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Mothers' knowledge about fluoride therapy and fissure sealants

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Original Article

Abstract

BACKGROUND AND AIM: Increased dental caries and dental lesions have made preventive measures, especially among children, inevitable. This study investigated elementary schoolgirls' mothers' level of knowledge on preventive methods against dental caries.

METHODS: In this cross-sectional study, mothers of 250 schoolgirls were randomly selected from five regions of Tehran, Iran. Their knowledge about fissure sealant therapy and fluoride therapy was evaluated using a questionnaire. Data was analyzed by analysis of variance and independent t-tests in SPSS.

RESULTS: Mothers' knowledge about fissure sealant therapy was lower than fluoride therapy. Very low, low, and moderate levels of knowledge were detected among nearly a quarter, 47.5%, and 22.6% of the participants, respectively. Only 5.4% of the subjects had acceptable level of knowledge on preventive dentistry methods. There were significant correlations between mothers' level of knowledge and their education level and occupational status.

CONCLUSIONS: Educated mothers and working mothers had greater knowledge than did housewives. Dentists have a crucial role in increasing mothers' knowledge.

KEYWORDS: Pit and Fissure Sealant Therapy, Knowledge, Fluoride Therapy

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Health and hygiene are among major concerns of medical and dental practitioners. As children are an absolutely vulnerable group, paying attention to their oral and dental health is the main focus of health care professionals.¹ The best target group for studies on caries and health activities is 7-12 year-old children whose teeth have already erupted.² Oral diseases are common and yet preventable.³ Dean et al. found out that while 90% of pediatric dentists applied treatment, only 10% used preventive methods during 1930-60. Conversely, controlling oral health and hygiene in family environment currently involves 90% prevention and 10% treatment.

The role of individuals' knowledge should be emphasized in this transition.⁴

Dental caries is the most frequently treated oral disease in dental practice. Since preventing dental caries is a huge challenge for the public, increasing parental knowledge and utilizing preventive methods, as practiced in developed countries, may lead to decreased dental caries and improved health of children.^{3,5} Fluoride therapy and using fissure sealants are common methods to prevent the formation of dental caries.¹ According to the World Health Organization (WHO), the mean number of decayed, missing, and filled teeth (DMFT) among 12 year-old children has to be less than or

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equal to one.² The mentioned methods can also ensure the optimal DMTF.

Family imposes the most important effects on psychological, physical, and social aspects of health from the moment a child is born.⁶ After birth and especially during early childhood, parents have the responsibility to maintain and improve the child's oral and dental health. They are thus required to take health care measures.⁷ Appropriate application of fluoride therapy and fissure sealant therapy can be beneficial in preventing dental caries.⁸ More investigations are undoubtedly essential to obtain clearer information about the relationship between mothers' level of education and their knowledge about oral and dental health and preventive methods in the city of Tehran, Iran. Therefore, we evaluated the level of knowledge about preventive dentistry methods among mothers of schoolgirls.

Methods

This cross-sectional study was conducted on mothers of 7-9 year-old schoolgirls residing in northern, southern, eastern, and western regions of Tehran (Iran). Multistage random sampling was performed to select a total number of 250 mothers.

A questionnaire, whose face and content validity and test-retest reliability had been confirmed in a pilot study on a sample of twenty people, was used to collect data. It included items about the region of the school and mother's age, education level, occupational status, number of children, birth order, and knowledge about fissure sealant therapy and fluoride therapy. Multistage random sampling was used and schools were selected from the list of public elementary schools in all five geographical regions of Tehran. The questionnaires were then distributed among randomly selected mothers.

Considering available literature,¹ we added 10 to the predefined sample size and obtained a final sample size of 260 individuals. Scores varied from 1 to 8.

Mothers who scored equal to or below four were considered to have less than average knowledge. Others, on the other hand, were found to have more than average level of knowledge. Independent t-test and analysis of variance (ANOVA) were used for statistical analysis of the results. All analyses were performed in SPSS for Windows 16.0 (SPSS Inc., Chicago, IL, USA).

Results

Almost half of the mothers had a university degree and around 40.0% were employed (Table 1). While 34.0% of the participants marked correct answers in items about knowledge on fissure sealant therapy, 25.4% believed that fissure sealant therapy could be implemented on fissure caries. Few subjects (5.5%) selected the "I do not know" choice and others gave wrong answers. Almost one third of mothers (31.5%) responded correctly to questions on the application of fissure sealant in both permanent and deciduous teeth. However, 40.1% responded "I do not know". Nearly half of mothers knew the appropriate age for fissure sealant therapy but 14% had no knowledge at all. Moreover, 13.3% of mothers expected fissure sealants to last for five years, 19.1% thought they remain for 10 years or more, and 55.5% had no idea (Table 2).

Table 1. Mothers' education level and occupational status

Variable	Categories	n (%)
Education	Below high school diploma	15 (5.8)
	High school diploma	116 (45.2)
	University degree	126 (49.0)
Occupational status	Working	104 (40.5)
	Housewife	153 (59.5)

Half of mothers (50.4%) knew the age of fluoride therapy (all ages). However, 2.3% selected "I do not know". On the other hand, 54.5% of the participants had appropriate information about the frequency of fluoride therapy (periods of 4-6 months) but 3.9% had no information (Table 2).

Table 2. Frequency of responses to questions related to the two methods of preventive dentistry among mothers

Question	Choices	n (%)
Which one is the definition of fissure sealants?	Covering carious fissures of tooth crown by mercury	59 (23.0)
	Covering deep carious fissures by tooth color material	65 (25.4)
	Covering deep normal fissures of tooth crown by tooth color material as a foundation	87 (34.0)
	Covering all of the tooth crown by metal sheets to prevent dental caries	31 (12.1)
	I do not know	14 (5.5)
What type of teeth are fissure sealants used for?	Total	256 (100)
	Deciduous teeth	21 (8.2)
	Permanent teeth	52 (20.2)
	Both	81 (31.5)
	I do not know	103 (40.1)
In what age group are fissure sealants used?	Total	257 (100)
	4-6 years old	32 (12.5)
	6-9 years old	126 (49.0)
	≥ 10 years old	63 (24.5)
	I do not know	36 (14.0)
How long do fissure sealants persist?	Total	257 (100)
	2 years	31 (12.1)
	5 years	34 (13.3)
	10 years and more	49 (19.1)
	I do not know	142 (55.5)
In what age is fluoride therapy used?	Total	256 (100)
	From tooth emergence up to 6 years of age	44 (17.2)
	6-12 years old	52 (20.3)
	After 12 years of age	25 (9.8)
	All ages	129 (50.4)
How often should you visit a dentist for fluoride therapy?	I do not know	6 (2.3)
	Total	256 (100)
	Every 4-6 months	140 (54.5)
	Every 12 months	83 (32.3)
	Every 2 years	24 (9.3)
P	I do not know	10 (3.9)
	Total	257 (100)

Table 3. Relationships between mothers' knowledge about fissure sealant therapy and fluoride therapy and their level of education and occupational status

Knowledge	Level of education			Occupational status	
	Below high school diploma	High school	University degree	Working	Housewife
Less than average	5.8	37.0	29.2	24.1	47.9
More than average	0.0	8.2	19.8	16.3	11.7
P	< 0.001			< 0.001	

There was a significant direct correlation between mothers' level of education and their knowledge about preventive dentistry methods. In fact, while mothers with higher level of education were more knowledgeable, less educated mothers' knowledge was less than average. There was a significant relationship between mothers' occupational status and their information about preventive

dentistry. Therefore, low or very low level of knowledge was significantly more common among housewives than in employed mothers (Table 3).

Discussion

We investigated the effects of mothers' education and occupational status on their knowledge about fluoride therapy and

fissure sealants. Mothers with a university degree had actually better knowledge. Similarly, working mothers had significantly more information about preventive dentistry than housewives.

However, other studies have reported opposite findings. In a study by Nakhjavani and Azari-Marhabi in health care centers of Tehran, knowledge about children's oral health had no significant correlation with occupation or the child's birth order.¹ Sampling location and the applied tool to assess knowledge could have caused this difference.

Khosh Sar and Khorshidian studied the knowledge of pregnant women about oral and dental health control. Comparable to our findings, they indicated uneducated women to be less knowledgeable than the educated subjects. They thus emphasized the importance of education in oral and dental health.⁹

Similar studies by Iranian and foreign researchers have yielded almost different results. Evaluation scores, sample size, sample selection methods, and environmental conditions may result in various levels of mothers' knowledge.^{6,8,10-12} For instance, a study in Saudi Arabia revealed that while knowledge was not affected by age, gender, and parents' education, it was significantly related with the wealth of the family.⁸ Our study suggested that mothers in Tehran had less knowledge about preventive dentistry compared to Saudi Arabian mothers. Our curative, rather than preventive, approach to health care system could explain the difference.

Probably due to the use of different questionnaires, parents in a study by Kosari and Hosseini had more knowledge about preventive dentistry compared to our participants. Kosari and Hosseini also mentioned that more educated parents had higher levels of knowledge.¹⁰

Rajab et al. reported that parents who obtained information mostly from a dentist had relatively higher knowledge about

preventive material than those with other sources of information.¹³ While some studies have introduced dentists as the most reliable sources of information,^{12,13} school health workers can also be a good source of oral health information for mothers.¹⁴

Dental caries and gingival disease are amongst the most common, yet preventable and controllable, diseases around the world. It is hence necessary to increase mothers' knowledge about health care measures and preventive methods. The overall health of the society can be promoted by widespread health education programs, eliminating the weak points identified in the mentioned studies, and increased knowledge about methods to prevent dental caries (such as fluoride therapy and sealant fissure therapy). However, health education by itself does not guarantee the formation of new healthy or preventive habits. In fact, other factors, like socioeconomic status, play an important role in this realm.³

Conclusion

Mothers with high level of education followed the less expensive and shorter treatment. We strongly recommend evaluation of mothers' knowledge about preventive dentistry and its effects on children's oral health by related departments. The role of mass media in enhancing mothers' knowledge cannot be underestimated, either. On the other hand, schools should pay more attention to school health professionals and establishing meetings for the school health practitioners to provide parents with information about preventive dentistry. Activating society-based dentistry units by involving young dentists and oral and dental health care providers, increasing the interaction between members of the society and dentists, and last but not least, persuading the society to take preventive, rather than curative, measures are also among the most effective and valuable approaches to increase oral and dental health.

Conflict of Interest

Authors have no conflict of interest.

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