

Awareness among pediatricians regarding oral health care in children including those with special health care needs: A cross-sectional survey

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ABSTRACT

Background: Pediatricians are the custodians of the overall health of children and are the ideal healthcare personnel to impart information and instruction about oral health care. The aim of this survey was to evaluate awareness of pediatricians regarding oral health care and prevention of oral diseases in children. **Methodology:** The study participants consist of 102 young pediatricians working as Junior and Senior Residents. A questionnaire was formulated to evaluate their knowledge about oral diseases and their prevention. The questionnaire also tested the attitude and practices of pediatricians towards oral health of children with special health care needs. **Results:** Majority of the pediatricians had correct knowledge about dental caries (60%), bottle feeding (88.2%), tongue cleaning (83.3%) and medication causing gum enlargement (92.2%). Few had correct knowledge about recommended age to start tooth brushing (35.3%) and maximum recommended sugar exposures per day (35.3%). Although, majority (62.7%) had correct knowledge about fluoride and its role caries prevention, very few (2.9%) knew about recommended fluoride concentration in toothpaste for children. **Conclusion:** There was a lack of knowledge amongst pediatrician about oral health care, prevention, and appropriate referral. The study result necessitates the emphasis of improving oral health related knowledge among pediatrician.

Keywords: Attitude, knowledge, oral health care, pediatricians, special children

Introduction

Oral health is considered as an integral component of overall health. Therefore, the preventive and therapeutic health care should be accessible to all the children and youth.^[1] It is not just the responsibility of dentist to look for the oral health of child. All the stake holders including the guardians, dentists, allied dental professionals, and general health care providers should

share the responsibility.^[2] Young patients visit a pediatrician very often and the number of children (infants) seen by a pediatrician are significantly higher compared to a dentist.^[3] The pediatricians should be aware of the prevention of oral disease that begins early in life because the first interaction of a child to a medical environment is often through them. Collaborative efforts of both the pediatricians and dentists are required in provisioning of preventive oral care to the children.^[4] Pediatricians as health care professionals supervise the process of growth and development in children and provide guidance to the parent regarding feeding, maturation, immunization, and diseases.^[5]

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Pediatricians are the custodians of overall health of children and are the ideal health care personnel to impart information and instruction about health care including oral health to the parents and caregivers. Pediatricians can be helpful in early diagnosis of oral diseases and its appropriate referral for management. They can educate the parents about basic preventive oral care.^[6] American academy of pediatrics (AAP) recommends that general health care providers including the pediatricians must include the preventive oral health strategies in their patient care protocols. Pediatricians should also carry out oral health risk evaluation of children at 6 months of age and also advice appropriate dental referrals.^[7] Thus, pediatricians are considered to play a pivotal role in providing preventive oral health care education and to diagnose oral problems in children at an early age.^[8] Therefore, the oral health awareness among pediatricians and implementation of their oral health-related knowledge in their practice can have a significant impact on prevention of oral disease in children.^[9] However, the results of limited number of studies available in this domain highlight lack of training of Pediatricians on oral health care of children or they have an opinion that oral health does not fall within their domain.^[10,11] Hence, the present study is planned to evaluate awareness, among Pediatricians regarding etiology, pathogenesis and prevention of oral disease among children.

Methods

Study design and study setting

This was an institution based cross-sectional questionnaire study carried out at Advance Pediatric Centre, Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh, India. The study population included 102 young pediatricians pursuing their Residency Program at the center, working as either Junior Residents or Senior Residents.

Permissions obtained

Ethical approval was obtained from Institutional Ethics Committee, PGIMER, Chandigarh (Ethical clearance number INT/IEC/2015/695 dated November 2, 2015). All the participating Pediatricians were explained about the study objectives and a written informed consent was also obtained from them.

Sample size and sampling strategy

Pediatricians being a very specific group only a limited number of them are present in the institute. Hence, an attempt was made to include all the eligible subjects in the study.

Eligibility criteria

Young Pediatricians (Junior and Senior Residents) were eligible to be the part of the study. A pediatrician was excluded from the study only if, consent to participate was not given.

Sampling strategy and questionnaire administration

A pediatrician was kept as the sampling unit. List of all pediatricians (Junior and Senior Residents) was obtained from

the office of the Advance Pediatric Centre. Questionnaire was self-administered. Respondents were conveyed about the time and place of administration beforehand, which was kept in the morning time just after the daily morning scientific session meant for the doctors working at the Advance Pediatric Centre. If any candidate was not present on the day of data collection a second visit on nearest feasible date was decided to be taken up. A total of 102 completely filled questionnaires were received back.

Details of the questionnaire

A self-structured questionnaire was used to collect the data related to the knowledge among Pediatricians about oral diseases and measures to prevent them. The questionnaire was reviewed by experts and content validity was ensured. It consisted of two sections; (1) open-ended questions related to basic demographic details (2) closed-ended questions to assess knowledge regarding oral diseases, oral hygiene measures, role of fluoride in oral health maintenance and attitude and practices of Pediatricians towards oral health of children with special health care needs (CSHCN). The questionnaire was filled by all the participants in presence of investigators. After collection of questionnaire principal investigator delivered a lecture to all the participating Pediatricians to improve their knowledge and awareness about oral health and explained them their role in prevention and control of oral diseases.

Statistical analysis

MS Excel (Microsoft Corporation, Redmond, WA, USA) was used to enter the information in a database. The percentage and frequency distributions for each answer was examined using SPSS version 21.0. Armonk, NY: IBM Corp.

Results

The 102 study participants were comprised of 28 senior residents and 74 junior residents among which 48 were males and 54 were females.

Oral health care, etiology, and prevention

The majority of pediatricians had the correct knowledge about dental caries (60%), bottle feeding (88.2%), tongue cleaning (83.3%), and medication causing gum enlargement (92.2%). Few had the correct knowledge about recommended age to start tooth brushing (35.3%), critical salivary PH for tooth demineralization (32.4%) and maximum recommended sugar exposures per day (35.3%) [Table 1].

Fluoride safety and its role in caries prevention

Very few participating pediatricians had correct knowledge about the use of fluoride toothpaste in children (23.5%), amount of fluoride in toothpaste recommended for children (2.9%), and fluoride varnish and its role in caries prevention (14.7%) [Table 2].

Attitude and practices towards oral health of CSHCN

The evaluation of attitude and practices of participating pediatricians towards the oral health of CSHCN revealed few (21.6%) always examine the oral health of CSHCN during their general/physical examination. Only 17.6% participating Pediatricians always give the advice regarding tooth and tongue cleaning after consumption of sugar containing medications. There was a lack of appropriate referral among pediatricians as only 24.5% participating pediatricians refer the CSHCN to a dentist for treatment [Table 3].

Discussion

This study was undertaken with an objective to assess oral health-related knowledge, attitude, and practices among young pediatricians during their residency program. Dental caries is a most common oral disease and dental plaque is a principal causative factor responsible for its occurrence. The young pediatric population visits a pediatrician more often than a

dentist. The knowledge about etiopathogenesis of oral diseases plays a crucial role in disease prevention and its management.^[6]

In the present study, two-third of the participating pediatricians did not have correct knowledge about recommended age to start tooth brushing in children. According to American academy of pediatric dentistry (AAPD) as soon as first tooth erupts into oral cavity brushing should be started.^[12,13] Sharma *et al.* in their study reported the importance of initiating oral hygiene practices before and during first tooth eruption and found it to be less prevalent among pediatricians.^[14] Majority of the pediatrician participated in the study had correct knowledge about bottle feeding practices and its detrimental effects of on dentition. The studies have proved an association between increased caries burden in children and bottle feeding at night.^[15]

More than the half of the participating pediatricians had correct knowledge about the importance of dental treatment in primary teeth. In general, it is believed that primary teeth are get exfoliated on their own and replaced by permanent teeth. Pediatricians

Table 1: Knowledge of Pediatricians about oral diseases and oral hygiene measures

Variables	Correct knowledge n (%)	Incorrect knowledge n (%)	Total n (%)
Dental caries as a disease	64 (62.7)	38 (37.3)	102 (100.0)
Dental plaque as an etiological factor for dental and gingival diseases	44 (43.1)	58 (56.9)	102 (100.0)
Recommended age to start tooth brushing in children	36 (35.3)	66 (64.7)	102 (100.0)
Recommended age for child's first dental visit	55 (53.9)	47 (46.1)	102 (100.0)
Bottle feeding at night and its detrimental effect on teeth	90 (88.2)	12 (11.8)	102 (100.0)
Correct age to start weaning in children	40 (39.2)	62 (60.8)	102 (100.0)
Recommended frequency of tongue cleaning per day	85 (83.3)	17 (16.7)	102 (100.0)
Importance of dental treatment in primary teeth	56 (54.9)	46 (45.1)	102 (100.0)
Critical PH of saliva at which demineralization of tooth starts	33 (32.4)	69(67.6)	102 (100.0)
Maximum recommended sugar exposures per day for prevention of dental caries	36 (35.3)	66 (64.7)	102 (100.0)
Medications causing gum enlargement	94 (92.2)	8 (7.8)	102 (100.0)

Table 2: Knowledge of Pediatricians regarding use of fluoride and its role in dental caries prevention

Variables	Correct knowledge n (%)	Incorrect knowledge n (%)	Total n (%)
Use of fluoride containing toothpaste in children	24 (23.5)	78 (76.5)	102 (100.0)
Recommended amount of fluoride in toothpaste (parts per million) for children	03 (2.9)	99 (97.1)	102 (100.0)
Role of fluoride in dental caries prevention	64 (62.7)	38 (37.3)	102 (100.0)
Fluoride varnish and its role in dental caries prevention	15 (14.7)	87 (85.3)	102 (100.0)

Table 3: Attitude and Practices of Pediatricians towards oral health of children with special health care needs (CSHCN)

Variables	Never (0%)	Sometimes (< 50%)	Often (> 50%)	Always (100%)	Total
	n (%)	n (%)	n (%)	n (%)	n (%)
Frequency of CSHCN reporting with a dental problem	16 (15.7)	56 (54.9)	26 (25.5)	4 (3.9)	102 (100.0)
Perform oral health examination during the general/physical examination of CSHN	2 (2.0)	48 (47.1)	30 (29.4)	22 (21.6)	102 (100.0)
Frequency of referring of CSHN to a dentist for treatment of oral diseases	5 (4.9)	53 (52.0)	19 (18.6)	25 (24.5)	102 (100.0)
Give advice to the parents regarding cleaning of teeth/ tongue after consumption of sugar containing medications	29 (28.4)	38 (37.3)	17 (16.7)	18 (17.6)	102 (100.0)

are the ones who came across most frequently with children compared to a dentist and therefore their knowledge about the importance of dental treatment in primary teeth can have a significant impact on pediatric oral health care. Indira *et al.* in their survey amongst Pediatricians of Mysore, India found that about 93.8% of pediatricians were aware of pediatric dentistry as specialty and importance of dental treatment in primary teeth.^[16] The questions related to etiopathogenesis of dental diseases revealed that a third of the pediatricians were aware about critical PH of saliva causing tooth demineralization and maximum recommended sugar exposures per day, respectively. Studies had proven a positive association between sugar and dental caries.^[17-19] AAPD encourages pediatric dentist and other oral health care providers to educate the public about the dental caries and its association with frequent consumption of carbohydrates.^[20]

The study results also revealed that most of the pediatricians were aware of drugs causing gum enlargement. This is important as anti-epileptics are one of the common group of drugs prescribed by pediatricians for management of seizures. Antiepileptic medications like phenytoin, phenobarbitone and to some extent carbamazepine have potential to cause gum enlargement.^[21] Therefore, correct knowledge in this regard is essential as drug therapy can be monitored for its effect on gums so that drug dose can be reduced or an alternative drug can be prescribed in a situation where gingival enlargement had occurred.

Considering the role of fluoride in dental caries prevention, the study comprised of questions related to pediatricians' knowledge regarding its use and role in caries protection. Although, around two-third of the pediatricians (62.7%) were aware of caries protective role of fluoride only few were having correct knowledge regarding use fluoridated toothpaste in children, amount of fluoride recommended for children and application of fluoride varnish for caries prevention, respectively. The knowledge about use of fluoride in children is important as it helps in prevention of dental caries; however, this also protect the child from overexposure to fluoride leading to dental fluorosis.^[22]

CSHCN are the ones in which preventive oral health care services have utmost importance because of difficulty in performing routine oral hygiene practices compared to their normal counterparts. Dental treatment in these children is very difficult to perform and many of them require general anesthesia/sedation for treatment.^[23] The study revealed that only around a fifth of Pediatricians always performs the oral health examination of CSHCN during their general examination. This either could be due to lack of substantial knowledge about oral health or time constraint can be a factor. These children usually consume one or more medication. These medicaments are sweetened to improve their acceptance.^[24] These sugary medicaments lead to an increase in a number of sugar exposures per day, thereby an increased risk of developing dental caries.^[25] In the present study, a majority of Pediatricians advice CSHCN about the cleaning of teeth and tongue after consumption of sugar containing medications. A survey conducted in Rio De Janeiro, Brazil stated that 80.8%

Pediatricians were aware of the fact that sugar-containing medicines are detrimental to dental health. However, only 50.8% recommended oral hygiene after its consumption.^[26] Similarly, this study also revealed lack of awareness among pediatricians regarding referral to a dentist as only a fourth of them refer CSHCN with oral diseases for their treatment needs. Similar findings were found in a survey conducted in North Karnataka where majority of the pediatricians referred a child to a dentist only when he/she had pain and swelling.^[15] Since dental diseases are a common occurrence in children, it is important for pediatricians to include oral health into their daily practices. A pediatrician who is well versed with knowledge of common dental diseases, risk profiling, application of preventive strategies, linkage with dental office can efficiently contribute towards oral and consequently the general health of child.^[27] A mere 2 hours sensitization or training session for pediatric practitioners on infant oral health, was proven to be effective in accurately identifying children with oral diseases.^[28,29] Overburdened pediatric practitioners can at least carry out basic dental screening and encourage parents to enroll their children in a dental home. Pediatrics post-graduate curriculum and hospital trainings should also incorporate mandatory dental posting to have understanding into the etiology, manifestations, and preventive strategies of oral diseases. The findings of the present study shall help identifying key areas for sensitization and training programs for pediatricians. Moreover, a gap has been identified between the general and oral health care which if filled can result in imparting better health and improved quality of life to children.

Conclusion

The findings of this study reveal that the pediatricians might be aware of many aspects of oral health but, overall there is a lack of knowledge amongst pediatricians about oral diseases and their causative factors, oral hygiene practices and use of fluoride and its role in caries prevention. The results also emphasize the need for timely referral of children with unmet dental needs to a dentist by pediatricians.

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Conflicts of interest

There are no conflicts of interest.

Informed consent

An informed consent was obtained from all individual participants included in the study.

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