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Evaluation of Parental Knowledge on Toothbrushing for Preschool and Early Primary School Children

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Research Article

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ABSTRACT

Objectives: This survey aimed to evaluate the knowledge level of parents of preschool and early primary school children about toothbrushing and to correlate it with sociodemographic factors.

Materials and Methods: Parents who applied to the clinic for the examination or treatment of their children aged 0-8 years and who volunteered to participate in the study were included. A questionnaire containing 15 questions was applied to determine parents' descriptive characteristics, their knowledge level about oral health and whether they had received an education on the subject before. The average knowledge score was calculated by giving one point for each correct answer. Knowledge scores range from 0 to 15, and knowledge levels were interpreted based on the total possible score; how close it was to 15 and how close it was to 0. T-test for independent groups, one-way variance analysis (ANOVA) and post hoc (Tukey, LSD) analyses were used to evaluate the differences in knowledge levels according to the parents' descriptive characteristics. The relationship between continuous variables was tested using Pearson correlation analysis. $p < 0.05$ was accepted as statistically significant.

Results: The mean knowledge score of the participants was 9.142 with a standard deviation of 2.258. The majority of parents had moderate knowledge about their children's oral health. Parents living in village had lower knowledge scores compared to others ($p < 0.05$). Mothers who graduated from primary school had lower knowledge scores than mothers with other education levels ($p < 0.05$). The knowledge score of families with very low income was found to be lower than families with other income levels ($p < 0.05$). Although the majority of participants (88.0%) were not educated about oral health, this was not related to the knowledge level ($p > 0.05$). No significant correlation was found between child age and parental age and knowledge scores ($p > 0.05$).

Conclusions: Parents had a good command of basic oral health information, but they did not know more detailed information sufficiently. This situation reveals the necessity of organising specific educational programmes.

Keywords: Child, knowledge level, oral health, parents, toothbrushing

Okul Öncesi ve İlkokul Çağındaki Çocukların Ebeveynlerinin Diş Fırçalama Konusundaki Bilgi Düzeylerinin Değerlendirilmesi

Araştırma Makalesi

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ÖZ

Amaç: Bu araştırmada, okul öncesi ve ilkokul çağındaki çocukların ebeveynlerinin diş fırçalama konusundaki bilgi düzeylerini değerlendirmek ve sosyodemografik faktörlerle ilişkilendirmek amaçlandı.

Gereç ve Yöntemler: Çalışmaya, 0-8 yaş arası çocuklarının muayene veya tedavisi için kliniğe başvuran ve çalışmaya katılmaya gönüllü olan ebeveynler dahil edildi. Ebeveynlerin tanımlayıcı özelliklerini, ağız sağlığı konusundaki bilgi düzeylerini ve daha önce bu konuda bir eğitim alıp almadıklarını belirlemek amacıyla 15 soru içeren bir anket uygulandı. Ortalama bilgi puanı, her doğru cevap için bir puan vererek hesaplandı. Bilgi puanları, 0-15 arasında değişmekte olup bilgi düzeyleri, toplam olası puana göre, 15'e ne kadar yakın olduğuna ve 0'a ne kadar yakın olduğuna göre yorumlandı. Ebeveynlerin tanımlayıcı özelliklerine göre bilgi düzeylerindeki farklılıkları incelemek için bağımsız gruplar t-testi, tek yönlü varyans analizi (ANOVA) ve post hoc (Tukey, LSD) analizleri kullanıldı. Sürekli değişkenler arasındaki ilişki, Pearson korelasyon analizi kullanılarak test edildi. $p < 0,05$ istatistiksel olarak anlamlı kabul edildi.

Bulgular: Katılımcıların ortalama bilgi puanı 9,142, standart sapma 2,258 idi. Ebeveynlerin çoğunluğu çocuklarının ağız sağlığı konusunda orta düzeyde bilgi sahibi idi. Köyde yaşayan ebeveynlerin bilgi puanları, diğerlerine kıyasla daha düşüktü ($p < 0,05$). İlkokul mezunu annelerin bilgi puanları, diğer eğitim seviyelerindeki annelere göre daha düşüktü ($p < 0,05$). Çok düşük gelirli ailelerin bilgi puanı, diğer gelir düzeylerine sahip ailelere göre daha düşük bulundu ($p < 0,05$). Katılımcıların çoğunluğu (%88,0), ağız sağlığı konusunda eğitim almamış olsa da bu durum bilgi düzeyi ile ilişkili değildi ($p > 0,05$). Çocuk yaşı ve ebeveyn yaşı ile bilgi puanları arasında anlamlı korelasyon bulunmadı ($p > 0,05$).

Sonuçlar: Ebeveynler, temel ağız sağlığı bilgilerine hâkim olmakla birlikte daha detaylı bilgileri yeterince bilmemekteydi. Bu durum, konuya özel eğitim programları düzenlenmesinin gerekliliğini ortaya koymaktadır.

Anahtar Kelimeler: Çocuk, bilgi düzeyi, ağız sağlığı, ebeveynler, diş fırçalama

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Introduction

Dental caries is recognised as a common global public health problem. Untreated tooth decay can be the cause of many problems such as pain, difficulty in chewing and tooth infections.[1] Especially in developing countries, the focus of basic oral health services should be on understanding the importance of oral hygiene and nutrition and encouraging individuals to take responsibility in the prevention of oral diseases.[2]

It is a generally accepted concept that protective and preventive practices against dental caries, which is a common and chronic disease of childhood, should be addressed during childhood.[3] It is estimated that 621 million children worldwide have untreated dental caries.[4] In a study conducted in Turkey, it has been found that 73.3% of children with a mean age of 4.9±0.3 years have caries.[5] As a result of a study conducted in Japan, it was found that the risk of dental caries in children increased almost tenfold between the ages of 1.5 and 3 years.[6] Higher levels of dental caries were observed in the primary teeth of children of Pakistani, Bangladeshi and Eastern European origin, presumably attributable to oral health and dietary behaviours.[7] Dental caries, which has a debilitating effect on growth and development, speech, general health and self-confidence, seriously affects the life quality of children.[8]

The family plays an important role in the acquisition of oral hygiene behaviours by the child.[9] In the first socialisation period of the child, dietary and oral hygiene habits are shaped according to the awareness and knowledge of parents and caregivers.[10] The acquisition of oral hygiene habits will have a lifelong positive effect on the general health and welfare of individuals.[11] A study revealed a strong correlation between caries experience at the age of six and several factors, including low toothbrushing frequency, delayed initiation of toothbrushing routines, and a lack of parental involvement in toothbrushing.[12] It has been emphasised that due to parents' low knowledge levels and poor attitudes towards the oral health of infants and young children, a higher rate of dental caries is inevitable in these children.[13]

Age, gender, socioeconomic status, education level and oral hygiene habits of parents have been reported to play a role in dental caries in children.[14] This study aimed to evaluate parents' knowledge level about toothbrushing and to associate their knowledge with sociodemographic factors, considering the important role of parents play in their children's oral health.

Materials and Methods

The present study was conducted in accordance with the prfinciples set out in the Helsinki Declaration. It received approval from the Clinical Research Ethics Committee of Faculty of Medicine of Suleyman Demirel University (decision no. 6-115). All parents who were eligible for inclusion were asked to provide informed consent for participation in the study.

Determination of the Sample Size of the Study

When the number of patients between the ages of 0-8 years who applied to the Department of Pediatric Dentistry of Faculty of Dentistry in Suleyman Demirel University was considered to be 7500 in one year and the probability of parents' knowledge level about oral health was accepted as 50% based on the information in the literature,[15,16] it was ascertained that a minimum of 365 patients would be required in our study to achieve 95% power and a type 1 error rate of 0.05.

Eligibility Criteria

In this study, parents who applied to Department of Pediatric Dentistry of Faculty of Dentistry of Suleyman Demirel University for the examination or treatment of their children aged 0-8 years and who volunteered to fill out the questionnaire form were included. Parents who did not volunteer for participation in the study were excluded, and incompletely filled forms were also excluded.

Questionnaire Form

A questionnaire form, which was prepared in accordance with previous studies,[15,16] was applied to the parents by face-to-face interview method. The prepared questionnaire was administered in a randomly selected small group, and these questionnaires were excluded from the study's findings. The Cronbach Alpha value, a measure of reliability, was calculated to be 0.93, indicating a high degree of reliability for the questionnaire.

In the questionnaire form consisting of two parts, the first part aimed to determine the descriptive characteristics of parents and children. In this part, the parent who filled out the form, the gender of the child, the age of the parent and child, the mother’s and father’s occupation and educational status, the monthly income and place of residence of the family, and whether the parents had received any education about oral health of their children before were questioned. In determining the monthly income level, the Turkish Statistical Institute's ‘Statistics on Income Distribution and Living Conditions' at the study's commencement date was considered, and it was categorized as very low, low, middle, and high. In the second part, there were 15 questions to measure the knowledge level of parents about their children's oral health. These questions included preferring a small-headed toothbrush suitable for the age of children, checking whether the child brushes his/her teeth well, changing the toothbrush every 2-3 months even if the bristles do not deteriorate, parents accompanying their children while brushing their teeth until the age of 8 years, changing the amount of toothpaste to be put on the toothbrush according to age, brushing the teeth after every meal and for at least 2 minutes, the importance of fluoridated toothpaste for dental health, the prevention of dental caries by fluoride, brushing the tongue together with the teeth, the total number of primary teeth in the child's mouth, the time to start cleaning the teeth, the time to start brushing with fluoridated toothpaste and the age of the first dentist visit. In this section, which was prepared to measure the knowledge level about oral health, the average knowledge score was calculated by giving one point for each correct answer. Knowledge scores range from 0 to 15, and knowledge levels were interpreted based on the total possible score; how close it was to 15 and how close it was to 0. Those with a total score of 15 represent

the highest attainable level of knowledge in this context. A minimum knowledge score of 0 indicates no knowledge, while a maximum score of 15 indicates full knowledge of the topic. The participants were provided with explanations in the same manner at the point of need. Parents were given 10 minutes as the average response time of the questionnaire. The data obtained from the questionnaire form were recorded in Excel (Microsoft Excel 2019, Microsoft Corporation, California, USA) forms.

Statistical Analysis

The data obtained in the study were evaluated by using the statistical programme, IBM SPSS Statistics for Windows, Version 22.0 (SPSS INC., Chicago, IL, USA). The determination of the parents' descriptive characteristics was achieved through the implementation of frequency and percentage analyses. Mean and standard deviation statistics were employed to examine the questionnaire. In order to ascertain whether the variables were normally distributed, a thorough analysis of the Kurtosis (0.896) and Skewness (-0.498) values was conducted. Following a thorough examination, it was determined that the variables in question exhibited a normal distribution. Consequently, parametric tests were employed to analyse the data. T-test for independent groups, one-way variance analysis (ANOVA) and post hoc (Tukey, LSD) analyses were used to evaluate the differences in knowledge levels according to the parents' descriptive characteristics. The relationship between continuous variables was tested using Pearson correlation analysis. $p < 0.05$ was accepted as statistically significant.

Results

In accordance with the eligibility criteria, 19 (4.8%) incompletely filled forms and 12 (3.0%) parents who did not volunteer for participation in the study were excluded. The final sample size was 366 for this study.

The mean ages of 366 children and their parents were 6.130 ± 1.612 and 35.480 ± 5.906, respectively. Of the children, 185 (50.5%) were females and 181 (49.5%) were males. The distribution was quite balanced in terms of the gender of the child. Table 1 presents data on the descriptive characteristics of the parents. The study's participants were predominantly mothers, constituting 65.6% of the total parental demographic. When the places of residence of the participants were examined, it was found that the majority (51.9%) lived in the city centre. When the educational status of the parents was analysed, it was determined that the majority of mothers (37.4%) and fathers (41.6%) were high school graduates. The majority of the mothers (80.9%) were not working and almost all of the fathers (97.5%) were working. When the monthly income level of the families was analysed, the majority had low income (41.9%). It was understood that the majority of the participants (88.0%) did not receive any education on oral health.

Table 1. Distribution of parents according to descriptive characteristics

Descriptive characteristic	Frequency (n)	Percentage (%)
Parent		
Mother	240	**65.6**
Father	126	34.4
Place of residence		
City centre	190	**51.9**
District	152	41.5
Village	24	6.6
Mother's education status		
Primary school	64	17.5
Middle school	78	21.3
High school	137	**37.4**
University	87	23.8
Father's education status		
Primary school	48	13.1
Middle school	70	19.1
High school	152	**41.6**
University	96	26.2
Mother occupation		
Not working	296	**80.9**
Working	70	19.1
Father occupation		
Not working	9	2.5
Working	357	**97.5**
Monthly income		
Very low	92	25.1
Low	153	**41.9**
Middle	77	21.0
High	44	12.0
Status of receiving any education on oral health		
Yes	44	12.0
No	322	**88.0**

Table 2. Distribution of correct and incorrect responses of parents to oral health-related information questions

Questions	Frequency (n)	Percentage (%)
A small-headed toothbrush suitable for children's age should be preferred for children.		
No	10	2.7
Yes*	356	**97.3**
Whether the child brushes his/her teeth well should be checked.		
No	10	2.7
Yes*	356	**97.3**
Parents should accompany the child during toothbrushing until the age of 8.		
No	34	9.3
Yes*	332	**90.7**
Fluoridated toothpaste is important for children's dental health.		
No	152	41.5
Yes*	214	**58.5**
Flouride prevents tooth decay.		
No	147	40.2
Yes*	219	**59.8**
To prevent tooth decay, you should brush your teeth after every meal.		
No	47	12.8
Yes*	319	**87.2**
To prevent tooth decay, it is necessary to brush the teeth for at least 2 minutes.		
No	36	9.8
Yes*	330	**90.2**
The amount of toothpaste to be put on the toothbrush varies according to age.		
No	87	23.8
Yes*	279	**76.2**
The tongue should be brushed along with the teeth.		
No	118	32.2
Yes*	248	**67.8**
The toothbrush should be changed every 2-3 months, even if the bristles do not deteriorate.		
No	26	7.1
Yes*	340	**92.9**
How many primary teeth does a child have in his/her mouth?		
10	65	17.8
12	70	19.1
20*	145	**39.7**
28	86	23.4
Which of the following is the best time to start cleaning teeth?		
When the first primary tooth erupts*	72	**19.7**
After 4-6 primary teeth erupt	65	17.8
After erupting all the primary teeth	60	16.4
I don't know	169	46.1
Which of the following is the best time to start toothbrushing with fluoridated toothpaste?		
I don't know	240	65.6
When the first primary tooth erupts*	26	**7.1**
When all primary teeth erupt	31	8.5
When the child can hold the toothbrush on their own	31	8.5
After 5 years of age	38	10.3
Under 3 years of age, which of the options is the amount of toothpaste that should be used?		
Nothing	49	13.4
In the form of a smear*	94	**25.7**
About the size of a pea	99	27.0
I don't know	124	33.9
Which of the following is the age of the first dental visit?		
Under 1 year of age*	20	**5.4**
1-2 years old	112	30.7
After erupting all the primary teeth	76	20.8
I don't know	158	43.1

The '' sign indicates the correct answer.*

Table 3. The differentiation status of parents' oral health knowledge scores related to various demographic variables

Demographic characteristic	Frequency (n)	Knowledge score
Parent		**Mean ± SD**
Mother	240	9.021 ± 2.347
Father	126	9.373 ± 2.066
t		-1.420
p		0.157
Gender of the child		**Mean ± SD**
Female	185	9.324 ± 2.242
Male	181	8.956 ± 2.265
t		1.564
p		0.119
Place of residence		**Mean ± SD**
City centre	190	9.358 ± 2.316
District	152	9.053 ± 2.149
Village	24	8.000 ± 2.167
F		4.127
p		**0.017**
PostHoc		1 > 3, 2 > 3 (p < 0.05)
Mother's education status		**Mean ± SD**
Primary school	64	8.391 ± 2.640
Middle school	78	9.141 ± 1.939
High school	137	9.219 ± 1.992
University	87	9.575 ± 2.504
F		3.554
p		**0.015**
PostHoc		2 > 1, 3 > 1, 4 > 1 (p < 0.05)
Father's education status		**Mean ± SD**
Primary school	48	8.875 ± 2.247
Middle school	70	9.143 ± 2.260
High school	152	9.026 ± 1.946
University	96	9.458 ± 2.683
F		0.985
p		0.400
Mother occupation		**Mean ± SD**
Not working	296	9.057 ± 2.259
Working	70	9.500 ± 2.231
t=		-1.477
p=		0.140
Father occupation		**Mean ± SD**
Not working	9	9.222 ± 3.032
Working	357	9.140 ± 2.240
t		0.108
p		0.914
Monthly income		**Mean ± SD**
Very low	92	8.467 ± 2.255
Low	153	9.190 ± 2.145
Middle	77	9.442 ± 2.197
High	44	9.864 ± 2.455
F		4.860
p		**0.003**
PostHoc		2 > 1, 3 > 1, 4 > 1 (p < 0.05)
Status of receiving any education on oral health		**Mean ± SD**
Yes	44	9.682 ± 1.877
No	322	9.068 ± 2.298
t		1.695
p		0.091
		r/p
Age of the child	r	0.025
	p	0.633
		r/p
Age of the parent	r	0.029
	p	0.584

F: Anova Test; t: Independent Groups T-Test; PostHoc: Tukey, LSD; r: Pearson Correlation Analysis

The parents' knowledge scores regarding oral health ranged from 0 to 15. The mean knowledge score of the participants was 9.142 with a standard deviation of 2.258. The majority of parents had a moderate level of knowledge, but there was some variation in the knowledge level. A minimum knowledge score of 0 indicates that some respondents had no knowledge of the topic or gave incorrect answers to the questions, while a maximum score of 15 indicates that some respondents had full knowledge of the topic.

Table 2 shows the distribution of correct and incorrect answers given by the parents to the oral health knowledge

test questions. When the answers given to the questions were analysed, it showed that the knowledge level of the parents was high in some subjects. Among these issues were; preferring a small-headed toothbrush suitable for children's age (97.3%), checking whether the child brushes his/her teeth well (97.3%), changing the toothbrush every 2-3 months even if the bristles do not deteriorate (92.9%), parents should accompany the child during toothbrushing until the age of 8 (90.7%) and the amount of toothpaste to be put on the toothbrush varies according to age (76.2%). In addition, the knowledge level was high about the need to brush teeth after every meal (87.2%) and for at least 2 minutes (90.2%).

When it came to more detailed questions about toothbrushing, a significant decrease was observed in the knowledge level. While 58.5% of the respondents answered correctly about the importance of fluoridated toothpaste, 59.8% of the respondents answered correctly that fluoride prevents tooth decay. The fact that the tongue should be brushed along with the teeth was answered correctly by 67.8% of the respondents.

On the other hand, less known information included the total number of primary teeth in the child's mouth (39.7%), the amount of toothpaste that should be used under the age of 3 (25.7%), the time to start cleaning teeth (19.7%), the time to start toothbrushing with fluoridated toothpaste (7.1%), and the age of the first dental visit (5.4%). In particular, the rate of incorrect answers to the question about the best time to start toothbrushing with fluoridated toothpaste was 27.3 and 65.6% indicated that they did not know. The rate of incorrect answers to the question about the age of the first dental visit was quite high with 51.5% and 43.1% lacked about this question. Of the parents, 34.2% gave incorrect answers to the question about the time of starting to clean the teeth and 46.1% had lack of knowledge. In addition, the rate of incorrect answers to the question about the amount of toothpaste that should be used under 3 years of age was 40.4% and 33.9% lacked about this question. These rates indicate that the levels of awareness of parents on these issues were low.

Table 3 presents the differentiation status of parents' oral health knowledge scores related to various demographic variables.

Significant differences were found in knowledge scores according to the place of residence variable ($F = 4.127$, $p = 0.017$). The mean knowledge score of the parents living in the city centre was 9.358 ± 2.316, 9.053 ± 2.149 in the district and 8.000 ± 2.167 in the village. According to the results of post-hoc analyses, parents living in the city centre and district had significantly higher knowledge scores compared to those living in the village ($p < 0.05$).

Knowledge scores differed significantly according to the mother's education status variable ($F = 3.554$, $p = 0.015$). While the mean knowledge score of university graduate mothers was 9.575 ± 2.504, high school graduates had 9.219 ± 1.992, secondary school graduates had 9.141 ± 1.939 and primary school graduates had 8.391 ± 2.640. Post-hoc analyses showed that the knowledge scores of mothers who graduated from primary school were significantly lower than those of mothers with other educational levels ($p < 0.05$).

Knowledge scores differed significantly according to the monthly income variable ($F = 4.860$, $p = 0.003$). Families with low (mean = 9.190 ± 2.145), middle (mean = 9.442 ± 2.197) and high (mean = 9.864 ± 2.455) monthly income had significantly higher knowledge scores compared to families with very low income (mean = 8.467 ± 2.255) ($p < 0.05$).

Although the difference between the mean knowledge score of the parents who received education (mean = 9.682 ± 1.877) and the mean knowledge score of those who did not receive education (mean = 9.068 ± 2.298) was not statistically significant ($p > 0.05$), the knowledge levels of the parents who received education were higher.

There was no statistically significant correlation between the child age and parents' age and knowledge scores ($p > 0.05$).

Discussion

Parents lead their children to acquire healthy oral habits. The habits acquired in the first years of life form the basis for oral health protection and oral hygiene practices in adulthood.[17] Evaluation of parents' knowledge and practices regarding oral health is of great importance in terms of developing a successful oral health programme.[18] In this study, the objective was to evaluate the level of knowledge possessed by parents with regard to the process of toothbrushing, in consideration of their role in their children's oral health.

Parents are recommended to start toothbrushing in infants following the eruption of the first tooth.[19] Otherwise, decayed primary teeth may lead to complications including pain, infection, feeding and sleep problems, and early tooth loss.[20] However, it is understood that primary teeth are not given enough importance and the exact time of starting toothbrushing is not known. In a Nepal-based study, the majority of parents stated that primary teeth did not require good care and none of the parents knew the number of primary teeth in the child's mouth.[21] In two studies similar to our study, it was reported that the rate of parents who knew the number of primary teeth correctly was 36.5% and 31.6%.[22,23] In another study conducted in Turkey, in which similar results were obtained with our study, only 16.4% of the parents knew that brushing should start with the eruption of the first tooth.[24] In a study conducted with mothers in India, 21.1% of the mothers stated that they started brushing after the eruption of the first tooth.[22] On the other hand, it has been shown that the majority (95%) of parents of 12-24-month-old children living in Australia believe that brushing should start after the eruption of the first tooth.[25] The welfare level of the country of residence and social practices related to oral health are likely to affect the attitudes and behaviours of parents regarding their children's oral health.

The first dental visit should occur following the eruption of the first tooth or, at the latest, when the child reaches 12 months of age.[19] In a study conducted with mothers in Kosovo, similar to our study, only 6% of the mothers stated that the first dental visit was necessary after the eruption of the first tooth.[26] In a study conducted with 200 parents in Nepal, approximately 95% of the parents took their children to the dentist only when there was a problem and the rate of parents who visited the dentist 6 months after birth was 16%.[13] In a study conducted in Canada, 74.7% of parents stated that the first dental visit should take place until the age of 1 year.[27] Different findings obtained from the studies may be associated with regional differences such as access to oral health services and level of awareness on the subject.

It is recommended that a child should be supported by an adult or a parent during brushing, since the motor functions to perform effective brushing are not fully developed.[28] In our study, it was highly recognised that it is important to check whether the child brushes his/her teeth well (97.3%) and that parents should accompany their children during toothbrushing until the age of 8 years (90.7%). In a study conducted in Poland, similar to the results of our study, more than 96% of parents helped their children during toothbrushing.[29] In a study conducted in India with parents of school-age children, 62.5% of the parents supervised their child's toothbrushing.[23] In contrast to the findings of our study, it was shown in another study conducted in Turkey that the majority of parents (79.7%) did not know that they should help their children's toothbrushing until the age of 8 years and only 9.6% of them helped their children during brushing.[24] The content of oral and dental health education programmes and the reflections of social responsibility projects at regional level may have played a role in the emergence of these differences.

Toothbrushing should be performed using a toothbrush with soft bristles and a size appropriate for the child's age.[19] It is recommended that the toothbrushes should be replaced at two- to three-month intervals.[30] In studies, the majority of parents reported that toothbrushing was effective in the prevention of dental caries.[24,31] In a study conducted in England, the rate of parents who stated that their children brushed their teeth twice a day was found to be 71%.[32] In a study conducted with mothers of preschool children in the Greater Noida region of India, the majority of parents with 43.4% stated that teeth should be brushed after each meal.[15] Conversely, a study conducted in Turkey reported that parents with children aged 0-13 years exhibited inadequate knowledge on the subject, with only 39.9% of parents reporting that their children brushed their teeth twice a day.[24] In a study conducted in India, 24% of the parents of preschool children brushed their children's teeth twice a day and the rate of those who used a small-headed toothbrush suitable for the age of the child was found to be only 42.67%.[16] In another study conducted in Italy under similar conditions, the majority (78%) used a toothbrush with a small head and soft bristles, which are suitable for children.[33] In a study performed in South Africa in which oral health behaviours of children aged 5-12 years were investigated, it was found that 62.5% of parents changed their toothbrush every 3 months.[9] A study conducted in India showed that the majority of parents (29.7%) changed their child's toothbrush every 6 months.[23] The parents in our study demonstrated a high rate of correct knowledge and therefore exhibited a high level of awareness about the frequency and duration of toothbrushing, use of a tooth brush suitable for the child, and when the tooth brush should be changed. It can be posited that regional disparities are indicative of variations in sociodemographic factors, as well as in the quality and quantity of education and service provision for oral and dental health.

It has been reported that brushing the tongue in addition to toothbrushing may improve oral health and may be effective on halitosis by decreasing the microorganism density on the back of the tongue.[34] In a study conducted in Saudi Arabia, similar to the results of our study, 71.4% of the parents expressed that they attached importance to tongue hygiene and 72.38% stated that they brushed their own tongue.[35] A study conducted in Italy showed that 89% of the parents cared about tongue hygiene of their children.[33] In a study conducted in South Africa with parents of children aged 5-12 years, it was found that 86.1% of the children brushed their tongues.[9] These studies show that the awareness of tongue brushing has increased globally and the importance given to oral health is not limited to toothbrushing but tongue hygiene has also gained an important place.

The teeth of all children should be brushed twice a day with an age-appropriate amount of fluoridated toothpaste with the eruption of the first tooth.[36] In children under the age of three, the use of toothpaste containing fluoride in the size of a smear or rice grain is recommended.[37] In a study conducted in Australia with parents of children aged 12-24 months, 73.8% of the parents thought that fluoride was effective in preventing dental caries.[25] In a similar study, it was found that approximately 70% of the parents thought that fluoride was important in preventing dental caries, but only 35% of them used fluoridated toothpaste.[31] On the other hand, a study of a comparable nature revealed that 46% of parents were aware of the role of fluoride-containing toothpastes in preventing dental caries, and 44.6% of parents utilised toothpastes in the form of a smear.[23] In a study conducted in Saudi Arabia, which investigated the knowledge and attitudes of parents towards early childhood caries, 83.81% of parents reported that they did not use fluoridated toothpaste for their children under the age of 3 years.[35] Although parents had knowledge about the effectiveness of fluoride in preventing dental caries, it is observed that this knowledge was not sufficiently reflected in practice. This may be explained by the effect of negative and incomplete information about fluoride in the public opinion.

Sociodemographic characteristics of parents have been found to be effective on oral health of children.[14,38] The findings obtained in our study revealed that the knowledge levels of parents about oral health differed significantly according to some factors such as place of residence, educational status, monthly income, but were not related to factors such as gender, occupational status and age. The level of knowledge of parents about oral health was at a moderate level. In a study which was similar to our study conducted in Saudi Arabia, the general knowledge level of parents about oral and dental health was found to be at a moderate level and the knowledge level of university graduate parents was higher, too.[39] A study performed in England in which the relationship between parents' knowledge levels about oral health and sociodemographic factors was investigated represented that individuals from poorer regions had lower knowledge levels and individuals with higher education levels had higher knowledge levels, which was compatible with our study.[40] However, in a study conducted in India with parents of preschool children, parents' knowledge about oral health was deficient.[16] The present study's findings contradict those of a previous study which included parents with children aged 2-6 years and investigated the relationship between monthly income level and oral health knowledge. No statistically significant difference was found.[10] In studies in which oral health awareness of parents was evaluated, it was shown that the awareness of working parents was higher, although no significant relationship was found with the factors of age and gender as in our study.[10,41] Although the difference between the knowledge levels of parents who had received oral health education before and those who had not was not found to be statistically significant, the knowledge levels of parents who received education were higher in our study. In a study investigating the knowledge and awareness about children's oral health in England, it was found that the knowledge levels of individuals who had received oral health education before were statistically higher.[42] Various findings obtained from the studies may have emerged due to the accessibility of oral health products and treatment services depending on living conditions, oral health education planned at the social level and remedial practices. Indeed, in the findings of this study, the fact that the oral health knowledge level of individuals living in the city was found to be higher suggests that a direct relationship can be established with the opportunities offered by the place of residence.

The present study was conducted on a limited sample of subjects consisting of parents who presented their children at our clinic. Knowledge levels may differ as a result of studies to be conducted with different samples. It should also be taken into consideration that our study data were based on parental declaration.

Conclusions

Parents had a general knowledge of basic oral health information, but they did not know more detailed information sufficiently. This situation reveals that parents should be informed more about oral health and educational programmes should be developed especially on dental care of children.

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Conflicts of Interest Statement

The authors declare no conflict of interest.

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