

„The pediatricians” role in the oral health of children

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Abstract

Objectives: To determine the pediatricians’ knowledge, behaviour, attitude and clinical experience regarding oral health of children. **Methods:** Pediatricians practising in different regions of Turkey were asked to respond a questionnaire including 28 questions in 5 different categories. A multiple correlation analysis was used for statistical evaluation. **Results:** 72.1% of the respondents strongly agreed to the assessment of dental problems of children during physical examination and 38% reported that they frequently examined children’s teeth for dental problems. 63.7% strongly agreed to counseling on the prevention of dental problems and 20.7% frequently counseled the family on going to the dentist. 44.7% knew that the bacteria causing caries can be transmitted from mother to the infant and 7.3% reported that they inquired about mother’s dental health. **Conclusions:** It was determined that the relations between the pedodontists and the pediatricians should be improved in order to achieve a good preventive oral health for children.

Key words: Pediatrician, oral health, children

Introduction

Dental caries is considered as the most common chronic infectious disease in childhood. Studies on the prevalence of dental caries showed that most of the Turkish children (95,96%) suffer from dental caries and their consequences [1,2]. Early childhood caries, a specific form of rampant caries attributed to the prolonged use of a nursing bottle containing fermentable carbohydrate liquids and also to prolonged breast feeding is determined to be the common problem among the preschool children in Turkey [3,4].

The health of the mouth and the dentition plays a major role in the life of a child, through facilitating nutritional intake, providing a nonverbal means of expressing

happiness and sadness, and allowing for vocal communication. Because dental diseases, trauma and their sequelae are largely preventable, early dental evaluations will help to educate parents about the oral development of their child, the etiology and prevention of dental diseases, and prevention of injuries [5].

Successful prevention of this common health problem can be achieved by clinicians doing risk factor determination, preventive counsel and preventive interventions [6]. Since pediatricians are the special health care providers who examine the children during the first years of life, they have the opportunity to affect their oral health [7]. Regular visits to a pediatrician which begin in early infancy would allow for early assessment of a child’s oral health.

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Furthermore pediatricians are considered to have an established role in the early identification and prevention of health problems. It is suggested that this role can be potentially expanded to include counseling on caries prevention, assessment and referral for dental problems and even provision of a caries control treatment, such as application of a fluoride varnish [8]. Also, the presence of some of the risk factors can be determined by the pediatrician, via some routine assessments such as demographic data, medical history, behavioral factors and fluoride exposure [6].

There are several studies which emphasize the pediatricians' role in the oral health of children. These studies include national questionnaires applied to the specialists who are actively in direct child patient care [5,7,8,9,10,11]. Gift et al. evaluated the pediatricians' role in caries prevention by means of a national questionnaire. They concluded that, physicians play an important part in caries prevention, especially in very young children. They are aware of the value of caries preventive measures and often take the initiative in providing them to their patients. However, the physicians are generally misinformed about the relative worth of caries preventive measures other than systemic fluorides [9]. In a more recent study Sanchez et al. determined that physicians understand the importance of oral health and most of them recognize that their overall dental knowledge is fair. The physicians almost unanimously indicated the need for increasing their knowledge through medical and specialty training or continued education courses [11]. Lewis et al. found that pediatricians overwhelmingly believe that they have an important role and are already involved in providing anticipatory guidance on oral health issues. However, the researchers claimed that, lack of up-to-date information and knowledge as

well as the difficulty pediatricians perceive in referring some patients for professional dental care call into question the current level of effectiveness of pediatricians in promoting dental health [8].

The American Academy of Pediatric Dentistry (AAPD) recommends that infant oral health care begins with oral health counseling for the newborns' parents and should include oral examination and preventive health education within 6 months of the eruption of the first primary tooth (not later than 12 months of age). Recommendations regarding the periodicity of examination, preventive dental services, and oral treatment for children have also been established [12].

In Turkey, the preschool children who are taken to dental care providers usually suffer from severe dental problems such as dental pain, acute abscess or dental trauma. The pediatric dentists usually don't have the opportunity to inform the families about the proper ways of feeding their babies, the time of weaning of the baby bottle or breast feeding, the individual and professional preventive measures, before the dental problems begin. However, the pediatricians examine children since they are newborn and many times during the first years of their life. During these examinations, besides the evaluation of developmental progress, necessary immunizations, guidance is given to the parents concerning nutrition and cognitive development of the child [13]. The question is "how often and to what extent do the pediatricians include preventive dental counseling to their routine practices?"

In a pilot study Sandall et al. evaluated the pediatricians' role in the oral health of children and the relations between the pediatricians and the pedodontists [14]. A survey used by Lewis et al. [8] in a similar study was applied to the pediatricians practicing in Istanbul. It was concluded that the pediatricians play an important role in

referral of children to the pedodontist for carrying out the first examination and preventive applications. Also it was determined that the relations between the pediatricians and the pedodontists should be improved by means of educational meetings. The results of the study showed that a national questionnaire was needed to determine the status of pediatricians practicing in Turkey, regarding oral health of children [14].

Thus, the purpose of this study was to determine the knowledge, behavior, attitude and clinical experience of the pediatricians practicing in different regions of Turkey, toward oral health care of children. Also it was aimed to get knowledge regarding the incidence of dental problems in the pediatric practice.

Methods

Pediatricians practicing in 9 cities which are Ankara, Adana, Antalya, Bursa, Diyarbakır, Edirne, İstanbul, İzmir and Marmaris located in 5 different regions of Turkey were asked to respond a 2 page questionnaire. The questionnaires were mailed to either one of the physicians or dentists living and practicing in the local area and these people were responsible for the respondents answering the questionnaires and after collecting they have sent the questionnaires back by mail.

The questionnaire was based on the national survey used by Lewis et al. in a similar study and included 28 questions in 5 different categories [8].

1. Behavior: First section consisted of questions which evaluated the pediatricians' behavior toward their patients' oral health. The respondents rated the likelihood that they would currently perform each of 6 oral-health related tasks during a well-child visit for a child under 5 years of age on a 5-point scale changing from very likely to very unlikely.

2. Clinical experience: The second section of questions were prepared to get knowledge regarding the incidence of dental problems in the pediatric practice. The respondents were to rate the frequency with which they saw early childhood caries (the term "baby bottle tooth decay" was also provided for questionnaire recipients unfamiliar with the term of "early childhood caries") and caries in school-aged children on a 6-point scale ranging from at least once a week to never.

3. Knowledge: The third section included yes/no questions about familiarity with topical applications, optimum level of fluoride supplementation and dental sealants; and true/false questions about knowledge regarding caries prevention and the causes of dental caries.

4. Attitude: In this section the respondents rated their agreement with participating in activities that could potentially be a part of routine well-child visit on a 5-point scale ranging from strongly agree to strongly disagree.

5. Demographic Information: The last section included questions about the field of speciality, the number of years in practice, number of hours of previous oral health training, number of patients seen in a week, number of hours per week providing patient care. Information on practice location (urban, suburban and rural) was also obtained.

In one last question the pediatricians were asked what additional information about oral and dental health they would like to be given.

Statistical Analysis

A multiple correlation analysis was applied on the behaviour, clinical experience, knowledge and attitude question categories.

Results

220 questionnaires were sent and a total

sum of 180 (81%) were responded by the participants. 89.4% of the pediatricians were specialized on general pediatrics and 10.6% of them were specialized on different subjects of pediatrics. Respondents have been in practice for a mean of 7.33 ± 7 years and they reported providing direct patient care for 39.65 ± 33 hours and saw 138.74 ± 110 patients per week, on average. 85.5% of the pediatricians reported no instruction in dental health related subjects in medical school, 82.7% reported no instruction in their residency training and 84.4% reported no instruction in their continued medical education. 58.7% of the respondents reported that they practice in a university hospital (Table I.a and Table I.b).

Table I.a Characteristics of the pediatricians' type of practice

Characteristics	Percentage of the respondents (n= 180)
Area of practice:	
General pediatrics	84.4%
Other	10.6%
Major place of practice:	
University medical center	58.7%
Community hospital	15.1%
Private practice-Solo	3.4%
Private practice-Group	0.6%
County hospital	0.6%
Other	22.8%
Location of practice:	
Urban	68.2%
Suburban	15.1%
Rural	6.1%
Suburban+Rural	1.1%
Urban+Suburban	5.0%
Urban+Rural	1.1%
Urban+Suburban+Rural	2.2%

Table I.b Characteristics of the experience of the pediatricians

Experience	Median and SD
Years in practice	7.33± 6.79
Number of patients seen per week	138.7± 110.19
Hours per week providing patient care	39.65± 32.82
Hours of instruction in dental health:	
Medical School	0.99 ± 3.39
Residency	1.39 ± 4.7
Continuing Medical Education	0.87 ± 2.75

The assessment of the behaviour of pediatricians regarding dental health showed that, 24.6% of the respondents assess needs for fluoride supplementation, 34.6% of them counsel on the importance of tooth brushing, 22.3% frequently ask if the child sleeps with a baby-bottle, 20.7% frequently counsel the family on going to the dentist, 38% frequently examine children's teeth for dental problems and 7.3% of them inquire about mother's dental health (Table II).

The clinical experience questions showed that 36.9% of the respondents reported that they see early childhood caries at least once a month and 53.1% reported that they see cavities in school children at least once a week (Table III).

The evaluation of knowledge questions showed that 37.4% of the respondents knew about topical fluoride applications, 15.6% were familiar with the fissure sealants and only 7.3% had enough knowledge for telling the patients about the purpose of sealants. 29.1% knew the optimum level of fluoride necessary for caries prevention (Table IV.a). The second part of knowledge questions were evaluated as true or false. The

Table II. Responses to behavior questions

At a well-child visit for a child less than 5 years of age how likely are you to	Percentage of very likely
Determine a child's need for fluoride supplementation according to age and weight	24.6
Counsel parent on the importance of tooth brushing	34.6
Inquire whether a child is taking the bottle to bed	22.3
Counsel parents on the importance of going to the dentist on a regular basis	20.7
Examine a child's teeth for sign of cavities	38
Inquire about mother's dental health	7.3

Table III. Responses to clinical experience questions

In your practice how often do you see	Percentage reporting
Early childhood caries	
At least once a month	36.9
At least once a week	22.9
Caries in school-aged children	
At least once a month	25.7
At least once a week	53.1

Table IV.a. Responses to knowledge questions (yes/no)

Are you familiar with	Percentage of yes
Topical fluoride applications	37.4
Dental sealants	15.6
Enough with dental sealants that you could explain their purpose to a patient	7.3
Optimum level of fluoride supplementation	29.1

Table IV.b. Responses to knowledge questions (true/false)

Question	Correct Response	Percentage responding correctly
Only bottle-fed children get early childhood caries (baby-bottle tooth decay)	False	55.9
Dental sealants are usually applied to a child's primary teeth	False	17.3
The bacteria that cause cavities can be transmitted from mother to child	True	44.7
A 3-month old baby living in a nonfluoridated area should receive fluoride supplementation	False	45.8
White spots on the teeth may indicate early dental decay	True	26.8

evaluation showed that 55.9% knew that early childhood caries are not only caused by baby-bottle, 17.3% knew that fissure sealants are not applied only on primary teeth, 44.7% knew that the bacteria causing caries can be transmitted from mother to the infant and 45.8% of the respondents knew that a 3-month-old did not require fluoride supplementation. 26.8% agreed that white spots on teeth are a prediction for cavities (Table IV.b).

The attitude questions showed that 37.4% of the pediatricians strongly agreed to the referral of the child to the dentist at 12 months of age, 14.5% strongly agreed that application of fluoride should be a part of routine child examination, 72.1% strongly

agreed to the assessment of dental problems during the physical examination and 63.7% of the respondents strongly agreed to counseling on the prevention of dental problems (Table V).

12.3% of the respondents reported that they wish to be given information about basic knowledge on oral health, 4.5% wished to get knowledge about approaching to dental caries, 2.2% wished to get knowledge about indication of referral of the child to the dentist, 1.7 wished to get knowledge about periodontal diseases, 27.4% wished to get knowledge about preventive measures, 2.2% wished to get knowledge about orthodontics and 49.7% did not report any wish on additional knowledge (Table VI).

Table V. Responses to attitude questions

Should the following be a part of routine well-child care	Percentage of Strongly Agreeing
Referral to a dentist by 12 months of age	37.4
Topical application of fluoride	14.5
Routine assessment for early signs of dental problems during the physical exam	72.1
Counseling on the prevention of dental problems	63.7

Table VI. Responses about the additional information pediatricians would like to get regarding oral and dental health

Additional Information About	Percentage Reporting
Basic knowledge on oral health	12.3
Approaching to dental caries	4.5
Indication of referral of the child to the dentist	2.2
Periodontal diseases	1.7
Preventive measures	27.4
Orthodontics	2.2
No additional information	49.7

A correlation was found between the knowledge, clinical experience and attitude of the pediatricians regarding oral health and their behaviour ($r= 0.536$). Also a correlation was found between the knowledge and behaviour of the pediatricians ($r=0.419$).

Discussion

This study presents a questionnaire responded by the pediatricians practicing in different cities located in different regions of Turkey. The results of the study indicate that most of the pediatricians believe that dental problems of children should be assessed during routine physical examination and they agree on counseling on the prevention of dental problems. However, the percentage of the pediatricians who reported that they frequently examined children's teeth for dental problems and counseled the family on taking their child to the dentist was found much lower. It was determined that the pediatricians' knowledge, clinical experience, and attitude regarding oral health affected their behaviour toward their patients. The results of the knowledge questions showed that less than half of the

respondents were familiar with caries preventive measures and the causes of dental caries. Furthermore most of the pediatricians reported that they were not given any instruction in subjects regarding oral health and that they wished to be given knowledge on different aspects of oral health care for children. There are several studies supporting the findings of this present study [7,8,9,11].

Lewis et al. claimed that lack of familiarity with oral health issues may make it difficult for pediatricians to promote oral health and indicates the need for formalized training and standards for preventive oral health counseling and care. The investigators suggested that pediatricians will require adequate training in oral health in medical school, residency and in continuing education courses. They recommended adding a module on oral health and dental care to the undergraduate medical school physical examination courses and an oral health rotation to pediatric residency curriculums ; and they also recommended having dental professionals provide such instruction so that it would enhance acquisition of hands-on skills and could encourage future

professional collaboration and cross-referrals [8]. Sanchez et al. determined that there is a need for education about preventive oral care other than fluoride supplementation among physicians who provide primary care for children. They also suggested that the curricula of medical and specialty training programs should be evaluated to assure ample time to educate physicians about oral health prevention [11].

Roberts et al. evaluated the fluoride supplement prescribing and dental referral patterns among academic pediatricians and showed that %93 of the responding pediatricians reported addressing routinely the fluoride needs for their patients. However some of the respondents were found to be following pre-1994 guidelines regarding the amounts of fluoride supplementation [7]. In 1995 the American Academy of Pediatrics (AAP) published recommendations on fluoride supplementation for children. The recommendations represented a modification of those published in early years and fluoride supplementation was no longer recommended from birth and doses have been decreased during the first 6 years of life [15]. Almost half of the pediatricians that participated in this study were found to be aware of those guidelines.

Another significant finding reported by Roberts et al. was that <60% of the pediatricians followed the AAP's recommendation regarding the referral of children by 3 years of age to a dentist for an oral examination. It was suggested that this failure negates the opportunity for dentists to initiate early preventive measures for the child and has often led to the misuse of the nursing bottle, resulting in bottle caries and failure to initiate appropriate age-related oral hygiene practices. The investigators concluded that the pediatricians on medical school faculties at university medical centers can have significant impact on medical students and pediatric residents.

Failure to know and teach the correct fluoride supplement recommendations and failure to encourage early professional dental involvement can result in less than optimum oral health for the child patient. Physicians should be encouraged to refer their patients to a dentist at an early age for well-child and preventive care [7].

Lewis et al. reported that most pediatricians did not agree with the recommendation of the AAPD that children to be referred to the dentist by 1 year of age [8]. The results of the present study supports these two studies. The investigators suggested that several possibilities may explain this finding, such as, pediatricians may not be knowledgeable of the AAPD recommendation or some pediatricians may question whether dental assessment and preventive education for very young children require a visit to the dentist [8]. In Turkey, the reasons for pediatricians' not referring their patients to the dentist by their first years of life may be similar; but there may also be much more complicated reasons like ethnic, socioeconomic and customary behaviours among physicians and their patients.

The frequency of the pediatricians who reported asking if the child sleeps with a baby-bottle was found very low in the present study. However early childhood caries which are caused by prolonged use of baby-bottle and breast feeding is a very common problem in Turkey [3,4]. It is also speculated that the prevalence of ECC might be high as 10% for the country as a whole [15]. Koranyi et al. evaluated the pediatricians' reported practices with regard to bottle weaning [10]. The results of the study showed that most pediatricians who responded the questionnaire (94%) discussed bottle weaning with parents. Approximately 80% recommended a specific age to begin and accomplish bottle weaning. Also the majority of respondents (91.3%) reported discussing toothbrushing

practices with parents [10]. In the present study the frequency of the respondents who reported that they counsel on the importance of tooth brushing was found much lower (34.6%). The reason for the difference between the findings of two studies can be attributed to the very high number of patients seen in a week, or hours providing direct patient care that are reported by the pediatricians responding the present questionnaire.

It is well established in the dental literature that caries are a transmissible infectious disease that the child can acquire from the mother [17,18,19,20]. Unfortunately, the results of this study showed that, although nearly half of the respondents knew that the bacteria causing caries can be transmitted from mother to the infant, very few reported that they inquire about mother's dental health. Another important finding is, that even though the clinical experience of the pediatricians regarding dental caries among preschool and school children was relatively high, the number of pediatricians who reported their frequently counseling the family on going to the dentist was less than 25%.

Primary preventive measures are directed to avoid disease or conditions before they begin. Primary infant oral health prevention may include educating parents about the association of night-time bottle use with baby bottle tooth decay or identifying non-nutritive sucking as a potential cause of dental malalignment. Secondary preventive measures are those in which a condition is identified early, and effective treatment instituted for remediation of the condition before progression. Secondary infant oral health prevention may include the application of fluoride to early white-spot lesions on

maxillary incisors. Tertiary prevention is directed at halting disability from established disease and may include the restoration of carious teeth to avoid their premature loss and thereby protect oral function [5].

Olmez et al. evaluated the association between early childhood caries and clinical, microbiological, oral hygiene and dietary variables in rural Turkish children and concluded that ECC is a risk factor in Turkish infants and children. They suggested that the early identification of poor oral hygiene, improper feeding habits, and frequent use of sweetened medication should be considered in preventive health promotion strategies in Turkey [4].

The results of this study show that the pediatricians who participated in this study agree that they have an important role in promoting children's oral health and most of them strongly agree to the assessment of dental problems during the physical examination. However, the lack of knowledge regarding the causes and prevention of dental diseases affects their behaviour toward the patients, especially preschool children.

As conclusion, we believe that pediatricians require current information and guidelines on preventive dental care and we suggest that the relations between the pedodontists and the pediatricians should be improved in order to achieve a good oral health for children, in Turkey. Especially rotational education during residency programs among physicians and dentists who are trained to take care of young patients and continuing education programs should be carried out in order to enhance recent information regarding children's oral and general health.

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