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ORIGINAL RESEARCH ARTICLE

Knowledge and Awareness of Turkish Mothers Regarding Primary Teeth

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Abstract

Purpose: This study aimed to evaluate the mothers' knowledge and awareness of primary teeth.
Materials & Methods: This cross-sectional study consisted of 323 children and their mothers. A questionnaire form consisting of 10 questions about the definition of primary teeth, their total number and treatment requirements was applied to the mothers. Pearson Chi-Square and Fisher-Freeman-Halton tests were used to analyze the data.
Results: The rate of wrong answers given by mothers with low education level to the question "What are primary teeth?" was significantly higher (p <0.001). The rate of correct answer given by mothers with low education level to the question "How many primary teeth are there in a healthy dentition?" was significantly lower (p = 0.002). The answer of "no" given by mothers with a low education level to the question "Do you think it is necessary to treat primary teeth?" was significantly higher (p=0.016). The rate of correct answer given by families with a monthly income above 5000 TL to the questions "What are primary teeth?" and "How many primary teeth are present totally?" were significantly higher (p=<0.001).
Conclusion: The superior the education level and the monthly income of the family, the higher the rate of answering questions that require information.

Key words: awareness; parents; primary teeth

Introduction

Having healthy teeth during the primary dentition phase, which is the most active era of human development, allows for proper chewing function, balanced chewing muscle development, positive psychological development, and proper alignment of permanent teeth in the jaws. [1] The basis for a healthy permanent dentition is a healthy primary dentition. For this reason, regular examinations during primary dentition and preventive therapies for primary teeth are critical.

Nowadays, the most important problem in the primary dentition period is the increased risk of caries, which is called early childhood caries (ECC). ECC is a biofilm-mediated, sugar-driven, multifactorial, dynamic disease that is common in the community and affect the life quality of children and their families. [2,3] ECC is a complex condition with a variety of social, behavioral, cultural, dietary, and biological risk factors contributing to its etiology. [4] Despite significant advances in preventive dentistry, ECC continues to affect a large number of children worldwide. [5] Toothache, tooth abscess, difficulty in eating, weight loss, and a decrease in body mass index can be observed in young children with dental caries compared to healthy children. [6] ECC has a negative impact on children's quality of life. [7] Furthermore, premature primary tooth extraction owing to ECC can cause major arch length deficiencies, leading to orthodontic problems [8] and children with ECC have a higher risk of subsequent caries. [9]

The prevention of ECC can be accomplished in a variety of ways. One of the most important method is to educate caregivers and children on the importance of primary teeth and to promote better oral hygiene. [10] Treatment of deciduous teeth is not considered a primary concern in the majority of the population, as it is believed that the primary teeth will fall out as the child grows, having no effect on the permanent teeth. Parents are the main decision-makers in their children's lives, and their attitudes and words serve as role models for their children's behavior. Children's oral health is influenced by their parents' knowledge, attitudes and practices regarding the importance of primary teeth. [11] There is a scarcity of studies on parents' awareness of the primary teeth' significance. The aim of this study is to evaluate the knowledge, attitudes and perceptions of parents about the importance of primary teeth.

Materials and Methods

This cross-sectional study was conducted with the parents of 323 children aged 3-14 who were visited the Department of Pediatric

Dentistry for children' dental examination. Based on data from previous studies [11–13], a minimum sample size of 313 subjects was determined via the G*Power software program (power = 0.80, α = 0.05, $Z_{\alpha/2}$=1.96, p=0.7, G*Power, v. 3.1.9.2). [14] A total of 323 parents were recruited to account for the possibility of some parents being excluded for various reasons. The study protocol was approved by the Institutional Ethics Committee (2020/17). Informed consent was obtained from parents after explaining the purpose of the study. The present study was conducted in accordance with the Principles of the Declaration of Helsinki.

A questionnaire comprising ten questions about the definition, total number, and treatment requirements of primary teeth was created to assess mothers' knowledge, attitudes and perceptions about the significance of primary teeth. A participant data form was created by attaching an additional form to the questionnaire that included the child's age, gender, monthly income information for the family, and the mother's education level. The mothers' educational levels were divided into three categories: primary school or below, secondary school or high school, and university or above. Finally, the monthly income of the family was determined as <2400, 2400-5000 and >5000 TL.

Mothers who preferred to participate in the study were given participant data forms to fill out. The relevant researcher read the questionnaires for illiterate mothers and filled out the form based on the responses.

Statistical analysis

Among the categorical variables, maternal education level was classified as (i) Low: primary school or below, (ii) Middle: Secondary school or high school (iii) High: University or above. The monthly income of the family was evaluated as (i) <2400 TL (ii) 2400-5000 TL (iii) >5000 TL.

Descriptive statistics were produced for the data, and categorical variables (gender, education level, monthly income) were represented by frequency and percentage distributions, while continuous variable (age) was represented by the median (Minimum-Maximum).

Pearson Chi-Square and Fisher-Freeman-Halton tests were used to analyze the data of categorical variables. P values less than 0.05 were considered as significant. Data analysis was employed with SPSS 21.0 (IBM Corp., Armonk, New York, USA).

Results

The mean age of 323 children (158 girls (48.9%) and 165 boys (51.1%)) who participated in the study was recorded as 8.39 ± 2.43. Among the 323 mothers who filled out the participant data form, 24.1% of the mothers had a high education level, 30.3% had a middle education level and 45.5% had a low education level. It was determined that 72.1% of the families had a monthly income of more than 5000 TL, 20.1% of them between 2400-5000 TL and 7.7% of them less than 2400 TL.

The survey questions and the descriptive statistics of the questions are shown in Table 1. The correct answer to the question "What are primary teeth?" was given by 69.7% of the parents. 52.9% of the mothers were aware of the total number of primary teeth in a healthy dentition. 78% of the mothers who participated in the study answered 'yes' to the question 'Do you think all primary teeth will shed?'. 67.5% of the mothers were aware that permanent teeth were completed at the age of 12. Among the respondents, 53.3% of the mothers were aware of all the functions of their primary teeth. 62.8% of the mothers answered "yes" to the question "Do you think it is necessary to treat a decayed primary tooth?". Infected primary teeth must be treated, according to 88.9% of mothers. 84.5% of the mothers who participated in the study answered, 'I will agree for treatment' to the question 'If a root canal treatment is required for your child's painful primary tooth (which requires few visits)'. 86.5% of the mothers answered, 'I will agree' to the question 'If a primary tooth require extraction which is the only possible treatment option'. 89.5% of the mothers reported that they would allow local anesthesia if required by the dentist.

Table 2 shows the association between the mother's educational level and the responses to the questions. A statistically significant relationship was found between the education level of the mother and the answers given to the questions "What are primary teeth?" ,"How many primary teeth are there in a healthy dentition?" and "Do you think it is necessary to treat a decayed primary tooth?". For mothers with low education levels, the rate of incorrect answers to the question What are primary teeth?" was significantly higher (p<0.001). Mothers with a low education level had a considerably lower rate of properly answering the question "How many primary teeth are there in a healthy dentition?" (p=0.002).

Table 2 also displays the distribution and comparison of the responses based on the family's monthly income. A statistically significant relationship was found between monthly income of the family and the answers given to the questions "What are primary teeth?" ,"How many primary teeth are there in a healthy dentition?" and "Do you think it is necessary to treat a decayed primary tooth?". In families with a monthly income of more than 5000 TL, the rate of correctly answering the questions "What are primary teeth?" and "How many primary teeth are there in a healthy dentition?" was significantly higher compared to families with a monthly income of less than 5000 TL (p<0.05). In families with a monthly income of more than 5000 TL, the "yes" answer given by the mothers to the question "Do you think it is necessary to treat a decayed primary tooth?" was statistically significantly higher (p=0.001).

No statistically significant relationship was found between the education level of the mother, family's monthly income and the answers given to the questions "If a primary tooth is infected", "If a root canal treatment is required for your child's painful primary tooth (which requires few visits)", "If a primary tooth require extraction which is the only possible treatment option" and 'Would you allow local anesthesia (to numb the tooth) for the treatment of primary teeth?'.

Discussion

Parents' dental beliefs, attitudes and behaviors on child's oral health are very crucial from the birth of a child. Protecting primary teeth is important for a child's proper development and growth. [15] This study was carried out to evaluate the awareness of parents about the importance of primary teeth and the effect of the monthly income of the family and the mother's education level on this awareness.

Children's perspectives of health-related actions are formed and established initially in the family setting. [16] Especially in the pre-school period, when children's mental abilities develop, perceptions are clear, and learning is formed the fastest. [17] Positive attitudes that children develop about the importance of oral and dental health as a result of information learned from their parents can improve children's quality of life at this time. The role of parents has changed in recent years as a result of changing lifestyle habits. Although fathers have begun to play an active role in child raising, mothers continue to play an active role in fulfilling their responsibilities regarding children's oral and dental health. [18] The American Academy of Pediatric Dentistry (AAPD) also recommends the use of questionnaires that evaluate the knowledge and attitudes of mothers in order to obtain information about children's dental health. [19] For this reason, the mothers were recruited in this study.

Table 1. Descriptive statistics of the questions

Questions		n	(%)
What are primary teeth?	They are the teeth that all children have	89	27.6%
	They are the first teeth to erupt in the mouth, acting as a guide for permanent teeth	225	69.7%
	These are the teeth formed in the mouth due to excessive milk consumption	9	2.8%
How many primary teeth are there in a healthy dentition?	10	59	18.3%
	15	93	28.8%
	20	171	52.9%
Do you think all primary teeth will shed?	Yes	252	78%
	Only front teeth	67	20.7%
	Only back teeth	4	1.2%
When do all primary teeth fall out and are replaced by permanent teeth?	8	65	20.7%
	12	212	67.5%
	18	37	11.8%
What are the functions of primary teeth?	Chewing& guides the eruption of permanent teeth	57	18.8%
	Chewing& guides the eruption of permanent teeth & Speech	85	28%
	Chewing & guides the eruption of permanent teeth & Speech & Esthetic	162	3.3%
Do you think it is necessary to treat primary teeth?	Yes	203	62.8%
	No	79	24.5%
	Don't know	41	12.7%
If a primary tooth is infected;	Treatment is unnecessary, since anyway tooth is going to fall	15	4.6%
	It must be treated	287	88.9%
	Antibiotic therapy is sufficient.	21	6.5%
If a root canal treatment is required for your child's painful primary tooth (which requires few visits)	I will agree for treatment	272	84.5%
	It will fall anyway, I would like it to be extracted	31	9.6%
	I would like to be prescribed antibiotics.	19	5.9%
If a primary tooth require extraction which is the only possible treatment option;	I will agree	275	86.5%
	I will not agree	43	13.5%
Would you allow local anesthesia (to numb the tooth) for the treatment of primary teeth?	I accept if required by the dentist	289	89.5%
	I wouldn't allow it as it will damage the permanent teeth	7	2.2%
	I have no idea	27	8.4%

Table 2. Rates of the responses about self-reporting practices of participants towards the cross-infection measures in dental clinics

	Educational level			p	Monthly income			p
	Low n (%)	Middle n (%)	High n (%)		<2400 TL n (%)	2400-5000 TL n (%)	>5000 TL n (%)	
What are primary teeth?								
They are the teeth that all children have	65 (44.2%)[a]	17(17.3%)[b]	7 (9%)[b]		11 (44%)[a]	25 (38.5%)[a]	53(22.7%)[b]	
They are the first teeth to erupt in the mouth, acting as a guide for permanent teeth	76 (51.7%)[a]	78(79.6%)[b]	71 (91%)[c]	<0.001*	14 (56%)[a]	37 (56.9%)[a]	174(74.7%)[b]	0.017*
These are the teeth formed in the mouth due to excessive milk consumption	6 (4.1%)[a]	3 (3.1%)[a]	0[a]		0	3 (4.6%)[a]	6 (2.6%)[a]	
How many primary teeth are there in a healthy dentition?								
10	35 (23.8%)[a]	14(14.3%)[a]	10 (12.8%)[a]		9 (36%)[a]	14(21.5%)[ab]	36 (15.5%)[b]	
15	51 (34.7%)[a]	19 (19.4%)[b]	23 (29.5%)[ab]	0.002*	9 (36%)[ab]	27 (41.5%)[a]	57 (24.5%)[b]	0.001*
20	61 (41.5%)[a]	65 (66.3%)[b]	45 (57.7%)[b]		7 (28%)[a]	24 (36.9%)[a]	140 (60.1%)[b]	
Do you think all primary teeth will shed?								
Yes	110 (74.8%)	82 (83.7%)	60 (76.9%)		20 (80%)	49 (75.4%)	183 (78.5%)	
Only front teeth	33 (22.4%)	16 (16.3%)	18 (23.1%)	0.222	5 (20%)	14 (21.5%)	48 (20.6%)	0.66
Only back teeth	4 (27%)	0	0		0	2 (3.1%)	2 (0.9%)	
When do all primary teeth fall out and are replaced by permanent teeth?								
8	34 (23.9%)	20 (20.8%)	11 (14.5%)		5 (22.7%)	19 (30.2%)	41 (17.9%)	
12	95 (66.9%)	65 (66.7%)	52 (68.4%)	0.305	15 (68.2%)	41 (65.1%)	156 (68.1%)	0.109
14	13 (9.2%)	11 (11.5%)	13 (17.1%)		2 (9.1%)	3 (4.8%)	32 (14%)	
What are the functions of primary teeth?								
Chewing& guides the eruption of permanent teeth	26 (19.3%)	19 (20.7%)	12 (15.6%)		6 (24%)	14 (23%)	37 (17%)	
Chewing& guides the eruption of permanent teeth & Speech	39 (28.9%)	23 (25%)	23 (29.9%)	0.889	4 (16%)	19 (31.1%)	62 (28.4%)	0.443
Chewing & guides the eruption of permanent teeth & Speech & Esthetic	70 (51.9%)	50 (54.3%)	42 (54.5%)		15 (60%)	28 (45.9%)	119 (54.6%)	
Do you think it is necessary to treat primary teeth?								
Yes	78 (53.1%)[a]	67(68.4%)[b]	58(74.4%)[b]		10 (40%)[a]	33 (50.8%)[a]	160 (68.7%)[b]	
No	47 (32%)[a]	20(20.4%)[ab]	12 (15.4%)[b]	0.016*	10 (40%)[a]	26 (40%)[a]	43 (18.5%)[b]	0.001*
Don't know	22 (15%)[a]	11 (11.2%)[a]	8 (10.3%)[a]		5 (20%)[a]	6 (9.2%)[a]	30 (12.9%)[a]	
If a primary tooth is infected;								
Treatment is unnecessary, since anyway tooth is going to fall	5 (3.4%)	5 (5.1%)	5 (6.4%)		1 (4%)	4 (6.2%)	10 (4.3%)	
It must be treated	127 (86.4%)	90 (91.8%)	70 (89.7%)	0.149	23 (92%)	53 (81.5%)	211 (90.6%)	0.256
Antibiotic therapy is sufficient.	15 (10.2%)	3 (3.1%)	3 (3.8%)		1 (4%)	8 (12.3%)	12 (5.2%)	
If a root canal treatment is required for your child's painful primary tooth (which requires few visits)								
I will agree for treatment	119 (81.5%)	87 (88.8%)	66 (84.6%)		21 (87.5%)	54 (83.1%)	197 (84.5%)	
It will fall anyway, I would like it to be extracted	14 (9.6%)	9 (9.2%)	8 (10.3%)	0.267	1 (4.2%)	7 (10.8%)	23 (9.9%)	0.873
I would like to be prescribed antibiotics.	13 (8.9%)	2 (2.2%)	4 (5.1%)		2 (8.3%)	4 (6.2%)	13 (5.6%)	
If a primary tooth require extraction which is the only possible treatment option;								
I will agree	123 (86%)	82 (84.5%)[a]	70 (89.7%)[b]	0.48	20 (83.3%)	57 (87.7%)	198 (86.5%)	0.867
I will not agree	20 (14%)	15 (15.5%)	8 (10.3%)		4 (16.7%)	8 (12.3%)	31 (13.5%)	
Would you allow local anesthesia (to numb the tooth) for the treatment of primary teeth?								
I accept if required by the dentist	131(89.1%)	85 (86.7%)	73 (93.6%)		23 (92%)	58 (89.2%)	208 (89.3%)	
I wouldn't allow it as it will damage the permanent teeth	2 (1.4%)	4 (4.1%)	1 (1.3%)	0.419	1 (4%)	3 (4.6%)	3 (1.3%)	0.288
I have no idea	14 (9.5%)	9 (9.2%)	4 (5.1%)		1 (4%)	4 (6.2%)	22 (9.4%)	

a,b Values in the same row with different superscripts show the statistical difference (*P<0.05).

Oral diseases, which are directly linked to socioeconomic status, disproportionately impact poorer and marginalized groups in society.20 There is a consistent relationship between the family's monthly income and the prevalence and severity of oral diseases.[20,21] The minimum wage in Turkey in 2020, the year this research was conducted, is 2,324 TL, and the average monthly income per family is 4,989 TL, according to the Turkish Statistical Institute's (TUIK) 2019 income and living conditions research data.[22] In the study, the minimum wage for 2020 and TUIK statistics were used to determine the monthly income groups. According to the survey's findings, the majority of the families participating in the study had monthly incomes that were higher than the TUIK average. The rate of correct answers to questions requiring information, such as the definition, number of primary teeth and whether the primary teeth need to be treated, increased with the the family's higher monthly income in this study. Similarly, Vittoba Setty ve Srinivasan[11] evaluated the knowledge and awareness of parents with children younger than 12 years old about primary teeth. They reported that the parents in the low socioeconomic group had less knowledge about primary teeth and were reluctant to treat their deciduous teeth. Janhvi et al.[23] stated that parents with a high socioeconomic level have more information about their children's oral health.

It has been reported that parents' lack of knowledge about primary teeth and the low value placed on primary teeth may be due to cultural beliefs.[11] Man Wai Ng[24] stated that some cultures place minimal value on primary teeth, and caries and early loss of primary teeth are considered normal phenomena. The low value placed on primary teeth, according to a qualitative survey of caregivers on Saipan, is a barrier to implementing an effective preventive oral health program.[25] A Canadian study showed that parents who believe primary teeth are vital have children with significantly lower caries rates than parents who believe otherwise.[26] Ramakrishnan et al.[12] evaluated the attitudes and knowledge of parents with children aged 2-16 on the relevance of primary dentition. Approximately 68% of the parents believe that primary teeth do not require treatment because they will eventually fall out. Similarly, in the study of Rajap et al.,[27] the majority of parents stated that primary teeth do not require treatment or should be extracted. In the present study, 62.8% of the mothers answered "yes" to the question "Do you think it is necessary to treat a decayed primary tooth?". An awareness of over 80% was detected in the responses to the questions about the treatment requirements of primary teeth, such as "If a primary tooth is infected", "If a root canal treatment is required for your child's painful primary tooth", "If a primary tooth require extraction which is the only possible treatment option", "Would you allow local anesthesia for the treatment of primary teeth?". In questions requiring information regarding primary teeth, however, the awareness was shown to be lower.

The level of education has a favorable impact on people's health attitudes and actions. Because education helps to improve cognitive abilities, it also influences people to make better health decisions for themselves and their families.[28] In the present study, the rate of correct answers to questions requiring information, such as the definition, number of primary teeth and whether the primary teeth need to be treated, increased with the mothers' higher education level. However, no significant relationship was found between the education level of the mother, family's monthly income and the answers given to the questions about the treatment requirements of primary teeth. In a survey of parents' views toward pedodontics in Turkey, it was stated that parental education alone was not an effective component in maintaining children's oral hygiene, and that sufficient awareness of children's oral and dental health could not be achieved.[13] Mishra et al.[29] reported that the education level of the parents had a great impact on the oral health of the children, that the children of parents with low education levels frequently suffered from toothache compared to the children of more educated parents, and the frequency of visits to the dentist for routine checkups was less.

In recent years, the decrease in the incidence of dental caries in developed countries is quite remarkable. It may have been achieved by improving socio-economic conditions, increasing living standards, and organizing programs that inform individuals about oral and dental health. Parents, as is commonly known, serve as role models for their children. The importance or neglect of the relevant issue by the parents will have a long-term impact on the child's oral and dental health. Parental education regarding oral health care can have a direct impact on their child's dental health, hence oral health awareness programs should be developed by pediatric dentists. Parents should be educated on the importance of primary teeth, their roles, treatment requirements, the issues that might arise if they are not treated, and the essential preventative care that these teeth require. It may also be beneficial to train pediatricians who contact with mothers for the first time to disseminate appropriate infant oral health care information. Informational pamphlets and posters can be used to raise awareness about the importance of oral and dental health in children.

Conclusion

The rate of correct answers to questions requiring information, such as the definition, number of primary teeth and whether the primary teeth need to be treated, increased with the mothers' higher education level and the family's monthly income.
The mother's education level and the family's monthly income had no significant effect on the family's awareness of necessary treatments for primary teeth.

Author Contributions

Hypothesis and experimental design: S.Y.Performed the experiments: S.Y., M.T. Wrote and proofread the manuscript: S.Y., M.T.

Conflict of Interest

There are no conflicts of interest.

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