

Paediatricians' Knowledge, Attitude and Practice towards Children's Oral Health in North Cyprus

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ABSTRACT

The frequent one-to-one contact offers an ideal opportunity for paediatricians to perform oral health risk assessment and educate families on preventive oral health care at early stages. The aim of this research is to assess paediatricians' knowledge, attitude and practice regarding children's oral health. A cross-sectional survey was sent to all paediatricians currently practicing in the North Cyprus. Data was analysed using statistical package for social sciences for descriptive and univariate analysis. Response rate was 92%. Almost all of the paediatricians stated that oral health advice should be included in their routine health supervision. However, many of them reported not feeling confident enough to take active role in preventive oral health care. Less than quarter of the total paediatricians reported that they had received oral health education previously. Previous oral health education/training was associated with improved oral health knowledge, confidence in entering oral health discussions with caregivers and identifying oral health pathologies. The results of our study support the need for paediatricians to receive further oral health training/education.

Keywords: paediatricians, oral health education/promotion, dental public health, child health

INTRODUCTION

The dental health of pre-school children who have significant caries levels are largely been ignored. The two main reasons for this are; primary teeth are not being considered as important as permanent teeth and secondly, this population is relatively inaccessible as disease occurs such a young age and recording the prevalence of the disease is highly difficult on a true population basis (Chou et al., 2014). However, poor oral health can affect children's ability to sleep, eat, speak, play and socialise with other children. Pain, infections and poor diet may also lead impaired nutrition and growth as well. Poor oral health also has wider impacts for children and families. For instance; children may miss school days due to toothache and dental treatment needs and parents or caregivers may have to take time off work to take their children to the dentist (Drummond et al., 2013).

According to an epidemiological study done in North Cyprus in 2014, 78% of the five year children had obvious untreated dental caries experience in their primary teeth with children living in most deprived areas had severe dental decay compared to ones living in least deprived areas. Treatments of these severe dental caries often require sedation and general anaesthesia, incurring heavy costs to family and healthcare system (Korun et al., 2014). Dental decay is a preventable disease and early identification reduces the need for these expensive and difficult interventions (Chou et al., 2014).

The prevention of oral disease and maintenance of oral health are the major challenges of dentistry. The early years' of a child's development can have a profound impact on an individual's future experience of health and wellbeing (Chou et al., 2014; Drummond et al., 2013). Hence, early interventions on oral health as part of general health is essential in professional manner due to the eruption of the first teeth, colonisation of the mouth with bacteria and, the emergence of both healthy and harmful habits occur in the early years of life (Balaban et al., 2012). American Academy of Pediatrics policy statement suggests that 'paediatricians and paediatric health care

Contribution of this paper to the literature

- This is the first study that has analysed data from a national sample of paediatricians from North Cyprus in relation to oral health.
- This paper reveals the correlation between previous oral health education/training with increased knowledge and confidence among paediatricians.
- This paper provides valuable stimulus and perspective toward the design of relevant oral health education and training for paediatricians.

Table 1. Description of Questionnaire Contents

Section of Questionnaire	
1. Participant characteristics	gender, years of experience after qualification, location of practice, number of patients seen per day, and previous oral health training, interest in further oral health education
2. Oral health knowledge	fluoride effectiveness including toothpaste usage information under 3 years old children, bottle feeding, prolonged breast-feeding, initiation of tooth-brushing and first dental visit recommendation
3. Health visitors' beliefs	importance of dental caries to general health, oral health promotion as part of routine general health guidance, role of a paediatrician in promoting oral health
4. Confidence	engaging in oral health discussions with parents/caregivers, identifying oral pathologies
5. Self- report of current engagement in oral health promotion and awareness of supporting materials	Oral examination frequency, informing about early childhood caries, advising the importance of regular dental visits, and referral process of a child to dentist, usage of any oral health guidelines

professionals should develop the knowledge base to perform oral health risk assessments on all patients beginning at 6 months of age' (Krol, 2004).

Paediatricians are the first contact point (particularly one-to-one) of new born babies and their families with the health-care system in North Cyprus. This professional group is well suited to include oral health advice into their regular practice as they have more frequent and regular contact with new mothers and infants, more so than dentists at the first 3 years of life (Balaban et al., 2012). Therefore, it is essential that they are aware of the aetiology and associated risk factors of dental caries and make appropriate decisions regarding timely and effective interventions (Guiseppe et al., 2006; Kalkani and Ashley, 2013).

Several studies suggests that paediatricians lack dental knowledge currently and report receiving inadequate or no oral health education in medical school and residency programmes (Krol, 2004; Kalkani & Ashley, 2013; Caspary et al., 2008; Lewis et al., 2009). Lewis et al. (2009), reported that paediatricians who had received no oral health education/training were more likely to state its lack as a barrier for providing oral health care to patients ≤ 3 years of age (Lewis et al., 2009). By acquiring the skills to conduct oral health screening, apply preventive strategies, counsel parents appropriately and refer patients to dentist at correct time intervals, paediatricians can help eliminate oral health inequalities. Little information is available on levels of oral health knowledge amongst Turkish Cypriot paediatricians. Thus, the aim of this study was to assess paediatricians' oral health knowledge, attitudes and practices to support the development of a healthy child.

METHODS

This was a national cross-sectional survey addressing all paediatricians currently practicing in the North Cyprus (n=87), who were also the members of Cyprus Turkish Paediatric Association. The list of all paediatricians including their phone numbers and practice addresses was obtained from Cyprus Turkish Paediatric Association.

The survey (**Table 1**), was developed using items from existing related surveys as often as possible (Balaban et al., 2012; Guiseppe et al., 2006; Kalkani & Ashley, 2013; Caspary et al., 2008; Lewis et al., 2009). The questionnaire was piloted with three paediatricians to check its relevance, time taken to complete, clarity and ambiguity in questions. The survey consisting of 19 closed questions and 4 open ended questions was delivered personally to 87 paediatricians practising currently in the North Cyprus between January 2017 and September 2017 consecutively upon obtaining their respective informed verbal consent on phone call. Paediatricians were requested to fill an objective questionnaire without providing any oral health information. The information sheet prior to the survey was also attached to inform paediatricians in more detail about the purpose of the study and contained assurances of anonymity. By completing the questionnaire participants gave their implied consent for participation in this research.

Data was analysed using statistical package for social sciences (SPSS) for descriptive and univariate analysis. Frequencies and percentages for each item are calculated. The Chi-square analysis was used to examine association

Table 2. Participant characteristics

	%
Gender	
Male	46.2
Female	53.8
Experience after qualification	
≤9 years	32.5
≥10 years	67.5
Practice Setting	
Public hospital	32.5
University hospital	18.8
Private (clinic/hospital)	48.8
Estimated number of patients seen in a day	
≤10	18.8
11-19	42.5
≥20	38.8
Have you ever received any education/ training on oral health for young children?	
Yes	23.8
No	76.2
If yes when?	
During medical school	26.3
During residency	47.4
After qualification	26.3
Have you received any oral health training within the last five years?	
Yes	20.0
No	80.0
Are you interested in further oral health education?	
Yes	87.5
No	12.5

of paediatricians' previous oral health training with overall oral health knowledge, confidence and awareness of specific guidelines. A significant result was accepted at a p-value of ≤ 0.05 . Data obtained from free text boxes was analysed using thematic analysis. Ethical approval for this research is obtained from Near East University Ethics Committee with the reference number: YDU/2017/46-388.

RESULTS

Participant Characteristics

A total of 80 surveys were completed with an overall response rate of 92%. Majority of the participants (68%) were more experienced (≥ 10 years of experience) and 53% were female. Around half (49%) of the paediatricians were practising in private clinics while 32.5% at public hospitals and 18.8% at University hospitals (**Table 2**).

Training/ Education in Oral Health Care

Less than quarter of the paediatricians (24%) reported that they had received formal oral health education/training previously and only 20% had attended oral health related education/conference within last five years. Among paediatricians who had received oral health training previously, most common period of receiving oral health education was during residency with 47% while 26% received it during medical school and 26% after qualification. Great majority of the paediatricians (87%) also reported their desire for further oral health education (**Table 2**).

Oral Health Knowledge

For the fluoride related questions, 58% of the respondents agreed that fluoride prevents tooth decay when applied topically and 20% agreed that fluoridated toothpaste could be used for children under 3 years of age. Almost all of the paediatricians (99%) responded correctly that sugar containing bottle-feeding with milk at night could cause dental decay and half of the participants (50%) agreed that on-demand breastfeeding at night time could also cause dental decay in children. Around forty percent of the total respondents correctly responded that

Table 3. Oral health knowledge

	%
Fluoride prevents tooth decay when applied topically	
Yes	57.5
No	23.8
Don't know	18.8
Fluoridated toothpaste suitability under 3 years of age	
Yes	57.5
No	23.8
Don't know	18.8
Including sugar at night bottle feeding leads to dental caries	
Yes	98.8
No	1.2
Prolonged and on-demand breastfeeding leads to dental caries	
Yes	50.0
No	32.5
Don't know	17.5
Transmission of caries leading bacteria from mother to child	
Yes	41.3
No	37.5
Don't know	21.3
Initiation of brushing child's teeth with fluoridated toothpaste and toothbrush	
When the first teeth erupt	41.3
After all primary teeth erupt	43.8
When a child can hold a tooth brush	10.0
After 5 years of age	5.0
Prenatal bad oral health of mother can affect negatively the child's oral health	
Yes	71.3
No	11.3
Don't know	17.5
Age recommendation for first dental visit	
≤1 years old	43.8
3 years old	51.2
5 years old	5.0
Awareness of 'fissure sealants'	
Yes	23.8
No	76.2

bacteria causing dental decay could transmit from a mother to a child. Approximately two third (60%) of the respondents did not know that children's teeth should be brushed with fluoridated toothpaste and toothbrush right after the eruption of first primary tooth. Seventy-percent correctly agreed that bad oral health of mother prenatal could affect negatively the child's oral health in the future. Less than half (43%) of the respondents recommended first dental visit before 12 months of age and majority (76%) were not aware of the preventive dental application 'fissure sealants' (Table 3). Overall, 14% of the paediatricians answered 75% or more of the oral health related questions correctly.

Attitudes of Paediatricians

Great majority of the paediatricians reported that dental decay at primary teeth was important even though they would exfoliate and could affect children's general health if left untreated, 94% and 95% respectively. Added to this, almost all (98%) of the respondents agreed that parents should be advised about their child's oral health care routinely during health supervisions and 88% of the paediatricians stated that they play 'very important' role at improving oral health of young children.

Confidence

Approximately 40% of the paediatricians reported not feeling confident enough to enter oral health discussion with parents and 35% stated not having the required skills of identifying oral pathologies (Table 4). Paediatricians who do not feel confident enough of entering oral health discussions with parents/caregivers reported 'inadequate

Table 4. Confidence

	%
Entering oral health discussion with parents/caregivers	
Yes	58.8
No	41.3
Identifying oral pathologies (dental caries, abscess etc)	
Yes	65.0
No	35.0

oral health knowledge due to insufficient oral health education/training' as barrier for not involving in preventive oral health activities.

Practices

Around two-third (63%) of the paediatricians reported that they were examining children's oral health routinely during contacts. 'Inadequate time' was the most common barrier stated for not examining the children's oral health during regular health supervision. Less than expected, 37.5%, of the total respondents were informing parents about Early Childhood Caries routinely while most paediatricians (75%) were advising parents routinely to take their children to dentist. Almost all of the paediatricians (98%) reported referring a child to dentist if aware of dental problem. Less than twenty percent (17%) of the total respondents reported including oral health guidelines into their regular practice and 80% were interested in a new up-to-dated Turkish (native language) oral health guideline which could be used regularly in daily practice.

Relationship between Previous Oral Health Training / Education and Oral Health Knowledge, Confidence and Awareness of Specific Oral Health Guidelines

Among all, 14% of the paediatricians answered 75% or more of oral health related questions correctly and this was associated with previous oral health training/education ($p \leq 0.05$). Confidence of entering oral health discussion with parents and identifying oral health pathologies were also associated with previous formal oral health education/training ($p \leq 0.05$, $p \leq 0.05$ respectively). Being aware of oral health guidelines for young children and including them into regular practice was also associated with previous oral health education background ($p \leq 0.05$).

DISCUSSION

Integrated roles of dental, medical and other health care providers are all necessary to assess effects of public health interventions and introduce oral health promotion. Particularly, paediatricians have frequent contacts with young children and their families in the early years of life when prevention is critical and lifelong habits are established. This is the first study that has analysed data from a national sample of paediatricians with a response rate of 92% from around the North Cyprus for the purpose of evaluating their knowledge, attitudes and practical behaviours regarding children's oral health.

Reflecting the findings of similar studies, one very important and promising finding of the present study is that almost all paediatricians (97.5%) see oral health in their purview and perceive their role as being 'very important' for supporting oral health care of infants and young children (Kalkani and Ashley, 2013; Lewis et al., 2009; Prakash et al., 2006; Sezer et al., 2013).

Knowledge level of the paediatricians is one of the key determinants of appropriate and consistent oral health message circulation across the board (Public Health England, 2014a). In the present study, oral health knowledge related questions were selected carefully in order to target key areas of young children oral health care according to evidence based research. However, similar to previous studies (Kalkani and Ashley, 2013; Sezer et al., 2013), only 14% of the paediatricians answered 75% or more of the oral health related knowledge questions correctly. This result indicates the need for paediatricians in North Cyprus to receive more oral health education and training to improve their oral health knowledge.

In the present study, majority (71%) of the paediatricians acknowledge that prenatal oral health status of mothers could affect oral health of children in the future and bottle feeding at night with sugar containing milk could lead dental caries (99%). Most of the paediatricians are also aware that untreated dental caries could affect general health of a child (94%) and oral health is a very important part of general health should not be separated (95%). More problematical are the knowledge gap of paediatricians regarding other risk factors and preventive measures. For example, less than expected (58%) proportion of paediatricians are aware that fluoride prevents tooth decay and only 20% are aware that fluoridated toothpaste can be used at children under 3 years old with appropriate guidance. Nowadays regular use of fluoride toothpaste is the most recommended, most feasible and

an economical way to prevent dental caries (Chou et al., 2014, Marinho et al., 2003; Public Health England, 2014b). 'Delivering Better Oral Health' is the best practice guideline in United Kingdom which recommends the use of smear amount of toothpaste containing no less than 1,000 ppm fluoride for prevention of caries in children aged up to 3 years (Public Health England, 2014b).

Initiation of tooth-brushing for infants, counselling on prolonged on-demand breast feeding at night and first dental visit are the other key areas which paediatricians would benefit from more education in North Cyprus to support oral health care of young children and counsel parents appropriately. Initiation of tooth-brushing should start as early as when the first tooth erupts, on-demand breastfeeding could cause dental decay if required hygiene measures are not applied and first dental visit of a child to dentist should take place before 1 year of age (Public Health England, 2014b). While most respondents reported that they are willing to perform oral health promotion activities, lack of knowledge in these key areas and familiarity with dental related issues appears to be the most important barrier, similar to other studies (Caspary et al., 2008; Lewis et al., 2009), for paediatricians to be actively involved in oral health promotion in North Cyprus.

Giving incorrect advice to parents may unintentionally contribute to poor oral health of young children and may even increase the oral health inequalities. Therefore, any paediatrician who is aware of the fluoride effectiveness, initiation of tooth-brushing for infants, counsel properly about on-demand breastfeeding and required hygiene measures afterwards and referring a child to dentist at early stages of life will be more likely to play positive role in children's oral health than any other who is unaware.

Similar to the findings of the previous surveys done by Lewis et al. (2009) and Caspary et al. (2008), present study indicates that relatively low proportion of the paediatricians had received formal oral health education previously and many of the paediatricians are not feeling confident enough of having required capability for taking part in oral health care. In addition, consistent with previous studies, oral health training was found to be associated with improved oral health knowledge, confidence of entering oral health discussion with caregivers and identifying oral pathologies (Lewis et al., 2009; Douglass et al., 2009). Majority (88%) of the respondents also reported their desire for further oral health education and mentioned 'lack of oral health knowledge due to insufficient education in medical school and residency' as the main barriers for limiting their greater involvement in oral health promotion in daily practice. These findings indicate that more oral health training efforts should be offered for paediatricians in order for them to be sufficient to meet with expectations and provide appropriate oral health guidance in North Cyprus (Public Health England, 2014a).

Several studies support the positive effects of specific oral health education of paediatricians to expand oral health capabilities (Douglass et al., 2009; Herndon et al., 2014). 'Oral health training for wider professional workforce' is an intervention under 'developing personal skills' according to Ottawa Charter and classified as a recommended intervention by Public Health England through identification of several reviews (Public Health England, 2014a). This type of intervention involves training for professionals (paediatricians in this case) to increase their knowledge and skills, and ensures that oral health messages are appropriate and consistent across the board in their daily role. Training existing and active professionals rather than creating new services to deliver oral health care provides good support for the intervention in terms of cost (Public Health England, 2014a). For example, since 2007, it is mandatory for paediatric residents in the United States to be able 'to implement age-appropriate screening and be aware of up-to-date oral health prevention measures for young children' to pass paediatric board certification examination (Sezer et al., 2013). According to a review done by Douglass et al. (2009), paediatricians can be trained in several ways such as; mandated residency programmes, national presentations, use of print media, academic detailing and medical-dental collaboration.

Among the respondents, majority of the paediatricians (83%) are not including/ using any oral health guidelines in their daily routine which is similar to the findings of Kalkani and Ashley (2013) and Douglass et al. (2009). Commonly, all results obtained indicate the low preference rate of including any specific oral health guideline into routine practice. However, great majority (95%) of the paediatricians in the present study reported their desire to receive a Turkish (native language) oral health guideline. New guidelines and recommendations are needed to be interpreted and delivered to not only paediatricians but other health professionals who educate and guide families at risk of dental caries to support their daily practice in promoting oral health.

There are certain limitations to the study. Responder bias is one of the potential bias as with any survey. Although the response rate of 92% is higher than average for any paediatrician surveys small sample size is another limitation of this study. Potential social desirability is other limitation of this survey as self-administered nature may not reflect actual practice and experience of the participants.

CONCLUSION

To sum up, focus on primary and secondary preventive oral health should occur for all children at both paediatricians' and dentists' office. The prevention of oral diseases is largely dependent upon patients changing their behaviours in line with professional guidance. Patients need to be equipped with the appropriate health knowledge, motivation and skills to sustain good oral health for them and their children. More oral health training/education options such as; including oral health education into medical curriculums, residency programs, national presentations, academic detailing and medical-dental collaboration should be acquired in order to improve paediatricians' knowledge and confidence of involving more in oral health promotion and prevention of oral diseases of young children. The present study results provided valuable stimulus and perspective toward the design of relevant oral health education and training for paediatricians.

ETHICAL APPROVAL

Ethical approval for this research is obtained from Near East University Ethics Committee with the reference number: YDU/2017/46-388.

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