

## Assessment of perception about oral habits in children among healthcare professionals: A cross sectional study

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### Abstract

**Background:** Digit sucking, lip biting, nail biting, mouth breathing and bruxism are commonly occurring oral habits in children which can result in malocclusion in developing teeth. Healthcare professionals are most likely to encounter children with oral habits and it is necessary that they should be aware of the causes, effects and treatment modalities for such habits.

**Objective:** To assess the perception about oral habits in children among healthcare professionals, other than the dentist, by evaluating their knowledge, attitudes and practices.

**Method:** A cross-sectional survey was conducted among healthcare professionals, excluding dentists, from Medical, Homeopathy, Nursing, Ayurveda and Physiotherapy specialities. A sample size of 400 was calculated using standard sample size formula by referring previously published articles. A 15-item validated questionnaire, containing four domains of professional demographic data, knowledge, attitude and practices were distributed among participants.

**Results:** Our study showed that most of the respondents were unaware about the causes of deleterious oral habits and had unsatisfactory knowledge regarding their effects on children. A lack of awareness regarding the prevention and treatment of oral habits was also observed. The correlation between knowledge, attitude and practices was highly significant ( $p < 0.001$ ).

**Conclusions:** Majority of participating healthcare professionals were not adequately aware about the causes, effects and prevention of oral habits.

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(Key words: Attitude, Healthcare professionals, Knowledge, Oral habits in children, Practices)

### Introduction

Oral habits can be an aspect of a child's normal development or can be a symptom with a deep-rooted psychological cause<sup>1</sup>. Digit sucking, lip biting, nail biting, mouth breathing and bruxism are commonly occurring oral habits in children, the prevalence of which is reported to be around 25% in school children<sup>2,3,4</sup>. Some habits can be viewed as normal for a specific age group but if continued for a long duration, may cause dento-alveolar problems as well as skeletal deformations such as greater mandibular canine arch width, narrower maxillary arch width, increased overjet, and increased prevalence of open bite and posterior crossbite<sup>5</sup>. The relationship of oral habits with these problems also depends upon the amount of force with which they are performed and the treatment for such problems is less effective if the habit persists. Therefore, it is advisable to break the habit between the second and third year of life<sup>6</sup>.

There also exists a relationship between the occurrence of parafunctional habits and anxiety, the severity of anxiety contributing to prevalence of these habits. Previous studies correlating the psychological status with oral habits have concluded that subjects with parafunctional habits have higher anxiety and depression rates<sup>7</sup>. Furthermore, children subjected to stressful life events are more likely to perform oral habits<sup>8</sup>. Some studies highlight the significant predisposition of oral habits among girls, single children, children in poor physical health and children with chronic health problems<sup>9</sup>. Therefore, it is important to intervene early on these aetiological factors to prevent development or worsening of malocclusion and, if already developed, correct it by early orthodontic treatment.

Due to lack of awareness, oral habits are often overlooked. Healthcare professionals are most likely to encounter children with oral habits and it is essential that they should be aware of the causes, effects and treatment modalities for such habits. A literature search showed that very few studies have been conducted regarding knowledge, attitude and practices about oral habits in children among healthcare professionals.

### Objectives

To assess the perception about oral habits in children among healthcare professionals other than the dentist by evaluating their knowledge, attitude and practices.

### Method

A cross-sectional study was carried out in the Department of Paediatrics and Preventive Dentistry, KLE VK Institute of Dental Sciences, India. Sample size of 386 was calculated using the standard sample size calculating formula and was rounded to 400<sup>10</sup>. A questionnaire consisting of 15 questions covering various aspects essential for this study was prepared by taking references from articles published in the recent past. Questionnaire comprised 4 components. The first component asked participants to provide their demographic data, the second dealt with knowledge of oral habits, the third dealt with attitude and the fourth dealt with the practices for prevention of oral habits. Responses to the questions were measured on a five-point Likert scale: 'Strongly disagree', 'disagree', 'neutral', 'strongly agree', 'agree'.

The validity of the content was approved by a group of professionals. The inclusion criteria for the study were Faculty, Practising Professionals, Post-graduates and Interns of Medical, Homeopathy, Nursing, Ayurveda and Physiotherapy specialities. The exclusion criteria for our study were the Undergraduate students and the ones who did not give their consent to participate.

The participants were instructed regarding filling of the questionnaire, and a pilot study was conducted among 20 participants to ensure ease and lucidity of answering the questionnaire. These participants were then excluded in the final study, and the questionnaire did not require any modifications. Instructions regarding the questionnaire were given and the questionnaire was then distributed among the 400 participants. Abundant time was given to the participants to complete their questionnaire; thereafter, the questionnaires were collected from them. The identity of the surveyor was kept anonymous.

After the completion of questionnaire, the participants were made to sit in a room and were educated through a health talk regarding oral habits and their adverse effect on overall general health. They were made aware about different treatment modalities that could be rendered to such children

and the importance of referral of such children to a paediatric dentist was also highlighted in the health talk.

**Ethical issues:** Approval for the study was obtained from the Research and Ethics Committee, KLE VK Institute of Dental Sciences, KLE University, Karnataka India (Sl. No. 1388). Written informed consent was obtained from all the participants.

**Data analysis:** The collected forms were analysed in MS Excel sheet (Microsoft Corp.). The data were entered using IBM SPSS software (version 20.0 Chicago IL, USA) and percentages were calculated. The test-retest reliability of the survey questions was determined by administering the questionnaire to 15 participants selected randomly, and after 2 weeks, a repeat test was done. The data were then subjected to statistical analysis, and based on the test, the reliability, Cronbach's  $\alpha$  co-efficient of 0.82 was calculated, which indicates acceptable internal consistency. Descriptive statistics were generated for all questions, and for each answer, frequency distributions and percentages were examined.

### Results

There were no dropouts in the study as all 400 participants returned a completely filled questionnaire. Of the respondents 69.5% were females and 31.5% were males. Mean age of this population was  $27.71 \pm 10.24$  years. According to designations, 58% were graduates, 12.5% were postgraduates, 16% were practising professionals and 13.5% were faculty members. Participants came from different backgrounds like Ayurveda and Homeopathy, Medical, Nursing, Pharmacy and Physiotherapy.

The participants were posed with a wide array of questions that tried to evaluate their awareness level. For the elucidation of the results, (agree + strongly agree) and (disagree + strongly disagree) were combined. Among all respondents, 50% were unaware about the influence of peer groups and siblings on oral habits. Only 41.3% of respondents had the knowledge about the effect of intensity, frequency and duration of performing such habits on the severity of malocclusion. Only 26.5% of respondents were aware about the correct age for intervention and the psychological impact of early intervention in a young child. Moreover, 59.8 % of respondents believed that putting social pressure can help a child break out of the habit (Table 1).

**Table 1: Question-wise responses of respondents**

Question	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
A high prevalence of oral habits is observed among children. Do you agree? - n (%)	01 (0.25)	19 (4.75)	52 (13.0)	242 (60.5)	86 (21.5)
Children weaned later from breastfeeding have a lower incidence of oral habits - n (%)	01 (0.25)	49 (12.25)	159 (39.75)	149 (37.25)	42 (10.5)
Habits are not influenced by peer groups or siblings - n (%)	52 (13.0)	148 (37.0)	87 (21.75)	92 (23.0)	21 (5.25)
Children of working individuals who get to spend less time with their parents tend to indulge more in oral habits to seek attention from them - n (%)	07 (1.75)	69 (17.25)	78 (19.5)	182 (45.5)	64 (16.0)
Children experiencing issues adjusting to their surroundings are more likely to indulge in oral habits - n (%)	0 (0)	39 (9.75)	98 (24.5)	206 (51.5)	57 (14.25)
Oral habits directly impact a child's facial profile which in turn affects their self-esteem - n (%)	01 (0.25)	08 (2.0)	51 (12.75)	223 (55.75)	117 (29.25)
Intensity, frequency & duration of oral habits have no relation to severity of malocclusion - n (%)	35 (8.75)	130 (32.5)	135 (33.75)	76 (19.0)	24 (6.0)
The deleterious effects of oral habits generally subside if cessation occurs before the eruption of permanent teeth - n (%)	02 (0.50)	26 (6.50)	133 (33.25)	205 (51.25)	34 (8.50)
Early intervention by discouraging certain habits would have no effect on the basic physiology and psychology of a young child (<3 years) - n (%)	17 (4.25)	89 (22.25)	104 (26.0)	150 (37.5)	40 (10.0)
Parental pressure or social pressure can help a child break the habit - n (%)	17 (4.25)	62 (15.5)	82 (20.5)	187 (46.75)	52 (13.0)
Professionals should evaluate the child for psychological overtones before embarking on habit elimination - n (%)	0 (0)	04 (1.0)	69 (17.25)	231 (57.75)	96 (24.0)
Parental counselling with education about oral health can serve as a preventive measure to reduce the occurrence of oral habits - n (%)	01 (0.25)	05 (1.25)	28 (7.0)	227 (56.75)	139 (34.75)
Reminder therapy in conjugation with reward systems can prove useful for early interception of oral habits. - n (%)	01 (0.25)	07 (1.75)	86 (21.5)	207 (51.75)	99 (24.75)
Referral of such patients to paediatric dentists should be advocated - n (%)	01 (0.25)	12 (3.0)	56 (14.0)	214 (53.5)	117 (29.25)
Presently, people tend to neglect these habits in children, awareness for which can be spread through web-based education - n (%)	02 (0.50)	05 (1.25)	38 (9.50)	203 (50.75)	152 (38.0)

With respect to the age groups evaluated using One Way ANOVA (Table 2), it was found out that healthcare professionals aged above 51 years had better knowledge compared to other age groups with a 'F' value of 7.0330 and 'p' value <0.001 which was highly significant. With regard to attitude, again healthcare professionals aged above 51 years were

better compared to other age groups with a 'F' value of 4.4967 and a highly significant 'p' value <0.01. However, with regard to practices related to oral habits, healthcare professionals aged 31-40 years were better compared to other age groups with a 'F' value of 11.0994 and a highly significant 'p' value <0.001.

**Table 2: Comparison of age groups with mean knowledge, attitude and practice scores by one way ANOVA**

Age groups	Knowledge		Attitude		Practice		Total	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
<21yrs	17.08	2.23	15.63	1.96	19.55	2.27	52.26	4.05
21-30yrs	18.15	2.49	16.05	2.34	20.73	2.51	54.93	5.47
31-40yrs	18.84	3.23	17.02	2.54	21.64	2.28	57.50	6.06
41-50yrs	17.10	3.11	16.06	3.01	20.39	2.25	53.55	6.21
>51yrs	19.44	2.66	17.32	2.06	21.52	2.89	58.28	5.95
Total	18.00	2.68	16.16	2.37	20.61	2.52	54.78	5.63
F-value	7.0330		4.4967		7.3954		11.0994	
p-value	0.0001		0.0015		0.0001		0.0001	

With respect to the healthcare specialty evaluated using One Way ANOVA (Table 3), respondents

from a medical background, closely followed by Pharmacy were most aware of these oral habits.

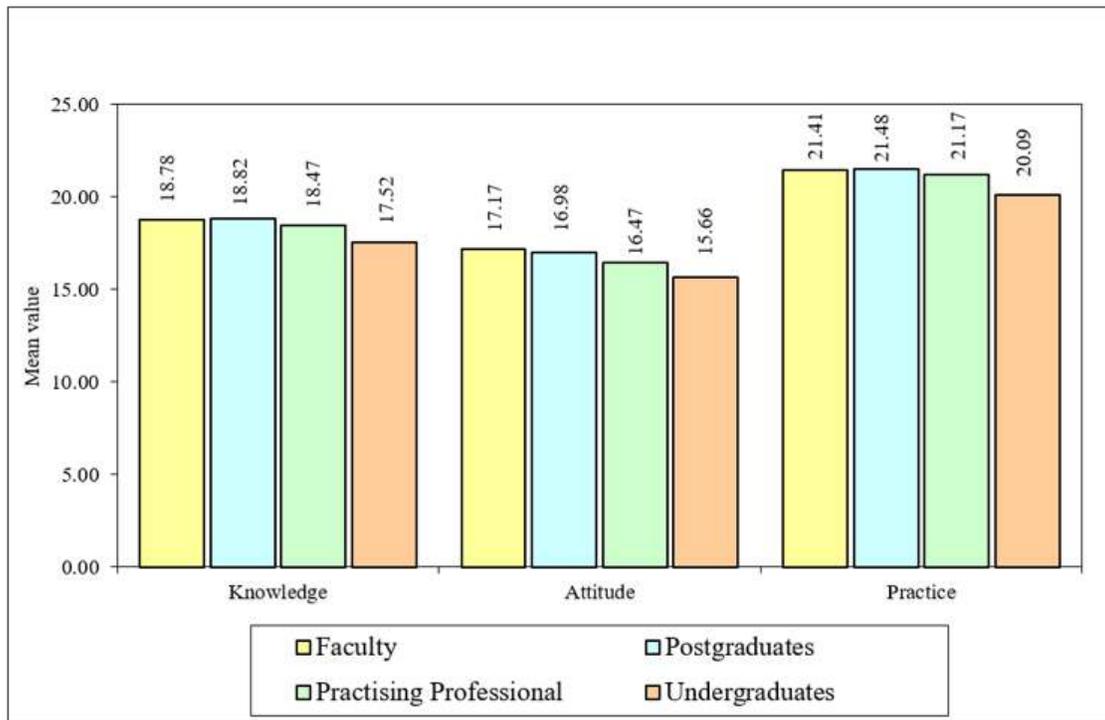
**Table 3: Comparison of healthcare speciality with mean knowledge, attitude & practice scores by one way ANOVA**

Healthcare speciality	Knowledge		Attitude		Practice		Total	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Ayurveda and Homeopathy	16.75	2.11	16.25	1.98	20.13	2.55	53.13	4.47
Medical	19.23	2.90	17.32	2.58	21.62	2.16	58.16	5.98
Nursing	17.85	1.95	15.65	1.69	20.00	2.18	53.50	3.43
Pharmacy	18.17	2.13	14.87	1.87	21.04	2.58	54.09	3.76
Physiotherapy	16.93	2.20	15.48	1.90	19.66	2.48	52.07	4.25
Total	18.00	2.68	16.16	2.37	20.61	2.52	54.78	5.63
F-value	18.1670		19.1728		14.6386		31.6346	
p-value	0.0001		0.0015		0.0001		0.0001	

These observations can be banked on as both Kruskal Wallis ANOVA and one-way ANOVA test indicated that these are highly statistically significant results with ‘p’ value <0.001 and a ‘F’ value of 31.6346 (Table 3).

By analysing the test results based on designations using both Kruskal Wallis and One-way ANOVA, it

was observed that Faculty closely followed by Post graduate students were really aware in terms of knowledge, attitude and practices about oral habits and these results were highly significant with a ‘p’ value <0.001 (Figure 1). However, when comparison was done based on gender, no statistically significant values were observed, either with using Mann-Whitney U Test or with t-test.



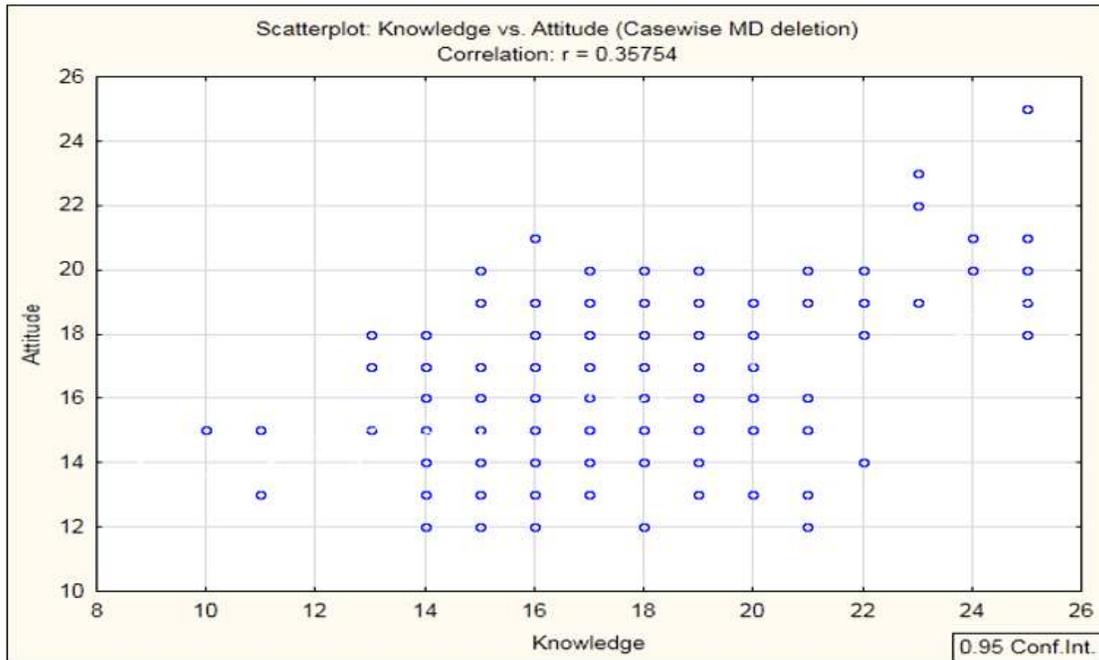
**Figure 1: Comparison of designation with mean knowledge, attitude and practice scores.**

The correlation between Knowledge, Attitude and Practices was done using Karl Pearson’s correlation coefficient and it was observed that correlation between Knowledge and Attitude was highly significant with a ‘r’ value of 0.3575 and ‘p’ value <0.001. When correlation was done between

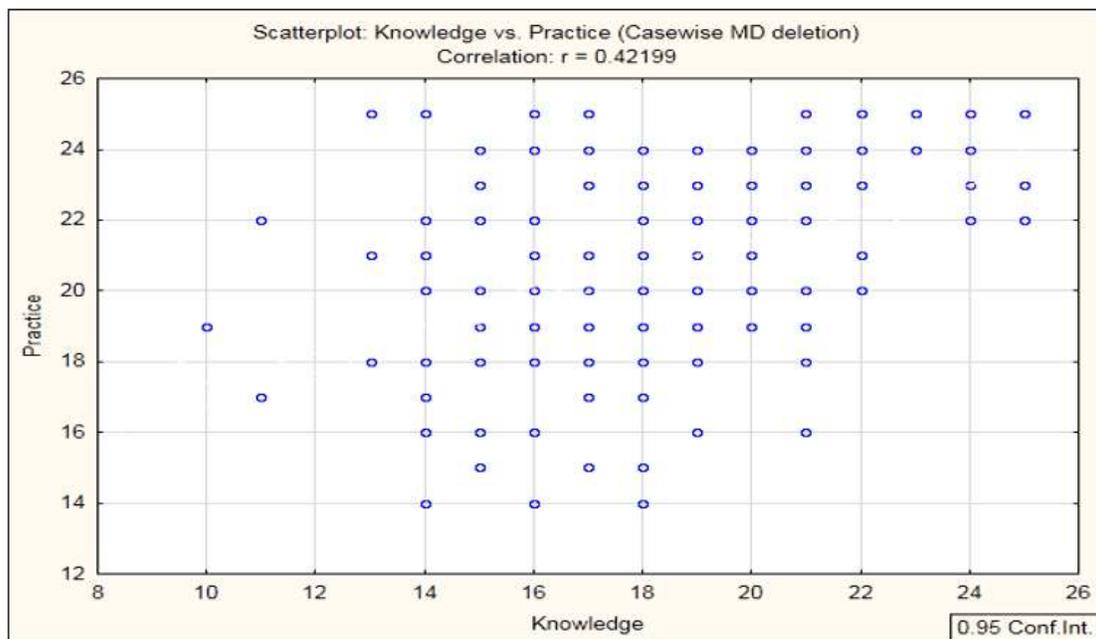
Knowledge and Practice, a ‘r’ value of 0.4220 was obtained with a highly significant ‘p’ value <0.001. Similar findings were observed on comparison of Attitude and Practices and a ‘r’ value of 0.1961 was obtained with a highly significant ‘p’ value <0.001 (Table 4 and Figures 2, 3 and 4).

**Table 4: Correlation between knowledge, attitude & practice scores using Karl Pearson correlation coefficient**

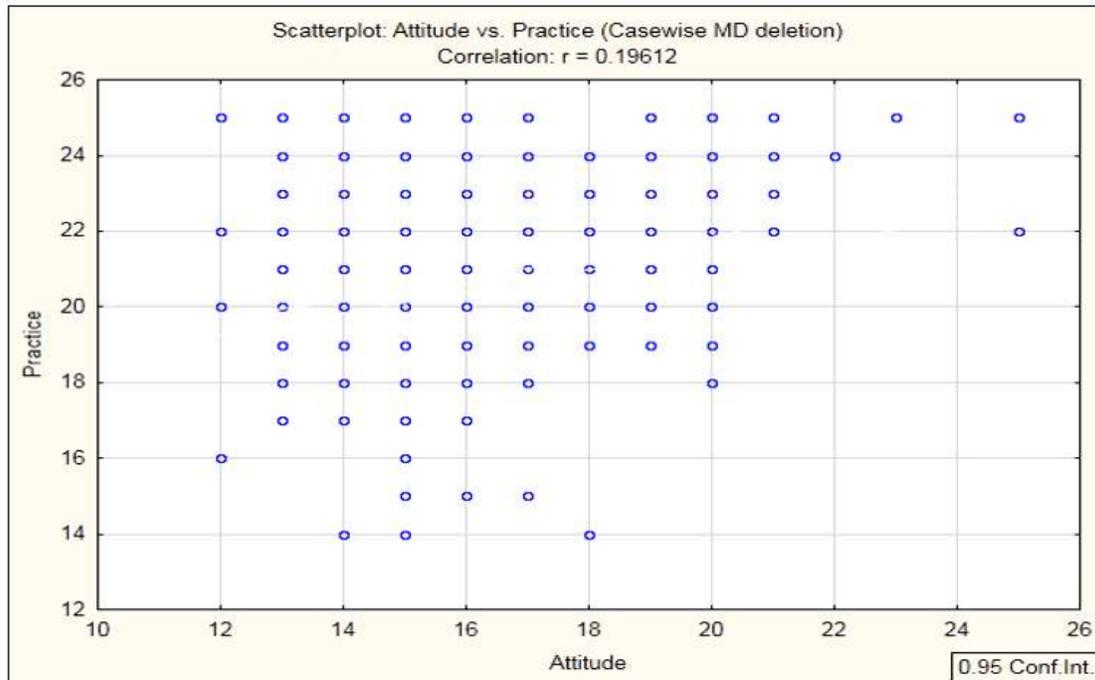
Variable	Summary	Knowledge	Attitude	Practice
Knowledge	r-value			
	p-value	---		
Attitude	r-value	0.3575		
	p-value	0.0001	---	
Practice	r-value	0.4220	0.1961	
	p-value	0.0001	0.0001	---



**Figure 2: Scatter diagram of correlation between knowledge and attitude scores**



**Figure 3: Scatter diagram of correlation between knowledge and practice scores**



**Figure 4:** Scatter diagram of correlation between attitude and practice scores

### Discussion

The saying “The mouth is the mirror image of all diseases” holds true and the majority of healthcare professionals start their examination with the oral cavity. However, even after a thorough examination, the oral cavity and its diseases are neglected and looked down upon. It is only after the disease has reached a severe stage is referral to a dentist practised. Identification of a particular health issue based on prevalence, severity or impact on quality of life is a preliminary step to achieve its prevention. An amalgamation of community, professional and individual strategies is essential for oral health promotion and this is unachievable without creating awareness. The aetiology, prevalence, adverse effects and management of oral habits have been focused on in the literature but little consideration has been given to spreading awareness which is of the utmost importance for elimination of these habits. For this, we must first determine the current level of knowledge. Furthermore, due to the insignificant number of studies carried out in the past regarding the healthcare professional’s awareness about oral habits, a need was felt for the same.

Our study was a cross-sectional questionnaire-based one to explore the healthcare professional’s awareness about oral habits. The study included a 5-point Likert scale due to its summative nature and high reliability<sup>11</sup>. This study incorporated various specialities and assessed people with various designations to garner a more diverse data set. There

were zero dropouts in our study indicating that respondents were willing to take a step towards spreading awareness to promote oral well-being.

Studies by Aznar T, *et al*<sup>6</sup>, Grippaudo C, *et al*<sup>12</sup> and Viggiano D, *et al*<sup>13</sup> concluded that oral habits are among the major aetiologic factors leading to malformation in the dento-facial structures. However, this study showed that 58.8% of the respondents were unaware about the detrimental effects of such habits on oral structure as they had less knowledge about the impact of intensity, frequency and duration of performing these habits<sup>5</sup>. These findings were in accordance with the study by Kumar V, *et al*<sup>10</sup>. Literature suggests that active intervention of certain habits such as thumb sucking before the age of three, is inadvisable and intervention at this age can be pernicious to the basic physiology and psychology of a young child<sup>1,14</sup>. However, only 26.5% of respondents were aware of this actuality. These findings highlight the amount of unawareness that exists regarding oral habits. However, on the brighter side, several respondents were aware about the significance of the emotional well-being of the child and how that can potentially affect the occurrence of such habits. Majority believed that initiatives such as parental counselling (91.5%) and web-based education (88.8%) can go a long way in prevention of such habits. Furthermore, in our study 82.8% of respondents agreed that referral of such patients to paediatric dentists should be practised. This finding contrasted with studies by Kumar V, *et al*<sup>10</sup>, Shah K, *et al*<sup>15</sup> and Sharma R, *et*

al<sup>16</sup> where the majority of respondents did not practise paediatric referral.

An important finding of our study was that professionals aged above 51 years had better knowledge than others. It was also observed that the faculty was the most aware amongst all and thus the results emphasize on the need to spread awareness amongst youngsters since the young generation is the future of India. This also emphasizes the need for continuing dental education for other healthcare specialities and the inclusion of oral health care in their curriculum. Eke B, *et al*<sup>17</sup> also stressed upon inclusion of basic oral healthcare of children in curriculum of paediatricians' training programme as their study highlighted the lack of awareness regarding oral health.

Poor oral health can have a profound consequence on the general health of an individual. Incorporation of oral health into strategies for promoting general health can greatly enhance the overall well-being of individuals. Various health professionals work together as a team to provide medical care for the patient and the society at large and they come across a variety of people every day as part of their profession. With appropriate knowledge, they can play a vital role in elimination of oral habits by recognizing and intercepting the problem at an early stage. A study was conducted by Giuseppe G, *et al*<sup>18</sup> to determine the knowledge, attitude and practices among paediatricians regarding oral diseases and the study depicted the lack of knowledge among participants but they believed that they have a vital responsibility in prevention of oral health problems. A multidisciplinary approach is thus the need of the hour as healthcare professionals have the potential to promote oral health by encouraging regular dental visits, by participating in activities related to oral health promotion and by acting as a role model for patients, friends, families and the community. Another approach towards prevention can be 'Dental Home' which is the ongoing relationship between the dentist who is the Primary Dental Care Provider and the patient, and includes comprehensive oral health care, beginning no later than age one. The limitation of our study was that it could have been conducted over a larger geographical area covering a larger sample size so that a more tangible result could be established.

### Conclusions

Majority of the participating healthcare professionals were not adequately aware about the causes, effects and prevention of oral habits. This highlights the need for incorporation of basic oral healthcare in curriculum of other healthcare professionals so that the oral health problems can be intercepted at an early stage and appropriate referral to the dentist should be advocated.

### References

1. Stewart RE, Barber TK, Troutman KC, Wei SHY. Paediatric dentistry, scientific foundations and clinical practice. St. Louis: The CV Mosby Company; 1982.
2. Gildasya G, Riyanti E, Hidayat S. Prevalence of oral habits in homeless children under care of Yayasan Bahtera Bandung. *Dental Journal* 2006; **39**(4):165–7. <http://dx.doi.org/10.20473/j.djmk.v39.i4.p165-167>
3. Kharbada OP, Sidhu SS, Sundaram K, Shukla DK. Oral habits in school going children of Delhi: a prevalence study. *Journal of Indian Society of Pedodontics and Preventive Dentistry* 2003; **21**(3): 120–4.
4. Garde JB, Suryavanshi RK, Jawale BA, Deshmukh V, Dadhe DP, Suryavanshi MK. An epidemiological study to know the prevalence of deleterious oral habits among 6 to 12 year old children. *Journal of International Oral Health* 2014; **6**(1): 39–43.
5. Warren JJ, Bishara SE, Steinbock KL, Yonezu T, Nowak AJ. Effects of oral habits duration on dental characteristics in the primary dentition. *Journal of the American Dental Association* 2001; **132**(12): 1685–93. <https://doi.org/10.14219/jada.archive.2001.0121> PMID: 11780987
6. Aznar T, Galan AF, Marin I, Domínguez A. Dental arch diameters and relationships to oral habits. *Angle Orthodontist* 2006; **76**(3): 441-5. [https://doi.org/10.1043/00033219\(2006\)076\[0441:DADART\]2.0.CO;2](https://doi.org/10.1043/00033219(2006)076[0441:DADART]2.0.CO;2)
7. Alkan A, Cakmak O, Yilmaz S, Cebi T, Gurgan C. Relationship between psychological factors and oral health status and behaviours. *Oral Health and Preventive Dentistry* 2015; **13**(4): 331-9.
8. Perlman AE, Eli I, Friedman RP, Goldsmith C, Reiter S, Winocur E. Bruxism, oral parafunctions, anamnestic and clinical findings of temporomandibular disorders in children. *Journal of Oral Rehabilitation* 2012; **39**(2): 126-35. <https://doi.org/10.1111/j.13652842.2011.0>

2254.x

PMid: 21916926

9. Bayardo RE, Mejia JJ, Orozco S, Montoya K. Aetiology of oral habits. *ASDC Journal of Dentistry for Children* 1996; **63**(5): 350-3.
10. Kumar V, Shivanna V, Kopuri RC. Knowledge and attitude of paediatricians toward digit sucking habit in children. *Journal of Indian Society of Pedodontics and Preventive Dentistry* 2019; **37**(1):18-24.  
[https://doi.org/10.4103/JISPPD.JISPPD\\_136\\_18](https://doi.org/10.4103/JISPPD.JISPPD_136_18)  
PMid: 30804303
11. Louangrath PI. Reliability and validity of survey scales. *International Journal of Research and Methodology for Social Science* 2018; **4**(1): 50–62.
12. Grippaudo C, Paolantonio EG, Antonini G, Saule R, La Torre G, Deli R. Association between oral habits, mouth breathing and malocclusion. *Acta Otorhinolaryngologica Italica* 2016; **36**(5):386-94.  
<https://doi.org/10.14639/0392-100X-770>  
PMid: 27958599 PMCID: PMC5225794
13. Viggiano D, Fasano D, Monaco G, Strohmer L. Breast feeding, bottle feeding, and non-nutritive sucking; effects on occlusion in deciduous dentition. *Archives of Disease in Childhood* 2004; **89**(12): 1121-3.  
<https://doi.org/10.1136/adc.2003.029728>  
PMid: 15557045 PMCID: PMC1719762
14. Friman PC, Schmitt BD. Thumb sucking: paediatrician's guidelines. *Clinical Pediatrics* 1989; **28**(10): 438-40.  
<https://doi.org/10.1177/000992288902801001>  
PMid: 2676311
15. Shah K, Parikh U. Assessment of parental knowledge in relation to the oral habits in the children in Ahmedabad City, Gujarat. *Journal of Advanced Medical and Dental Sciences Research* 2017; **5**(10): 34-7.  
<https://doi.org/10.21088/ijde.0974.6099.10217.5>
16. Sharma R, Kumar S, Singla A, Kumar D, Chowdhary S. Knowledge, attitude and practices of pediatricians regarding malocclusion in Haryana, India. *Journal of Indian Association of Public Health Dentistry* 2016; **14**(2): 197-201  
<https://doi.org/10.4103/2319-5932.183803>
17. Eke CB, Akaji EA, Ukoha OM, Muoneke VU, Ikefuna AN, Onwuasigwe CN. Paediatricians' perception about oral healthcare of children in Nigeria. *BMC Oral Health* 2015; **23**(15):164.  
<https://doi.org/10.1186/s12903-015-0151-2>  
PMid: 26693936 PMCID: PMC4689005
18. Di Giuseppe, G., Nobile, C.G., Marinelli, A., Angelillo F. Knowledge, attitude and practices of pediatricians regarding the prevention of oral diseases in Italy. *BMC Public Health* 2006; **6**:176.  
<https://doi.org/10.1186/1471-2458-6-176>  
PMid: 16822318 PMCID: PMC1543635