



ASSESSMENT OF KNOWLEDGE AND ATTITUDES TOWARD PERIODONTAL HEALTH AMONG PARENTS OF PEDIATRIC DENTISTRY PATIENTS

PEDODONTİ HASTALARININ EBEVEYNLERİNİN PERİODONTAL SAĞLIĞA İLİŞKİN BİLGİ VE TUTUMLARININ DEĞERLENDİRİLMESİ

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ABSTRACT

Aim: Family is the most important environment where children acquire knowledge, attitudes, and habits related to oral health. The aim of this study was to evaluate the knowledge and attitudes of parents toward periodontal health and diseases, and the relationship of their knowledge and attitudes with demographic data.

Materials and Methods: 500 parents, referred for the treatment of their children were included in the study. The knowledge and attitudes of the parents were assessed using a self-administered and structured questionnaire. Data were analyzed by chi-square test, with the level of significance set at $p < 0.05$.

Results: 33.0% parents and 33.6% children brushed their teeth twice or more daily. 17% parents and 8.6% children used dental floss/interdental brush, and 77% parents visited a dentist only when they experienced dental complaints. Most parents incorrectly defined the meaning of dental plaque and did not know its role in the etiology of gingival diseases. 47.4% of them were aware that bleeding gums indicated the presence of periodontal disease, while only 11.8% knew that one of the main reasons of tooth loss was periodontal disease. It was also evident that the use of dental floss significantly increased with an increase in income level ($p < 0.05$), and the knowledge and attitude of the parents regarding periodontal health significantly increased with the educational level ($p < 0.05$).

Conclusion: The knowledge and attitude of the parents regarding periodontal health were poor. Thus, an improvement in the knowledge and awareness among the parents can prevent or reduce the severity of possible periodontal problems in their children.

Key words: Attitude; Child; Knowledge; Parent; Periodontal health

ÖZ

Amaç: Aile, çocukların ağız sağlığı ile ilgili alışkanlık, bilgi ve tutumlarında etkisi olan en önemli ortamdır. Bu çalışmanın amacı, ebeveynlerin periodontal sağlık ve hastalığa yönelik bilgi ve tutumlarını değerlendirmek ve bilgi ve tutumlarının demografik verilerle ilişkisini araştırmaktır.

Gereç ve Yöntem: Çocuklarının tedavisi için başvuran 500 ebeveyn çalışmaya dahil edilmiştir. Ebeveynlerin bilgi ve tutumları, yapılandırılmış bir anket kullanılarak değerlendirilmiştir. Veriler ki-kare testi ile analiz edilmiş, anlamlılık düzeyi $p < 0.05$ olarak belirlenmiştir.

Bulgular: Ebeveynlerin %33.0'ı ve çocukların %33.6'sı dişlerini günde iki veya daha fazla fırçalamaktadır. Ebeveynlerin %17'si ve çocukların %8.6'sı diş ipi/arayüz fırçası kullandığını ve %77'si dental şikayetleri bulunması durumunda diş hekimini ziyaret ettiğini belirtmiştir. Ebeveynlerin çoğunluğu dental plaki yanlış tanımlamış ve diş eti hastalıklarının etiyolojisi sindeki rolüne doğru cevap vermemiştir. %47.4'ü dişeti kanamasının periodontal hastalığı işaret ettiğini ve %11.8'i diş kaybının ana nedenlerinden birinin de periodontal hastalık olduğunu bildiğini belirtmiştir. Ayrıca diş ipi kullanımının gelir düzeyi arttıkça anlamlı şekilde arttığı ($p < 0.05$) ve ebeveynlerin periodontal sağlık konusundaki bilgi ve tutumlarının eğitim düzeyi ile anlamlı olarak arttığı da gözlenmiştir ($p < 0.05$).

Sonuç: Ebeveynlerin periodontal sağlık konusundaki bilgi ve tutumu zayıf bulunmuştur. Bu nedenle, ebeveynlerin bilgi ve farkındalıklarında bir gelişme, çocuklarında olası birçok periodontal sorunun ciddiyetini önleyebilir veya azaltabilir.

Anahtar kelimeler: Tutum; Çocuk; Bilgi; Ebeveyn; Periodontal sağlık

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INTRODUCTION

Periodontal diseases are one of the most common problems observed in individuals of all races and socioeconomic status.¹ Although public opinion indicates that these diseases mostly affect adults, studies have shown that children and adolescents are also extensively affected by periodontal diseases.^{2,3} Periodontal diseases usually occur due to dental plaque and may cause a premature loss of deciduous or permanent teeth, by affecting the periodontal tissues such as cementum, periodontal ligament, and alveolar bone. Adequate oral hygiene motivation and regular prophylaxis, as dictated by an early and accurate diagnosis, can prevent or reduce the severity of periodontal diseases.⁴⁻⁶ Furthermore, an improvement in the level of periodontal health awareness and knowledge has been known to favorably influence the practices and behaviors related to periodontal health. Likewise, improving the periodontal health awareness of parents would result into an improved probability of early diagnosis, thereby helping in the prevention and control of periodontal diseases in them and their children. Briefly, the oral health practices of parents reflect their understanding of the importance of periodontal health, affecting the oral health maintenance in them and their children.

However, in the literature, scarce information is available on the knowledge and awareness of the parents of pediatric dentistry patients with regards to periodontal health and there is no study evaluating the relationship between parents' knowledge and attitudes with their children's oral health behaviors. Therefore, the aim of this study was to evaluate the knowledge, attitudes, and practices of the parents regarding periodontal health and diseases, and to investigate the relationship of their knowledge and attitudes with the demographic data and their children's oral health behaviors. In this study, because periodontal diseases are generally ignored by individuals, it was hypothesized that the knowledge and attitudes of the parents regarding periodontal health might be poor.

SUBJECTS AND METHODS

Study population

The study was conducted among the parents seeking dental treatment for their children in the Department of Pediatric Dentistry at the Faculty of

Dentistry, Kirikkale University between June 2017 and November 2017. The study was approved by the Ethics Committee of Kirikkale University, Kirikkale, Turkey (February 28, 2017-06/02). Before participation, all participants were informed about the study goals and procedures and all participants gave written informed consent in accordance with the Declaration of Helsinki.

Questionnaire

A self-administered, structured questionnaire was completed by the parents during a six-month period. The questionnaire included items related to personal and sociodemographic data, periodontal awareness and knowledge, and self-reported behaviors to dental attendance. The questions in the first section dealt with personal and sociodemographic data. The knowledge, attitudes, and practice regarding periodontal health and disease were assessed through a series of questions in the second section of the questionnaire. Subjects were asked to respond according to the response format provided at the end of each question.

The questionnaire data were analyzed by means of computerized SPSS statistical package (SPSS Inc., Chicago, IL, USA). Frequency distributions were used along with chi-square tests at $p < 0.05$.

RESULTS

Demographic data

Out of a total of 516 parents invited to participate in this study, 500 parents (females $n=298$; males $n=202$, with a mean age of 36.8 ± 6.4 years) returned the completed questionnaires, accounting for a response rate of 96.9%. The demographic data are shown in Table 1.

Knowledge and attitudes about periodontal health among the parents

Around 33.0% parents and 33.6% children brushed their teeth twice or more daily, whereas, around 17.0% parents and 8.6% children used dental floss/interdental brushes. 39.8% parents brushed for duration of 2 min, and 39.6% of them changed their brushes every 3 months.

77.0% of the parents visited a dentist only when they experienced dental pain, 11.4% of them believed it as a necessity to visit a dentist at least every six months, and 11.6% of them visited a dentist only once or twice a year. Similarly, 71.0% of the



parents went to a dentist for their children only when they had dental complaints. Moreover, 61.2% of the parents and only 9.8% of the children received prior periodontal treatment. Furthermore, a minority (8.8%) of the parents had knowledge or ability to define dental plaque as a soft deposit on the tooth surfaces, and around 33.4% of them had knowledge of the cause of periodontal diseases to be dental plaque. Additionally, 47.4% of the parents were aware that bleeding gums indicated the presence of periodontal disease, and 11.8% of the parents were aware that one of the main reasons of tooth loss was periodontal disease. Furthermore, 75.4% of the parents answered that gum diseases can be prevented by brushing and flossing (Table 2).

Table 1. Socio-demographic characteristics of parents

	Frequency (n)	Percentage (%)
Gender		
Female	298	59.4
Male	202	40.6
Area		
Province	494	98.8
Rural	6	1.2
Education		
Never been to school	0	0
Primary school	134	26.8
Secondary school	203	40.6
University	163	32.6
Income		
<2000 TL	172	34.4
2001-3000 TL	150	30.0
3001-5000 TL	128	25.6
5001-8000 TL	37	7.4
>8001 TL	13	2.6

Comparison of the parents' knowledge and attitudes about periodontal health according to demographic data

The comparison of parents' knowledge and attitudes toward periodontal health according to their educational levels is shown in Table 3. There was a significant difference in the responses to "How often do you go to a dentist?," "Do you use dental floss?" "What is plaque?," "What can plaque cause?," "What do 'bleeding gums' indicate?," and "How can you prevent gum diseases?," between different educational levels (p<0.05).

The comparison of parents' use of dental floss with their income levels is shown in Table 3. The percentage use of dental floss significantly increased with an increase in the income level, from 10.5% at <2000 TL, 16.7% at 2001–3000 TL, 19.7% at 3001–5000 TL, 32.4% at 5001–8000 TL, to 38.5% at

>8001TL (p = 0.003).

There was also a statistically significant relationship between the parents and their children with regard to the frequency of dental visits, brushing, and flossing, as shown in Table 4.

Table 2. Knowledge and attitudes toward periodontal health among parents

	Frequency (n)	Percentage (%)	χ^2	P
<i>Frequency of dental visit (for parents)</i>				
Every one to two years	58	11.6	429.028	.000
Every six month	57	11.4		
Whenever you get a dental problem	385	77.0		
<i>Frequency of dental visit (for children)</i>				
Every one to two years	47	9.4	873.214	.000
Every six month	98	19.6		
Whenever you get a dental problem	355	71.0		
<i>Getting of periodontal treatment before (for parents)</i>				
Yes	306	61.2	24.691	.000
No	194	38.8		
<i>Getting of periodontal treatment before? (for children)</i>				
Yes	49	9.8	321.285	.000
No	451	90.2		
<i>Frequency of brushing (for parents)</i>				
Occasionally	107	21.4		
Once daily	228	45.6	187.120	.000
Two or more times daily	165	33.0		
<i>Frequency of brushing (for children)</i>				
Occasionally	120	24.0		
Once daily	212	42.4	559.177	.000
Two or more times daily	168	33.6		
<i>Use of flossing (for parents)</i>				
Yes	85	17.0	217.800	.000
No	415	83.0		
<i>Use of flossing (for children)</i>				
Yes	43	8.6	341.822	.000
No	457	91.4		
<i>Brushing time</i>				
Less than 1 minute	232	46.4		
Brushing time 2 minutes	199	39.8	89.116	.000
More than 2 minutes	69	13.8		
<i>Frequency of brush change</i>				
Monthly	88	17.6		
3 monthly	198	39.6	107.168	.000
6 monthly	162	32.4		
Yearly	52	10.4		
<i>What is plaque?</i>				
Soft deposits on teeth	44	8.8		
Hard deposits on teeth	204	40.8	290.140	.000
Staining on teeth	82	16.4		
Do not know	170	34.0		
<i>What can plaque cause?</i>				
Gum disease	167	33.4		
Discolouration of teeth	118	23.6	558.624	.000
Malformation of teeth	29	5.8		
Do not know	186	37.2		
<i>What do 'bleeding gums' indicate?</i>				
Inflamed gums	237	47.4		
Healthy gums	4	.8	404.340	.000
Gum recession	162	32.4		
Do not know	97	19.4		
<i>What are the reasons of tooth loss?</i>				
Periodontal disease	59	11.8		
Tooth decay	200	40.0	943.744	.000
Aging	5	1.0		
Others	14	2.8		
All of them	222	44.4		
<i>How can you prevent gum diseases?</i>				
By brushing and flossing	377	75.4		
By using soft diet	5	1.0	1294.495	.000
By taking Vit. C	20	4.0		
Do not know	98	19.6		



Table 3. Knowledge and attitudes toward periodontal health among parents according to education and income level n (%)

		Education Level			Total	χ^2	P		
		Primary school	Secondary school	University					
Frequency of dental visit (for parents)	Every six month	15 (26.4)	21 (36.8)	21 (36.8)	57	21.196	0.007		
	Every one to two years	16 (27.6)	18 (31.0)	24 (41.4)	58				
	Whenever you get a dental problem	103 (26.8)	164 (42.6)	118 (30.6)	385				
Use of flossing (for parents)	Yes	14 (16.5)	23 (27.1)	48 (56.4)	85	28.850	0.000		
	No	120 (28.9)	180 (43.4)	115 (27.7)	415				
What is Plaque?	Soft deposits on teeth	8 (18.2)	16 (36.4)	20 (45.4)	44	72.708	0.000		
	Hard deposits on teeth	35 (17.2)	72 (35.3)	97 (47.5)	204				
	Staining on teeth	18 (22.0)	39 (47.6)	25 (30.4)	82				
	Do not know	73 (42.9)	76 (44.7)	21 (12.4)	170				
What can plaque cause?	Gum disease	25 (15.0)	56 (33.5)	86 (51.5)	167	83.663	0.000		
	Discolouration of teeth	21 (17.8)	58 (49.1)	39 (33.1)	118				
	Malformation of teeth	10 (34.5)	9 (31.0)	10 (34.5)	29				
	Do not know	78 (42.0)	80 (43.0)	28 (15.0)	186				
What do 'bleeding gums' indicate?	Inflamed gums	60 (25.3)	93 (39.2)	84 (35.5)	237	39.275	0.001		
	Healthy gums	1 (25.0)	3 (75.0)	0 (0)	4				
	Gum recession	38 (23.5)	65 (40.1)	59 (36.4)	162				
	Do not know	35 (36.1)	42 (43.3)	20 (20.6)	97				
How can you prevent gum diseases?	By brushing and flossing	103 (27.3)	141 (37.4)	133 (35.3)	377	52.376	0.000		
	By using soft diet	0 (0)	0 (0)	5 (100.0)	5				
	By taking Vit. C	6 (30.0)	9 (45.0)	5 (25.0)	20				
	Do not know	25 (25.5)	53 (54.1)	20 (20.4)	98				
		Income Level							
		<2000 TL	2001-3000 TL	3001-5000 TL	5001-8000 TL	>8001 TL			
Use of flossing (for parents)	Yes	18 (10.5)	25 (16.7)	25 (19.7)	12 (32.4)	5 (38.5)	85	15.870	0.003
	No	154 (89.5)	125 (83.3)	103 (80.3)	25 (67.6)	8 (61.5)	415		

Table 4. Relationship between frequency of dental visit, brushing and use of flossing between parents and children n (%)

		Frequency of dental visit (for children)			Total	χ^2	P
		Every six month	Every one to two years	Whenever you get a dental problem			
Frequency of dental visit (for parents)	Every six month	38 (66.7)	4 (7.0)	15 (26.3)	57	140.031	0.000
	Every one to two years	16 (27.6)	16 (27.6)	26 (44.8)	58		
	Whenever you get a dental problem	44 (11.4)	26 (6.8)	315 (81.8)	385		
		Frequency of brushing (for children)					
		Occasionally	Once daily	Two or more times daily	Total	χ^2	P
Frequency of brushing (for parents)	Occasionally	88 (82.2)	15 (14.1)	4 (3.7)	107	158.218	0.000
	Once daily	180 (78.9)	42 (18.4)	6 (2.7)	228		
	Two or more times daily	59 (35.8)	97 (58.8)	9 (5.4)	165		
		Use of flossing (for children)					
		Yes	No	Total	χ^2	P	
Use of flossing (for parents)	Yes	18 (21.2)	67 (78.8)	85	20.522	0.000	
	No	25 (6.0)	390 (94.0)	415			



DISCUSSION

Periodontal disease progression usually goes unnoticed by most population, and people probably recognize it only when it reaches an advanced stage. The responsible periodontal health behaviors, such as brushing, flossing, and regular dental visits, play an important role in maintaining periodontal health. The quality of periodontal health depends upon the level of available information, knowledge, awareness, practice, and nutrition. Family is the first and most important factor for children to acquire knowledge, attitudes, and habits related to oral health.⁷ The oral health behaviors of children are not only totally explained by the knowledge and attitudes, but are also influenced by the educational level, awareness, and practices of their parents. In the present study, we evaluated the knowledge and attitudes toward periodontal health, among parents of pediatric dentistry patients. Unfortunately, poor knowledge and attitudes of the parents regarding periodontal health were found.

Gingival bleeding is the first symptom of gingival diseases, and since it can be easily self-detected, it is the most reliable indicator of the condition.⁸ Therefore, to prevent the development of periodontal problems, the public needs to be educated enough to correlate gingival bleeding with the occurrence of gingival diseases.⁹ This can be achieved by improving the knowledge and awareness about periodontal conditions by dental health education.¹⁰ In our study, only 47.4% of the parents reported that bleeding indicates the presence of inflamed gums. Likewise, according to Brady, 73.0% of the patients with periodontal disease did not know that they had the disease.¹¹ Moreover, Taani reported that 60.8% of Jordanian adults knew that gingival bleeding was indicative of inflamed gums.¹²

Early diagnosis is crucial for the treatment of periodontal diseases. When these diseases are not noticed or treated, they result in tooth loss. Periodontal disease is one of the most common causes of tooth loss due to being unnoticed, since it usually does not involve any pain. In the present study, 11.8% of the parents were aware that one of the main reasons of tooth loss was periodontal disease. Moreover, 44.4% of the parents answered the question, "What are the reasons of tooth loss?" as "all of them (periodontal disease, tooth decay, and aging)."

Furthermore, the results of this study emphasized the limited knowledge of the parents regarding the definition and role of dental plaque in periodontal diseases. Only 8.8% of the parents defined plaque as soft deposits on teeth, and only 33.4% of the parents had knowledge of the cause of gum diseases to be dental plaque. Poor knowledge of the gum diseases thus seems to be prevalent among the parents and needs to be corrected by oral health education.

Although, chronic inflammatory periodontal diseases are universal, the healthcare professionals know that prevention, management, and control of these diseases is possible.¹³ Self-oral care practice of the individuals is a preventive measure to maintain good oral and periodontal health. Likewise, better periodontal health is shown to be correlated with brushing and flossing.¹⁴ In the present study, 33.0% of the parents brushed their teeth twice or more daily, and 17% of them performed dental flossing. Around 39.8% of them brushed their teeth for 2 minutes, and 39.6% of them changed their brushes once in 3 months. Surprisingly, three quarters of the parents knew that gum diseases can be prevented by brushing and flossing, in contrast with the findings of the studies conducted by Nyandindi *et al.*¹⁵, Sekhar *et al.*¹⁶, and Khan *et al.*¹⁷. In these studies, only about 50% of the school teachers believed that regular brushing could prevent gum diseases.

In our study, 11.6% of the population visited a dentist only once or twice a year. Similarly, Jiang *et al.* reported that only 18.9% of the study population visited a dentist at least once per year.¹⁸

In the present study, there was a significant difference in the responses to the questions, "How often do you go to a dentist?," "Do you use dental floss?," "What is plaque?," "What can plaque cause?," "What do 'bleeding gums' indicate?," and "How can you prevent gum diseases?," between different educational levels. Higher the educational level, more was the knowledge, attitude, and practice. The importance of education for oral health is thus emphasized in this study. Likewise, in the study of Khanal *et al.*, the educational status was found to have a significant effect on the knowledge regarding oral hygiene.¹⁹

In this study, the frequency of tooth brushing was higher in females than in males. Furthermore,



dental flossing was influenced by the income levels of the individuals. Thus, when the level of income increased, the use of dental floss also increased. This could be attributable to the high cost of the flossing instruments. Similarly, Kumar *et al.* reported that socioeconomic status of a family is important in predicting oral hygiene, because children living in families with lower socioeconomic status had worse oral hygiene in their study.²⁰

In the study of Okada *et al.*, a significant correlation was found in the oral health behaviors of parents and their children.²¹ Similarly, in the present study, there was a statistically significant relation between the parents and their children with respect to the frequency of dental visits, brushing, and flossing. Our study results thus justify the contribution of a family on the oral health behaviors of the children. Parents are the promoters for their children to maintain oral health.^{22,23} Children are affected by the attitudes, beliefs, and behaviors of their family and can have enough ability of maintaining oral hygiene, provided there is a successful model for them.²⁴ Okada *et al.* reported that if parents received oral health education, children were found to be more successful in improving their gingival health.²² Likewise, Bandura²⁵ pointed out that children perform favorable behaviors when they receive positive feedback from peers, parents, or teachers.

A lack of dental and periodontal examination of the children can be considered as a limitation of this study.

CONCLUSION

In conclusion, the knowledge and attitudes of the parents toward their oral and periodontal health is one of the most important factors determining the oral hygiene and health of their children. Educating parents might influence their children's behavior and knowledge about oral health, which can be a promising approach toward planning interventions to prevent oral diseases. It should not be forgotten that parents can serve as models for their children. Thus, long-term awareness programs are needed to improve the knowledge, attitudes, and behaviors among parents toward periodontal health and diseases.

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