common dental disease in childhood having long-term health consequences	138	64	31	15.5	31	15.5
4	Early referral to a dentist is important in maintaining good oral health	171	85.5	20	10	9	4.5
8	My time can be better spent attending to other patients, than spending on oral health counseling	62	31	0	0	138	69
9	A pediatrician can help in promoting oral health to his/her patients	200	100	0	0	0	0
10	As we are the primary care medical providers, we can play an important role in helping families to seek early dental care through referral	200	100	0	0	0	0

Table 3: Distribution of pediatricians' practices related to oral health during their routine clinical practice

Sl. no.	Practices statement	Yes		No	
		n	%	n	%
1	I refer to a dentist only when I am told of any teeth problem	106	53	94	47
2	During my routine health examination, I usually	89	44.5	111	55.5
3	• Check teeth for cavities/injury/discoloration, during tongue and throat examination				
	• Suspect cavities when a child is undernourished	119	59.5	81	40.5
3	During my routine counseling to parents, I usually	125	62.5	75	27.5
	• Discourage putting a child to bed with a bottle, as it is responsible for early childhood cavities				
	• Advise them to use fluoride-containing toothpaste by the age of 2, as it prevents tooth cavities	17	8.5	183	91.5
	• Educate about dental ill effects of habits like thumb-sucking/ finger-sucking beyond the age of 3 years	125	62.5	75	27.5

Table 4: Comparison of attitudes of pediatricians in relation to their demographic variables

Characteristic	Mean attitudes	p-value
Gender	Male 12.28 Female 12.53	0.6419¶
Years in practice	<5 12.08 6–10 12.07 >10 13.21	0.0790¶¶
Qualification	Diploma 12.12 Postgraduation 12.27 Superspecialization 13.5	0.2303¶¶
No of op/day	<30 13.04 31–60 12.86 >60 10.97	0.0000¶¶¶ sig 0.6296¶¶¶¶ 0.0000¶¶¶¶ sig 0.0004¶¶¶¶ sig

¶, t-test; ¶¶, analysis of variance (ANOVA); ¶¶¶, Tukey's multiple post hoc

and the number of outpatients (op) attended/day. There was no significant difference in attitudes between males and females, as well as years in clinical practice and qualification. There was a significant variation of attitudes among pediatricians in three different categories of the number of op/day, with honestly significant difference observed between categories of 30–60 op/day and >60 op/day, as well as between <30 op/day and >60 op/day groups. Attitudes were not significantly varying between <30 op/day and 30–60 op/day groups.

Table 5 shows the association of attitudes with oral health-related practices during a pediatrician's routine child health care. There was a significant association observed between attitudes and practices, with good practices showing higher attitude scores and vice versa.

DISCUSSION

Poor oral health is currently a major general public health concern across the globe. Dental caries is the most commonly occurring chronic ailment in children. It can have a wide spectrum of negative impacts on children, inclusive of displeasure, failure to thrive, deprived nutritional status, and various behavioral issues.² Early preventative dental treatment can prove to be of great help to reduce the risk of dental diseases.³ Evidence also suggests that children who receive early preventive dental care are less likely to require restorative or emergency care in the future and hence, have reduced dental-related healthcare expenses, especially in high-risk groups.^{2–4} Dental caries is a public health concern in India, with a frequency of 60–80% in Indian children, significantly higher than asthma.¹ A lack of information about dental illnesses has resulted in chronic neglect of oral health. The National Oral Health Care Programme was established in 1999 to address the country's ever-increasing patient load and minimize morbidity caused by oro-dental issues. The Government of India's Directorate General of Health Services and Ministry of Health and Family Welfare introduced this basic preventive oral health care program, which is the most cost-effective, suitable, and desired. To be effective in preventing dental diseases, it is of utmost importance that preventative measures should initiate during the 1st year of life. Pediatricians are in a unique position in society because they can care for the health and well-being of children. This process may begin with an early complete assessment of oral health and complete provision of anticipatory guidance, including ensuring the patient's prior dental visits. Very little has been documented

on pediatricians' role, attitudes, and practices regarding oral health. Therefore, a cross-sectional study was conducted among the pediatricians of the Hyderabad district to assess their role in oral health.

This study indicates that all pediatricians believe that they have an important role in the promotion of oral health. It was found that >85% population agreed that oral health is an integral part of the overall health of children, and it is their responsibility to screen for oral cavities; also, early referral to a dentist will help in maintaining good oral health. All (100%) the pediatricians agreed that being primary care medical providers, they can play an important role in helping families seek early dental care through referral and help in oral health promotion. These findings are inconsistent with those of Lewis et al.¹² (90%), Bozorgmehr et al.² (86.7%), and Poornima et al.¹⁵ (91%).

Of all the 200 participants, only 88 (44%) reported dental screening as a part of their regular practice. This is in contrast with Soares et al.⁹ and Lewis et al.,¹² where 92% and 100% reported routine examination of the oral cavity of children, respectively. A slightly lower percentage was seen in the study by Olatosi et al., where only 30.8 % of pediatricians examine children's teeth for dental caries. Inspecting the oral cavity of the baby should be done when examining the oropharynx and nasopharynx; it is necessary for the diagnosis of the pathologies affecting children, particularly oral diseases. Before the emergence of the first primary teeth, infantile oral hygiene should begin with a cotton diaper or gauze wet with filtered water; this is a method that allows for the physical and mechanical cleansing of the oral cavity, as well as familiarizing the mother and baby with the oral hygiene practice.

Following the eruption of the first teeth, dental hygiene should include the use of fluoride toothpaste. Fluoride concentrations should be equal to or >1000 ppm and comparable to a grain of rice (smear) for children under 2 year old and a pea for children 2–5 year old. This will aid in the prevention and control of dental caries. Fluoride dentifrice consumption has been linked to the disorganization of dental biofilm formation, which is required for the development of conditions such as dental caries.

Evidence suggests that regular toothbrushing with fluoride toothpaste by children is very important in preventing dental caries. Only 8.5% of subjects recommended using fluoridated toothpaste for children. This finding is similar to those of Poornima et al.¹⁵ and Sabbagh et al.,¹⁷ where 24% and 11.3% of pediatricians recommended fluoride toothpaste, respectively. Lack of knowledge regarding fluoride's role in preventing dental

Table 5: Comparison of attitudes and practices of pediatricians regarding oral health

Variable	Status	N	Mean	t-value	p-value
I refer to a dentist only when I am told of any teeth problem	Yes	106	10.77	-9.9148	0.0001*
	No	94	14		
Check teeth for cavities/injury/discoloration during tongue and throat examination	Yes	89	14	9.2111	0.0001*
	No	111	10.99		
Suspect cavities when a child is undernourished	Yes	119	13.16	5.7929	0.0001*
	No	81	11		
Discourage putting child to bed with bottle, as it is responsible for early childhood cavities	Yes	125	13.31	7.5323	0.0001*
	No	75	10.58		
Advise them to use fluoride-containing toothpaste by the age of 2, as it prevents tooth cavities	Yes	17	14	2.6700	0.008*
	No	183	12.13		
Educate about dental ill effects of habits like thumb-sucking/finger-sucking beyond the age of 3 years	Yes	125	13.31	7.5323	0.0001*
	No	75	10.58		

*p-value is statistically significant

caries might be the reason. About 62.5% of subjects discourage and educate parents about the dental ill effects of bottle-feeding and habits like thumb-sucking/finger-sucking during their routine counseling of parents. These findings are in contrast with those in Soares et al.⁹ and Virdi et al.,¹⁶ where 93% and 92.13% discouraged nighttime bottle-feeding, respectively.

Dental diseases in children are common. The impact of oral diseases on a child's growth and development may have negative consequences for health, neuropsychological development, quality of life, and economic potential; thus, dental diseases in children should be recognized as a major public problem in the same way that they are in the adult population. While pediatricians' routine examinations of the child's mouth and tonsils can also focus on dental diseases, they play a vital role in assisting the kid in seeking dental care at an early stage, therefore, significantly lowering the dental burden in society.

CONCLUSION

The study demonstrates that a high proportion of the pediatricians in the Hyderabad district have a good attitude toward knowledge of oral health care, but their practices need to be improved in educating the parents about oral health.

Suggestions and Areas of Further Research

- Training/postings in oral health preventive departments during their academic activities.
- Involvement of pediatricians in continuing dental education programs.
- Oral health education materials in clinics, for example, diet chart, caries progression, prevention methods, brushing technique, the importance of primary teeth, nursing bottle caries, etc.
- Collaboration with nearby dental practitioners.
- Inclusion of "dental visit" in the immunization schedule.
- Dental consultants in pediatric hospitals.

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