

## Knowledge, Attitude and Practice of Paediatricians toward Long-Term Liquid Medicaments Associated Oral Health

Mrishikesh Walimbe<sup>1</sup>, Mohammed Nadeem Ahmed Bijle<sup>2</sup>, Meenakshi Nankar<sup>3</sup>, Ujwal Kontham<sup>4</sup>, Vikas Bendgude<sup>5</sup>, Ananth Kamath<sup>1</sup>

### Contributors:

<sup>1</sup>Reader, Department of Pedodontics & Preventive Dentistry, Dr. D. Y. Patil Vidyapeeth, Dr. D. Y. Patil Dental College & Hospital, Pimpri, Pune, Maharashtra, India; <sup>2</sup>Assistant Professor, Department of Preventive Dental Sciences, Division of Pedodontics, King Khalid University, College of Dentistry, Abha, Kingdom of Saudi Arabia; <sup>3</sup>Lecturer, Department of Pedodontics & Preventive Dentistry, Dr. D. Y. Patil Vidyapeeth, Dr. D. Y. Patil Dental College & Hospital, Pimpri, Pune, Maharashtra, India; <sup>4</sup>Professor, Department of Pedodontics & Preventive Dentistry, Dr. D. Y. Patil Vidyapeeth, Dr. D. Y. Patil Dental College & Hospital, Pimpri, Pune, Maharashtra, India; <sup>5</sup>Professor & Head, Department of Pedodontics & Preventive Dentistry, Dr. D. Y. Patil Vidyapeeth, Dr. D. Y. Patil Dental College & Hospital, Pimpri, Pune, Maharashtra, India.

### Correspondence:

Dr. Bijle MN. Department of Preventive Dental Sciences, Division of Pedodontics, King Khalid University, College of Dentistry, Abha, Kingdom of Saudi Arabia. Phone: +966-(0)50-4217533. Email: info@drnadeembijle.com

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### Abstract:

**Background:** A pediatrician is a primary care physician who deals with the medical care of infants, children and adolescents. Oral health care for the subgroups detailed is certainly substantiated as an integral part of general health. There are conflicting results presented till date on the subject of knowledge, attitude and practice (KAP) of pediatricians on the consumption of pediatric liquid medicaments and the results can be divergent based on the geographical adjustments specifically with significance for industrial areas. Hence, the present study was carried out to evaluate the KAP of pediatricians toward oral health of children taking long-term pediatric liquid medicaments in Pimpri-Chinchwad area deemed and identified as Asia's largest industrial area.

**Materials and Methods:** A questionnaire was distributed among 50 pediatricians practicing in Pimpri-Chinchwad, Pune city area, which consisted of questions seeking knowledge of pediatricians regarding awareness of detrimental effects of long-term pediatricians toward long-term liquid medicaments use on oral cavity, including delivery of oral hygiene instructions and regular dental checkup. The results as obtained were subjected to statistical analysis using SPSS version 16.0 for windows (Chicago Inc., USA). The statistical significance of difference was tested using Chi-square test for independence of attributes.

**Results:** About 68% were aware that long-term use of pediatric liquid medicaments can cause tooth structure defects. But only 58% advised regular dental checkups for these patients. 50% of the pediatricians prescribed the liquid medications to be taken in between two meals and 74% of the pediatricians advised rinsing mouth with water immediately after consuming pediatric liquid medicaments. However, there was no statistically significant difference seen among the values observed.

**Conclusion:** The pediatricians showed reasonable awareness regarding the ill effects of the long-term use of pediatric liquid medicaments and took precautions regarding the same. However, proper oral hygiene maintenance instructions were lacking as a skill in their offerings.

**Key Words:** Dental caries, oral health, pediatrics, questionnaire, tooth erosion

### Introduction

A pediatrician is a primary care physician who deals with the medical care of infants, children and adolescents. Oral health care for the subgroups detailed is certainly substantiated as an integral part of general health. However, pediatricians have scanty exposure to the expertise of oral health care since it's regarded and practiced as a separate specialization under the aegis of dentistry.

A regular practice following child birth is interaction with pediatrician for routine medical examination. However, the same does not apply for the dental peer cohorts. A dental opinion is only pursued when the child suffers either from trauma to the primary teeth or when dental caries becomes evident.<sup>1</sup> Thus, the presumption should be that pediatricians educate caregivers of newborn regarding oral health maintenance and practices. However, the same does not happen in a routine scenario since the compeers have unsatisfactory knowledge to express the highlights for oral health care as per the afore-stated rationale. Moreover, children consuming long-term liquid oral preparations have detrimental effects but majority in similar regards do not receive preventive instructions from the presumptive peers. In the prolonged run, the child presents with dental caries and erosion detailed at an advanced stage.<sup>2-6</sup>

With the advent of advanced technology and access to information pertaining to oral health attitudes and practices, it might be possible for the pediatricians to obtain sufficient

knowledge and thereby incorporate those practices in their routine clinics. Apart, the related academies and associations outline on a regular basis policies which have received considerable attention in the recent years.<sup>6</sup> Thus, it might be possible that the physician counterpart may be updated with the knowledge of topic in interest. With its updated concepts the attitude and practice may also be a definitive part. However, there are conflicting results presented until date on the subject of knowledge, attitude and practice (KAP) of pediatricians and the results can be divergent based on the geographical adjustments.<sup>6-8</sup> Besides, there are no surveys yet presented for a largest industrial area where the incidence of the detrimental effects outlined can be minimal due to the amount of population and their concerns regarding oral health projecting modernization; whereby the paediatricians efforts to control such repercussions would be dealt with seriously. Thus, on similar lines, regional based KAP survey have been conducted;<sup>9-11</sup> however, a survey specified for a largest industrial area is yet to be presented with.

Hence, the present study was carried out to evaluate the KAP of pediatricians toward oral health of children taking long-term pediatric liquid medicaments in Pimpri-Chinchwad area deemed and identified as Asia's largest industrial area.<sup>12</sup>

### Materials and Methods

A questionnaire was formulated and distributed amongst 50 random pediatricians selected via consecutive sampling practicing in Pimpri-Chinchwad, Pune city. The questionnaires were handed out in person and filled by the pediatrician with due instructions and explanation given by the investigators. The questionnaire was subjected to external and internal validation protocol by considering the consent of specialist in the art. Five pedodontists and pediatricians were standard valuers for the said process. The inputs obtained were then incorporated in the final questionnaire with its content as under-mentioned.

The questionnaire consisted of two parts, personal details and specific information. The former part of the questionnaire consisted of questions, including number of years of practice, number of patients seen per day and academic affiliation, if available. The mentioned information was noted to rule out any confounding variable association. The latter part of the questionnaire contained specific questions regarding the use of pediatric liquid medicaments, awareness of their detrimental effects on oral cavity in long-term use and oral hygiene instructions.

The respective data was collected, entered and cleaned in MS Excel before statistical analysis. The entire data was statistically analyzed using Statistical Package for Social Sciences (SPSS version 17.0, Inc., Chicago, USA) for MS Windows.

The data on qualitative responses of the respondents participated in the study is presented as *n* (%). The statistical significance of difference for various qualitative responses across groups of years of practice and occupation is tested using Chi-square test for independence of attributes. The  $P < 0.05$  is considered as statistically significant.

### Results

The response rate was 100%. 46% (23) of respondents had more than 25 years of practice. 38% (19) of respondents saw 10-25 patients per day. Respondents seeing less than 10 patients per day were 4% (2). 50% (25) of the respondents were attached to a teaching institution (Table 1).

68% (34) opined that long-term use of pediatric liquid medicaments can cause tooth structure defects. But only 58% (29) advised regular dental checkups for these patients. 50% (25) of the pediatricians prescribed the liquid medications to be taken in between two meals and 40% (20) advised with meals. Only 2% (1) mostly prescribed the liquid medications to be taken at bedtime and 8% (4) prescribed them mostly either at bedtime or meal time (Table 2).

The next question was aimed to know whether oral hygiene practices were advised along with consumption of liquid medicines. 74% (37) of the pediatricians advised rinsing mouth with water immediately after consuming pediatric liquid medicaments, 30% (15) advised brushing with toothpaste and only 8% (4) advised chewing sugar free gum. However, there was no statistically significant difference seen among the values observed. Thus, it can be inferred that the opinion differs; however, the difference based on the number of years of experience stand as statistically insignificant.

### Discussion

A large number of pediatricians included in this survey were aware of the dental defects that could be caused by long-term use of pediatric liquid medicaments. However, still

**Table 1: Distribution of general information of the respondents**

Characteristics	Number of respondents	Percentage of respondents
Years of practice		
<5 years	10	20.0
5-10 years	10	20.0
10-25 years	7	14.0
>25 years	23	46.0
Number of patients seen per day		
<10	2	4.0
10-25	19	38.0
25-50	16	32.0
>50	13	26.0
Teaching faculty		
Teaching	25	50.0
Non-teaching	25	50.0

Table 2: Distribution of awareness and practice profile of the respondents.

Awareness/practice	Years of practice			P value (<10-years vs. >10-years)
	<10 years (n=20)	>10 years (n=30)	All (n=50)	
Awareness on PLM and its association with dental caries				
Yes	14 (70.0)	20 (66.7)	34 (68.0)	0.804 (Non-significant)
No	6 (30.0)	10 (33.3)	16 (32.0)	
Practice on advising dental check-up				
Yes	11 (55.0)	18 (60.0)	29 (58.0)	0.726 (Non-significant)
No	9 (45.0)	12 (40.0)	21 (42.0)	
Practice on time prescribed for PLM				
Meal time	7 (35.0)	13 (43.3)	20 (40.0)	0.169 (Non-significant)
Between two meals	12 (60.0)	13 (43.3)	25 (50.0)	
Bed time	1 (5.0)	0	1 (2.0)	
Any time (Meal/Bed)	0	4 (13.3)	4 (8.0)	
Practice on advising rinsing with water				
Yes	15 (75.0)	22 (73.3)	37 (74.0)	0.895 (Non-significant)
No	5 (25.0)	8 (26.7)	13 (26.0)	
Practice on advising brushing				
Yes	5 (25.0)	10 (33.3)	15 (30.0)	0.529 (Non-significant)
No	15 (75.0)	20 (66.7)	35 (70.0)	
Practice on advising chewing gum				
Yes	1 (5.0)	3 (10.0)	4 (8.0)	0.523 (Non-significant)
No	19 (95.0)	27 (90.0)	46 (92.0)	
Practice on prescribing sugar free medicines				
Yes	4 (20.0)	7 (23.3)	11 (22.0)	0.780 (Non-significant)
No	16 (80.0)	23 (76.7)	39 (78.0)	

Values are n (% of cases). P values b Chi-square test, comparing the proportions of awareness and practice between groups of practice. P<0.05 is considered to be statistically significant.  
PLM: Pediatricians toward long-term liquid medicaments

some did not advise regular dental checkups. The possible rationale could be lack of substantial skills in delivering oral hygiene instructions. Time constraints due to increased number of patients' consultations per day could also be an additive factor. These findings are similar to another survey conducted in Rio De Janeiro, Brazil in which 80.8% stated that pediatric medicines could be related to dental disorders, but only 50.8% recommended oral hygiene after consumption.<sup>10</sup> Another survey conducted amongst pediatricians in North Karnataka also found similar results regarding referral to dentists that only 57% of the pediatricians referred to the dentists as soon as a caries was noticed in children and 62% of the pediatricians referred only when pain and swelling was developed.<sup>11</sup>

The pediatric liquid medicaments are sweetened to improve their palatability and thus acceptance with children.<sup>13</sup> The consumption of pediatric liquid medicaments in between meals, increases the total number of sugar exposures in the child in a day which is associated with increased risk of developing dental caries.<sup>14</sup> In this study, half of the respondents prescribed the liquid medicines to be taken in between two meals. This indicates lack of knowledge amongst pediatricians regarding the factors causing dental caries and its associated risks. Another reason could be inability to control the time of administration as it depends on its properties like rate of absorption, amount absorbed when given along with food and its respective frequency as per the half-life of drug.

Prescribing the pediatric liquid medicament to be consumed just before bedtime also increases the risk for dental caries as the rate of flow of saliva is reduced during night time<sup>8</sup> and the medicine remains in contact with teeth for a longer time. However, in the current study only 2% prescribed the liquid medicines at bedtime.

Although the time of administration is not in control of the pediatrician but the instructions regarding oral hygiene care can be made a mandatory protocol specifically on the group specified. In the current study, a sizable number of pediatricians advised mouth rinsing with water following consumption of pediatric liquid medicaments. This indicates a reasonable amount of awareness regarding the ill effects of liquid medicines on the teeth and a basic sound protocol amongst the pediatricians taking part in the survey. But only 30% of the pediatricians advised brushing with toothpaste, which should be added to the instructions given. 8% of the pediatricians advised chewing sugar free gum, this is still a considerable amount as majority of the patients seen by the pediatricians would be below 6 years of age.

### Conclusion

The pediatricians showed reasonable awareness regarding the ill-effects of the long-term use of pediatric liquid medicaments, and took precautions regarding the same. However, proper oral hygiene maintenance instructions were lacking as a skill in their offerings. Thus, it is recommended that pediatricians undergo special training specifically to better understand

the detrimental effects of long-term use of pediatric liquid medicaments on oral cavity and delivery of proper oral care instructions.

### References

1. Volpato LE, Palti DG, Lima JE, Machado MA, Aranha AM, Bandeca MC, *et al.* When and Why Parents Seek Dental Care for Children under 36 Months. *J Int Oral Health* 2013;5(4):21-5.
2. Maguire A, Baqir W, Nunn JH. Are sugars-free medicines more erosive than sugars-containing medicines? An *in vitro* study of paediatric medicines with prolonged oral clearance used regularly and long-term by children. *Int J Paediatr Dent* 2007;17(4):231-8.
3. Costa CC, Almeida IC, Costa Filho LC. Erosive effect of an antihistamine-containing syrup on primary enamel and its reduction by fluoride dentifrice. *Int J Paediatr Dent* 2006;16(3):174-80.
4. Gandara B, Truelove E. Diagnosis and management of dental erosion. *J Contemp Dent Pract* 1999;1(1):1-17.
5. Nankar M, Walimbe H, Ahmed Bijle MN, Kontham U, Kamath A, Muchandi S. Comparative evaluation of cariogenic and erosive potential of commonly prescribed pediatric liquid medicaments: An *in vitro* study. *J Contemp Dent Pract* 2014;15(1):20-5.
6. Hinze ES, Casamassimo PS, Seale NS, McIlroy M, Kerins CA, McWhorter AG. Relative value of oral health in well-child care: A survey of pediatricians in Texas and Ohio. *J Dent Child (Chic)* 2014;81(2):84-90.
7. Kumar P, Kumar P, Dixit A, Gupta V, Singh H, Sargaiyan V. Cross-sectional evaluation of awareness of prevention of dental caries among general pediatricians in Ghaziabad district, India. *Ann Med Health Sci Res* 2014;4 Suppl 3:S302-6.
8. Schalka MM, Rodrigues CR. The importance of the pediatrician in oral health care promotion. *Rev Saude Publica* 1996;30(2):179-86.
9. Chhabra N, Chhabra A. Parental knowledge, attitudes and cultural beliefs regarding oral health and dental care of preschool children in an Indian population: A quantitative study. *Eur Arch Paediatr Dent* 2012;13(2):76-82.
10. Neves BG, Pierro VS, Maia LC. Pediatricians' perceptions of the use of sweetened medications related to oral health. *J Clin Pediatr Dent* 2008;32(2):133-7.
11. Shetty RM, Dixit UB. Paediatricians' views on dental and oral health and treatment needs in children. *Oral Health Prev Dent* 2011;9(4):315-22.
12. Available from: <http://wpp.greenwichmeantime.com/time-zone/asia/india/pimpri-chinchwad/index.htm>. [Last accessed on 2014 Jan 29].
13. Bigeard L. The role of medication and sugars in pediatric dental patients. *Dent Clin North Am* 2000;44(3):443-56.
14. Scheinin A, Makinen K. Turku sugar studies. *Acta Odontol Scand* 1975;33:1-349.