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Evaluation of Parental Awareness and Knowledge Level About Children's Oral Habits: A Survey Study

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ABSTRACT

Objectives: This study aims to determine parents' awareness of malocclusions that may arise from oral habits in their children and the relationship of this awareness with the sociodemographic characteristics of the family.

Materials and methods: The questionnaire consisting of 16 questions was applied to 501 parents who were referred to the pediatric dentistry clinic. The questionnaire consisted of questions about the sociodemographic characteristics of the parents, their level of knowledge about oral habits and the way they accessed information. The questionnaire was created by editing Melo et al.'s questionnaire, it was modified in Turkish according to the Turkish cultural structure. Eight questions included in the scoring. The correct answer score for each question was "1". Comparisons in paired groups were performed with two independent samples t-test, in multiple groups were made with the ANOVA test. Duncan's multiple comparison(post-hoc) test was used in order to determine the groups with a difference.

Results: A significant difference was found between the education level of the parents and the correct answer score(4.9point) of oral habit($p<0.05$). It has been determined that parents don't have adequate information about oral habits. Parents are more knowledgeable about the possible effects of pacifier use(64.1%) in oral habits than other habits. In current study, there is a lack of knowledge about bottle use, clenching, and mouth breathing. 50.7% of the parents were not informed about oral habits before.

Conclusions: Lack of knowledge of parents on oral habits will lead to the need for long and costly orthodontic treatment in the future. Therefore, parent education should be provided during the examinations made by pediatric dentists and pediatricians. It would be beneficial to add this information training to routine public health programs.

Keywords: Public Health Dentistry, Habits, Dentists, Pediatric, Health Knowledge, Attitudes, Practice.

Çocukların Ağız Alışkanlıklarına İlişkin Ebeveyn Farkındalık ve Bilgi Düzeyinin Değerlendirilmesi: Bir Anket Çalışması

ÖZ

Amaç: Bu çalışmanın amacı, ebeveynlerin çocuklarındaki oral alışkanlıklardan kaynaklanabilecek malokluzyonlara ilişkin farkındalıklarını ve bu farkındalığın ailenin sosyodemografik özellikleri ile ilişkisini belirlemektir.

Gereç ve Yöntemler: Çocuk diş hekimliği kliniğine başvuran 501 ebeveyne 16 sorudan oluşan anket uygulandı. Ankette anne ve babaların sosyodemografik özellikleri, oral alışkanlıkları konusundaki bilgi düzeyleri ve bilgiye ulaşma biçimleri ile ilgili sorular yer almıştır. Anket Melo ve arkadaşlarının anketi düzenlenerek oluşturulmuş olup, Türk kültürel yapısına göre Türkçe olarak değiştirilmiştir. Puanlamada sekiz soru yer aldı. Her soru için doğru cevap puanı "1" idi. Eşli gruplarda karşılaştırmalar Two Independent Samples T-testi ile, çoklu gruplarda ise ANOVA testi ile yapıldı. Farklılık olan grupları belirlemek için Duncan çoklu karşılaştırma (post-hoc) testi kullanıldı.

Bulgular: Anne ve baba eğitim durumu ile ağız alışkanlığı doğru cevap puanı (4,9 puan) arasında anlamlı fark bulundu ($p<0,05$). Anne babaların ağız alışkanlıkları konusunda yeterli bilgiye sahip olmadığı belirlenmiştir. Anne-babalar emzik kullanımının ağız alışkanlığı üzerindeki olası etkileri konusunda (%64,1) diğer alışkanlıklara göre daha bilgilidirler. Mevcut çalışmada biberon kullanımı, diş sıkma ve ağızdan nefes alma konusunda bilgi eksikliği bulunmaktadır. Ebeveynlerin %50,7'si oral alışkanlıklar konusunda daha önce bilgilendirilmemiştir.

Sonuçlar: Ailelerin ağız alışkanlıkları konusunda yetersiz bilgi sahibi olmaları ileride uzun ve maliyetli ortodontik tedavilere ihtiyaç duyulmasına neden olacaktır. Bu nedenle çocuk diş hekimleri ve çocuk doktorları tarafından yapılan muayenelerde aile eğitimi verilmelidir. Bu bilgilendirme eğitiminin rutin halk sağlığı programlarına eklenmesi faydalı olacaktır.

Anahtar Kelimeler: Apikal Periodontitis, Nekrotik Diş, MTA, Dolgu, Büyük Periapikal Lezyon.

Süreç

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Introduction

Most babies are born without any malocclusion and orofacial anomalies.[1] In the postnatal period, malocclusion may develop in children under the influence of various environmental factors. Untreated oral habits and oral habits are not given up on time are among the factors that cause malocclusion. [2] Oral habits affect the orofacial muscle balance, affecting the growth and development direction, amount, and occlusion of the jaws. This may result in the need for long-term and costly orthodontic treatment in children. The best treatment for these conditions is timely intervention and a protective and preventive approach before malocclusion occurs.[3] It is important to be aware of the conditions that may occur due to oral habits in children and to intervene on time for the prevention and treatment of malocclusion development. Thumb sucking, pacifier sucking, bottle sucking, lip sucking, tongue sucking, tongue thrusting, mouth breathing, nail-biting, lip biting, and clenching are common habits in children that cause deformation in the teeth and surrounding tissue.[4] It has been proven by studies that these habits, which are not given up on time depending on the frequency, duration and intensity, cause dental and skeletal anomalies.[5-7]

Parents are the primary observers of habits formed in children. Knowing the potential negative consequences that oral habits can cause and being aware of the need for treatment may be the first step for the start of treatment. Therefore, it is crucial for parents to have sufficient knowledge about the complications of oral habits and be able to take early preventive measures.

Studies on oral habits in children and parental awareness are mostly related to awareness of the current malocclusion situation. Studies in the literature that question parental knowledge about the negative effects of oral habits are mostly related to non-nutritive sucking habits.[8] In addition to awareness of the current malocclusion situation, awareness of the negative effects of oral habits in general is also important for the oral health of children. The aim of this study is to determine the level of knowledge of parents about oral habits and the effects they may cause, and to evaluate the relationship between parents' knowledge levels and demographic characteristics.

Material and methods

An approval numbered 2021/1575 was obtained from the Inonu University Non-Interventional Research Ethics Committee. The study complied with the Declaration of Helsinki and was designed according to TREND Guidelines. An informed consent form was signed by all participants before the questionnaire. The questionnaire consisted of 16 questions. The questionnaire was created by editing the questionnaire used by Melo *et al.*[9] according to the Turkish cultural structure. However, since it was different from the original, the validity of the questionnaire was again reviewed and tested by 10 pediatric dentists (expert opinion). Changes were made to the survey based on expert reviews. Next, for test-retest reliability and comprehensibility of the questionnaire, the questionnaire was pilot-tested by randomly selecting a sample of 25 parents from among the target participants not included in the main study. Responses were reviewed and items reported as confusing and difficult to answer by parents were addressed. Accordingly, the questionnaire was revised and the final questionnaire was created to avoid misinterpretation of the questions. It includes 6 questions about demographic characteristics, 8 questions about measuring parental awareness and level of knowledge about oral habits, and 2 questions about being informed. The questionnaire was administered to 501 parents. The questionnaire consisted of questions about the possible effects of oral habits on occlusion and parents' access to information on this subject. Parents of children aged 3-13 years in primary and mixed dentition were included in the study. 2 years was accepted as the correct age for pacifier sucking and bottle sucking.[10] The correct answer to the other six questions is "yes", indicating that oral habit will have a negative effect. Each correct question has a correct answer score of 1.

Statistical analysis

The analysis of the data was carried out with the SPSS 25 (IBM Corp, Armonk, NY) software. The normality of the data was determined by the Kolmogorov-Smirnov test. The significance level for comparison tests was taken as $p<0.05$.

Since the assumption of normality was ensured, comparisons in paired groups were performed with two independent samples *t*-test and comparisons in multiple groups were performed with the ANOVA test. Duncan's multiple comparison (post-hoc) test was used since the homogeneity of variance was ensured to determine the groups with a difference as a result of the ANOVA test. Values of the variables are given as a number, percentage, mean, and standard deviation.

Results

Demographic information of the participants was calculated as numbers and percentages (n/%), and given in Table 1. Most mothers (60.9%) were between the ages of 30-39 and graduated from primary school (38.9%). Most fathers (45.1%) were between the ages of 40-49 and graduated from high school (34.5%). The percentages of the answers to the questions are given in table 2.

A statistically significant difference was found in the oral habit awareness scores of those who answered the questions "The effect of mouth breathing on the development of teeth and jaws" correctly ($p<0.001$, Table 3). Likewise, the questions "The effect of sucking, biting or tongue thrusting habits on tooth and jaw development" have a statistically significant effect on awareness scores ($p<0.001$, Table 3).

Table 1: Demographic Data of the Participants.

Mean ± SD	Group	Number(n)	Percentage(%)
Mother Age	20-29 years	60	12
	30-39 years	305	60.9
	40-49 years	128	25.5
	≥ 50 years	8	1.6
Mother Educational Status	Literate	34	6.8
	Primary school	195	38.9
	High school	134	26.7
	University	123	24.6
	Postgraduate	15	3
Father Age	20-29 years	12	2.4
	30-39 years	223	44.5
	40-49 years	226	45.1
	≥ 50 years	40	8
Father Educational Status	Literate	13	2.6
	Primary school	138	27.5
	High school	173	34.5
	University	156	31.1
	Postgraduate	21	4.2
Household Income	0-2500 TL	201	40.1
	2501-5000 TL	190	37.9
	5001-10000 TL	87	17.4
	10001 TL and higher	23	4.6

Table 2: Numbers and Percentages of the Answers by the Participants to the Questions

Mean ± SD	Group	Number(n)	Percentage(%)
Cessation age of pacifier use	≤2 years	321	64.1
	>2 years	180	35.9
Cessation age of bottle use	≤2 years	111	22.2
	>2 years	390	77.8
The effect of mouth breathing on teeth	Yes	189	37.7
	No	312	62.3
The effect of mouth breathing on jaw development	Yes	145	29
	No	356	71
The effect of sucking, biting and tongue thrust on teeth development	Yes	383	76.4
	No	118	23.6
The effect of sucking, biting and tongue thrust on jaw development	Yes	345	68.9
	No	156	31.1
The damage of teeth clenching on teeth	Yes	453	90.4
	No	48	9.6
The effect of teeth clenching on joint and jaws	Yes	417	83.2
	No	84	16.8
The damage of teeth clenching on teeth	Yes	453	90.4
	No	48	9.6
The damage of teeth clenching on teeth	Yes	417	83.2
	No	84	16.8
Previous information about oral habits	Yes	247	49.3
	No	254	50.7
Those who were informed by dentist/ pedodontist	Yes	90	18
	No	411	82
Those who were informed by pediatrician	Yes	62	12.4
	No	439	87.6
Those who were informed by school/teacher	Yes	45	9
	No	456	91
Those who were informed by tv programmes	Yes	49	9.8
	No	452	90.2
Those who were informed by social media	Yes	69	13.8
	No	432	86.2

Table 3: Comparison of oral habit scores according to demographic data and true-false questions answers.

Variables	Group	Mean ± SD	Test Value	*p* value
Mother's age	20-29 years	4.7 ± 1.91	1.364[a]	0.253
	30-39 years	4.98 ± 1.81		
	40-49 years	5.11 ± 1.73		
	≥ 50 years	5.88 ± 0.99		
Mother' educational status	Literate	4.5 ± 2.29[x]	5.774[a]	0.001*
	Primary school	4.72 ± 1.84[x]		
	High school	4.92 ± 1.69[x]		
	University	5.56 ± 1.63[y]		
	Postgraduate	5.73 ± 0.8[y]		
Father's age	20-29 years	4 ± 2.56	1.404[a]	0.241
	30-39 years	5.08 ± 1.73		
	40-49 years	4.97 ± 1.85		
	≥ 50 years	4.95 ± 1.57		
Father's educationa status	Literate	3.85 ± 2.67[x]	5.446[a]	0.001*
	Primary school	4.63 ± 1.96[x]		
	High school	4.94 ± 1.8[xy]		
	University	5.42 ± 1.46[y]		
	Postgraduate	5.43 ± 1.47[y]		
Household income	0-2500 TL	4.76 ± 1.83	2.418[a]	0.065
	2501-5000 TL	5.07 ± 1.75		
	5001-10000 TL	5.33 ± 1.73		
	10001 TL and higher	5.17 ± 1.92		
The effect of mouth breathing on jaw development	No	4.25 ± 1.65	-13.991[b]	0.001*
	Yes	6.22 ± 1.29		
The effect of mouth breathing on teeth development	No	4.37 ± 1.63	-14.504[b]	0.001*
	Yes	6.52 ± 1.16		
Cessation age of pacifier use	>2 years	4.5 ± 1.73	-8.742[b]	<0.001*
	≤2 years	5.87 ± 1.58		
Cessation age of bottle use	>2 years	3.65 ± 1.9	-8.770[b]	<0.001*
	≤2 years	5.38 ± 1.57		
The effect of sucking. biting and tongue thrust on teeth development	No	2.93 ± 1.66	-18.518[b]	<0.001*
	Yes	5.63 ± 1.29		
The effect of sucking. biting and tongue thrust on jaw development	No	3.25 ± 1.68	-19.312[b]	<0.001*
	Yes	5.78 ± 1.18		
The damage of teeth clenching on teeth	No	2.15 ± 1.96	-13.493[b]	<0.001*
	Yes	5.3 ± 1.49		
The damage of teeth clenching on jaw development and jaw	No	2.62 ± 1.7	-16.513[b]	<0.001*
	Yes	5.47 ± 1.39		
Previous information about oral habits	No	4.67 ± 1.81	-4.225[b]	<0.001*
	Yes	5.33 ± 1.72		

[a,b] Test Value cells with different letters have a significant difference compared to each other (*p<0.01).

A statistically significant difference was found between the correct and incorrect answer scores in the "Age of Cessation of Pacifier Use" question in the oral habit scores of the participants included in the study (p<0.05, Table 3).

The oral habit awareness total scores of the participants were compared according to the maternal and paternal age/educational status/income level, the age of quitting the pacifier and bottle, the effects of sucking-teeth-clenching-mouth breathing habits on the teeth and jaws, and the test results are presented in Table 3.

The average oral habit awareness score of the participants was 4.9. It was determined that the scores of the participants were not affected by the age of the mother or father and socioeconomic level. However, the educational status of the parents affected the oral habit awareness scores (Table 3).

A statistically significant difference was found between the parents' educational status (literate, primary school, high school, university, postgraduate) in the oral habit awareness scores of the participants included in the study (p<0.05, Table 3). According to Duncan Multiple Comparison test results, a statistically significant difference was found between the knowledge scores of the literate and university graduates mothers (p=0.017<0.05) and fathers (p=0,018, Table 3). A statistically significant difference was found between primary school graduate and university graduate mothers and fathers in terms of knowledge level (p=0.001<0.05). A statistically significant difference was found between high school graduate and university graduate mothers (p=0.03<0.05).

Discussion

In the present study, parents' awareness of malocclusions that may be caused by oral habits, its relationship with the sociodemographic characteristics of the family, and their information on this subject were questioned. Studies investigating the level of knowledge

of parents about their children's oral health are mostly on oral hygiene.[11,12] This study has added a different perspective to the literature by examining the level of knowledge of parents about oral habits in children's oral health.

It has been proven by studies that the stomatognathic system is affected by the duration, frequency, and severity of oral habits.[10-13] It is crucial to initiate the treatment early and take a preventive approach. The prerequisite for starting treatment early is to be aware of the condition.[14] It is important for the parents to be aware of this issue in terms of treatment timing.[12-15] Parental awareness is associated with education level. Chen *et al.*[16] concluded in their study that families with higher education levels have better oral hygiene knowledge, and their children also have better oral health. In their study, Mishra *et al.*[17] highlighted the importance of parent's education level and awareness of oral health-protective measures in determining the oral health of children. In the present study, the significant difference between the score of all other groups and the score of those with university and graduate education about oral habits and awareness of the possible outcomes highlights the importance of parent education once again. The education of parents is essential for the healthy growth of future generations.

The results of the study of Scarpelli *et al.*[18] in which parents were trained during the developmental period of children with oral habits by applying "Protocol for the Prevention of Malocclusions (PPM)", found no significant relationship between parental education level and giving up oral habits. This may be due to the fact that all parents received training on oral habits during PPM. This situation reveals the necessity of parent's awareness examined in the current study. The reason for the difference between the results of the two studies may be country and geography. It should not be overlooked that Turkish pediatric patients have a parent population whose quality of life is adversely affected due to poor oral hygiene and habits.[19]

Prolonged sucking habits are common in children. Breastfeeding plays an important role in the development of the palate structure of children.[3] Non-nutritive sucking behaviors are acceptable in infants and young children up to a certain age. However, studies have proven that narrow palate, increased overjet and decreased overbite formation are more common in children with non-nutritive sucking habits that continue after the recommended age.[1,2] Studies have shown that continued pacifier use after the age of two has a negative effect on malocclusion and maxillary growth patterns.[20,21] In the present study, 64.1% of the parents gave the correct answer to the question about the cessation of pacifier use. Pediatric dentists and pediatricians may have a role in ensuring that parents have adequate knowledge about the cessation of pacifier use at an appropriate age. In a study conducted in Turkey in 2021, it was reported that pediatricians gave a correct answer with a rate of 92.3% regarding the fact that non-nutritive sucking habits may cause malocclusion.[22] The fact that parents do not neglect the pediatrician's control, especially in children aged 0-2, and that the pediatricians in Turkey are knowledgeable about this issue; It was concluded that it can be effective in raising awareness of families and increasing the correct answer score.

Long-term bottle use causes insufficient perioral muscle development in children.[20] When we question the parental knowledge about bottle use, it is seen that there is a lack of information. The reason for this could be that families cannot give up the convenience and nutritional value of bottle feeding. This condition, which is not noticed and intervened in time, may cause maxillary stenosis, anterior and posterior crossbite, and increased overjet in children, depending on the frequency of habituation.[23-25] When malocclusions that may occur due to the parents' lack of knowledge are not treated on time, it causes the need for time-consuming and costly advanced orthodontic treatment.[21]

It has been determined by studies that mouth breathing habits cause malocclusion in children. [13,26] Most of the parents who participated in the present study considered that mouth breathing did not affect the development of teeth and jaws. The related knowledge score was found to be higher in mothers with a university education than in literate mothers. This finding reveals once again the importance of the education level of the mother.[15] Since the effect of mouth breathing on both teeth and jaws occurs in the long term, it may not be frequently mentioned by physicians. It may not have attracted as much attention as other severe and short-term harmful habits. It would be beneficial for dentists, pediatricians and otolaryngologists to be more inquisitive about this issue in pediatric examinations and to provide more information to families.[3]

The high rate of correct answers by parents to the effect of sucking habits on both teeth and jaw development since this habit attracts the attention of families by causing visible aesthetic problems. Because it was noticed earlier, parents may have accessed information by seeking treatment. In addition, it is among the problems that dentists frequently prioritize and voice.[22]

Various studies have been conducted on the effects of clenching on teeth and jaws. In these studies, it was concluded that clenching has a negative effect and is associated with various oral habits.[15-17] In the present study, it was concluded that the majority of parents were conscious of the effects of bruxism on teeth (90.4%) and jaws (83.2%). These parents were more knowledgeable about bruxism than other oral habits. The fact that it is seen and common in adults and has a physiological effect may have increased awareness. The diagnosis of bruxism in children is quite difficult. Especially for the diagnosis of bruxism in children, the child cannot be able to identify it. Therefore, families need to follow their children, especially in terms of sleep bruxism. The knowledge of parents on this issue is promising in terms of diagnosis and treatment.

When we questioned the way parents were informed about oral habits and their possible effects, 50% of them stated that they had not received any information before, which shows that the awareness of this issue is low. The biggest task in this regard falls on pediatric dentists, family physicians and paediatricians.[22,25] From the moment the first primary tooth erupts, children should be examined by a pediatric dentist. The development of the jaw and tooth structure should be followed at regular intervals. In these appointments, parents should be informed and guided about malocclusions that may occur as a result of breastfeeding, pacifier and bottle use, and possible oral habits.[3] It is also thought-provoking that the total number of parents (22%) whose information sources are social media and television programs is higher than those whose sources are dentists/pediatric dentists (18%) and pediatricians (12%). Considering the impact of social media today, it would be beneficial to increase informative content by physicians so that parents can access the right information.

Parents can be informed by their dentist since the first visit. Dentists, especially pediatric dentists, play an important role in this regard, depending on the age group they are interested in. The situation can be brought under control with the aids and referrals made as soon as the habit is noticed.[24] Preventive-stopping treatments are less costly. This is also very important for families and the country's economy.[14,15] With preventive treatments, treatment time, sessions and cost are reduced. With the decrease in the time spent by the physician, the child, and the family, the child's motivation increases in short-term treatments.[28] When considering communication with children, teachers should also be aware of the subject. In schools, parents can be supported with various educational programs.

In the present study, parents' knowledge levels were measured by means of a questionnaire. This study can be taken to an advanced level by supporting clinical findings and comparing the presence of habit with the eyes of the physician and the parents separately. Studies carried out by completing this deficiency can be more instructive and decisive.

Conclusion

It is believed that many oral health problems can be reduced or even prevented when parents have access to information about oral health. For this reason, informative studies should be emphasized so that parents can access correct information and intervene in oral habits early. The results of the present study clearly show that parents need early and predictive advice. This information could be best provided by pediatricians and family physicians, who are more likely to encounter children before malocclusion occurs, through channels such as community health centers, schools, and social media.

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