

A Questionnaire-based Study to Assess the Level of Awareness among Parents about Preventive Measures and its Relationship with Dental Health Status of 6–12 Years Old Children in Panchkula, Haryana, India

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ABSTRACT

Background: Good oral health is important for the overall health and well-being of a child and is one of the building blocks for a disease-free life. Parent/caregiver plays a major role in a child's life, so their knowledge and attitude about oral health will have a great impact on the child's oral health.

Objective: The objective of this study is to evaluate oral health awareness in parents of children aged 6–12 years in Panchkula and its relationship with the dental health status of their wards.

Materials and methods: Two hundred parents of children aged 6–12 years with no systemic condition/pathology were included in the study. A comprehensive questionnaire with apparent validity was designed covering questions regarding views of parents for their children on oral health knowledge, caries prevention, and role of diet which was distributed to the parents. Data were statistically analyzed using SPSS 20.

Results: The results showed that children of parents having unsatisfactory knowledge of oral health had higher decayed, missing, and filled teeth (DMFT/dmft) scores as compared to the children of parents having satisfactory knowledge of oral health.

Conclusion: Education of parents regarding oral health is important in keeping their child's oral health in good condition.

Keywords: DMFT/dmft, Oral health awareness, Parents, School-going children.

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INTRODUCTION

Oral health is an essential component of overall well-being and general health of a child. Oral cavity and its surrounding structures that are free of any diseases are indicative of good oral health. Parent/caregiver plays a major role in a child's life, so their knowledge and attitude about oral health will have a greater impact on the child's oral health. Growing evidence shows that good oral health of mother right from pregnancy could be the key to establishing the good oral health of children.¹ Most researchers have attributed the inadequate knowledge and attitude about oral health among parents and caregivers as the primary reason for the poor oral health status of their children².

Most dental health education efforts are concentrating on informing and motivating parents and children to restrict frequent intake of sugar, brushing their teeth with fluoride toothpaste, and to have regular visits to the dentist. The prevention and management of dental health conditions, by and large, requires considerable self-knowledge and intervention.³

Oral health knowledge and information form the basis of optimal dental health. Parents are role models for their children who can instil healthy preventive oral habits in their children, provided they themselves have a good knowledge of dental diseases and their prevention.^{4,5} Establishing healthy oral and dental behavior patterns have been found to be beneficial in maintaining good oral health.² Also, compromised hygiene measures and neglecting dental needs are some of the etiological factors causing caries.³

It has been advocated that parents should master the preventive oral habits in their early lives so that they are able to deliver the same to their children as well. This would help in

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creating a beneficial effect on their child's dental health.⁶ The dental professionals may play pivotal roles in educating parents and aiding them to understand the significance of early dental care at home.⁷ Educational messages and written materials imparting oral health information should be easy to understand with maximum readability since many parents may have restricted literacy skills.⁸

American Academy of Pediatric Dentistry (AAPD) recommends that children should visit a dentist for an oral health risk assessment within 1 year of birth.⁹

Assessment of the knowledge and attitude of mothers using prevalidated questionnaire helps to formulate an effective oral health promotion program. Hence, a better understanding of the prevalent knowledge and attitude of mothers about oral health and their own oral hygiene practices is essential. So, the aim of this study is to collect the baseline data to assess the knowledge and attitude of parents regarding oral health and its relationship with the prevalence of dental caries in their children in Panchkula city.

MATERIALS AND METHODS

Two hundred parents of 6–12 years old school-going children in Panchkula were included in the cross-sectional study. A sample size of 200 parents was calculated by using the proportion of mother's knowledge at 26% with 95% confidence interval and 5% margin of error. The data were collected by using a consecutive sampling technique. About 25% of the samples were pretested in the same setting. The primary sampling unit consists of five blocks of Panchkula (i.e., Panchkula Urban, Morni, Barwala, Pinjore, and Raipur Rani). Within each block, the samples were equally and randomly selected by visiting homes. Ethical approval was obtained from the Institutional Ethical Review Board. A written consent from participants of the study was also obtained. Children aged 6–12 years belonging to the same parents with no systemic condition/pathology were included in the study. Clinical examination of children had been performed by a single operator using a mirror, a probe, a portable light, and cotton pellets for isolation, to reveal the presence or absence of dental caries, missing (extracted or congenital), and filled teeth. Caries had been detected according to the WHO criteria as dmft/DMFT Index¹⁰ for primary and permanent dentition.

A multiple-choice questionnaire using apparent validity was generated in consultation with the opinion of experts and subjects themselves. All questions (in English/Hindi) were logically designed having 10 questions which were focused on the level of awareness of parents about oral health knowledge, caries prevention, and role of diet. A questionnaire was designed in English and translated in Hindi and back translated in English to check for language discrepancy. Demographic information was recorded in the same questionnaire. Parent's knowledge was graded on a 2-point scale (satisfactory and unsatisfactory). One hundred percent response was obtained. For the ease of statistical analysis, codes 2 and 3 of each question were clubbed together in a single category, i.e., code 2 was designated as unsatisfactory and code 1 was designated as satisfactory.

Data so collected were tabulated and statistically analyzed using the SPSS version 20. Frequencies and percentages of the level of awareness of parents were recorded and the association between the prevalence of caries and the gender was tested using the Chi-square test. The paired *t* test was used to test the association between oral health knowledge of parents and dental caries experience of their children. The level of significance was set at $p < 0.005$.

RESULTS

A 10-itemed questionnaire was used to assess the awareness of parents toward oral health. The results of an individual question are given in Table 1.

Out of the 200 children aged 6–12 year, 128 were girls and 72 were boys. About 41.5 (%) had caries, while remaining were caries free. The total mean DMFT score was 0.97. The mean DMFT score for male was 1.02, whereas for female was 0.93. The overall mean score of dmft was 1.32. The mean dmft score for male was 1.47,

whereas for female was 1.12. There was no statistically significant difference in the caries prevalence between the two sexes ($p = 0.13$ DMFT and 0.16 dmft) (Table 2).

About 54.83% of children with parents having unsatisfactory knowledge were affected with caries, while 28.3% of children with parents having satisfactory knowledge had caries. Mean DMFT scores recorded for children of parents having satisfactory and unsatisfactory knowledge of oral health were 0.08 and 0.93, respectively. The highest DMFT scores were recorded for children whose parent's level of awareness was unsatisfactory followed by children whose parent's level of knowledge was satisfactory (Table 3). The results showed a highly statistically significant difference ($p < 0.005$).

Mean dmft scores recorded for children of parents having satisfactory and unsatisfactory knowledge of oral health were 0.83 and 1.69, respectively. The highest dmft scores were recorded for children whose parent's level of awareness was unsatisfactory followed by children whose parent's level of knowledge was satisfactory (Table 3). The results showed a highly statistically significant difference ($p < 0.005$).

DISCUSSION

Dental caries is a major health dilemma in underdeveloped countries and it influences 60–90% of school-going children.¹¹

The goal of this study was to find out the association between parent's dental knowledge with the status of dental caries of their children. This study demonstrates a mean DMFT of 0.97, for males 1.02, while for females was 0.93 for the age group of 6–12 years. A study conducted in Tehran revealed that the DMFT index in 12-year-old students dropped from 1.67 to 0.77,¹² whereas a cross-sectional study in India has shown a mean DMFT of 2.41 in 13–15-year-old school children.¹³ Kalra et al.¹⁴ observed that the mean dmft of 7–8-year olds was 0.95 and, at 9–10 years, was 1.18. While in our study, the overall mean dmft scores of children between the age group of 6 and 12 years were 1.32. According to Leena et al.,¹⁵ any caries at 3, 5, 7, and 10 years of age was a predictor of poor dental health at 15 years of age. At 7–8 years, children have both primary and permanent teeth in the oral cavity. The risk of bacterial transmission to newly erupted permanent teeth increases dramatically if the primary teeth are carious. This clearly points to the need for preventative strategies as soon as secondary dentition erupts into the oral cavity. However, the requirement for early intervention to decrease or eliminate oral disease and the need for oral health mandates the participation of the parents in the preventive strategies for their children.

The prevalence of dental caries was found equally in both sexes in the current study. Al-Malik and Rehbini¹⁶ had found no significant difference in the caries prevalence between two sexes, 146 (50.7%) were males and 142 (49.3%) were females. Similarly, Joshi et al.¹⁷ also reported no difference between the dental caries occurrence of boys and girls. Dhar and Jain¹⁸ also demonstrated an insignificant difference in the caries prevalence between the two sexes.

Dental caries is multifactorial and numbers of factors are to be taken into account for determining its intensity. Major factors include the following: frequency of sugar intake, lack of exposure to fluoride, and limited knowledge concerning regular dental checkups. Sucrose as an important etiological factor in caries has been with us since centuries. Easy availability of sugar-containing food and high consumption of sweets has put children under a constant danger of developing dental caries. This study indicates that a very

Table 1: Frequency of oral health awareness

Questions		Frequency	Percentage
Best way to clean teeth	(a) Toothbrush with paste	200	100
	(b) Toothbrush with powder	0	0
	(c) Datun	0	0
Frequency of cleaning teeth in a day	(a) Twice a day	122	61.2
	(b) Once a day	62	31.3
	(c) After each meal	16	7.5
Should toothbrush be replaced after every 3 months?	(a) Yes	179	90.4
	(b) No	21	9.6
What causes tooth decay more?	(a) Frequency of intake of sugar	156	78
	(b) Quantity of sugar	44	22
Does sugar-containing diet/drink cause dental decay in children?	(a) Yes	158	79
	(b) No	42	21
	(c) Don't know	0	0
Do you think fluoride prevents decay?	(a) Yes	108	54
	(b) No	14	7
	(c) Don't know	78	39
Brushing with fluoride toothpaste daily	(a) Reduces caries to some extent	91	46
	(b) Eliminates decay	32	16
	(c) Has no effect on caries	77	38
Have you heard about pit and fissure sealants?	(a) Yes	20	10.1
	(b) No	172	86.9
	(c) Don't know	8	4
Is sealant effective in prevention of pit and fissure caries in newly erupted tooth?	(a) Yes	25	12.6
	(b) No	7	3.5
	(c) Don't know	168	84.8
How often do you think a person should visit a dentist?	(a) 6 monthly	80	40
	(b) Yearly	22	11
	(c) When a person has any problem	98	49

Table 2: Mean DMFT/dmft scores

	Gender			p value
	Male	Female	Total	
DMFT (mean ± SD)	1.02 ± 0.43	0.93 ± 0.32	0.97 ± 0.43	0.13 (NS)
dmft (mean ± SD)	1.47 ± 1.52	1.12 ± 1.31	1.32 ± 1.23	0.16 (NS)

NS, not significant

Table 3: Relationship between parent's awareness status vs caries status of their children

Caries status	Parents awareness status		p value
	Satisfactory	Unsatisfactory	
DMFT	0.08	0.93	0.006*
dmft	0.83	1.69	0.007*

*Highly significant

high proportion of parents are aware of the reality that increased frequency of taking snacks and sticky diet can cause tooth decay. Opposite findings were observed by Kalsbeek and Verrips,¹⁹ where 4% of the Dutch children consumed more than five sweet snacks per day and the mean DMFT score of their children was also high.

Oral hygiene maintenance is a vital variable to keep caries rate low and, fortunately, all parents in our study were aware

of brushing teeth with toothbrush and toothpaste, 61.2% had knowledge for brushing twice a day. Daily personal oral hygiene (tooth brushing and flossing) is recommended in the interest of good hygiene.

Parents in this study did not prefer taking their children to dentist until they observed any visible symptoms like swelling, discharge of pus, lack of eating, or impairment in speech. Timely and regular visits to the dentist instead of going after the occurrence of dental disease are necessary. In the digital world, media and advertisements on televisions, Internet, and bill boards may motivate and influence a child to adopt healthy oral hygiene practices. More than half of parents in this study population did not know the role of fluoride and were not aware of the word fluoride. This was contradictory to a study performed in Belarus, by Elena and Petr, who reported 84.7% of awareness about the importance of fluoride in preventing decay.²⁰ Vallejos-Sánchez et al.²¹ have suggested that children's frequency to brush teeth is directly linked to the educational level of their parents. This is in agreement with the findings of the present study. Razmienė et al.²² observed that the incidence of dental caries is influenced by the frequency of tooth brushing. In the present study, the children of uneducated parents were observed in the habit of irregular brushing, so more prone to toothache and more frequently visited the dentist for toothache problems.

The European Academy of Pediatric Dentistry has strongly advocated everyday use of fluoride in any complete preventive

program for controlling dental caries in children.²³ Brushing with fluoridated toothpaste has been considered as an ideal public health method, and this has been proved to be convenient to use, is inexpensive and is approved culturally too.²⁴

In this study, the knowledge grades were compared with caries status to check the association between knowledge of parents and dental caries in their children. The results were found to be significant with p value <0.05 . This augments the reality that the family is accountable for children's life style, behavior, and habits. Most of the studies have also reported that mother's dental health knowledge may influence their children's dental health.^{12,19}

In the present study, we observed that the educational level of parents had a major impact on the child's oral health. This is in concurrence with the findings in the literature.²⁵⁻²⁷ In the present sample population, good oral health was observed in children with educated parents. The reason postulated behind this was economically sound, more availability of information, and access to health-care professionals.

Since dental caries is one of the most common oral health problems affecting children especially those belonging to lower socioeconomic strata. However, complete knowledge and practice of dental hygiene practices of parents may be reflected in their children.³ So motivation and educating parents may help in reducing the burden of dental caries thereby instilling a positive dental attitude in their children. Moreover, primary schools can also act as centers for educating oral hygiene measures as considerable time is spent in school by children. From this study, it can be concluded that parent's oral health habits and level of dental awareness are of utmost significance in understanding oral health status and needs of children.

Limitation of the Study

The present study provides limited data on the relationship of the prevalence of dental caries in school-going children and the level of awareness about oral health among their parents because of the small sample size. Thus, more studies are required with a larger sample size including a population of different socioeconomic status and education levels.

CONCLUSION

Parent's understanding was good related to many factors affecting oral health, but there still exist lacunae, which need to be considered. As prevention is always better than cure, parent's knowledge can be one of the main key factors in preventing oral diseases and promoting the oral health of their children. There is a need to enhance dental health education activities, targeting parents of school-going children, so that strategies to prevent dental caries start at an early age.

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