

EVALUATION OF THE FEELING OF THE GUILTY OF PARENTS DUE TO THEIR CHILDREN'S EXISTING DENTAL PROBLEMS

Ebeveynlerin Çocuklarında Mevcut Olan Diş Problemleri Sebebiyle Duydukları

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ABSTRACT

The aim of this study is to evaluate the feelings of guilt of parents about their children's problems caused by dental caries, and to examine the relationship between parental guilt and sociodemographic factors, by examining early childhood caries (ECC) and severe ECC (S-ECC). Children younger than 72 months with dental caries were included in the study (N=200). Parents answered the questionnaire consisting of two parts, which included sociodemographic information and adapted ECOHIS questions. Results were analyzed by Chi-square and one-factor Logistic Regression test. 85.5% of the children were S-ECC, and 14.5% were ECC. 27.5% of the parents reported feeling guilty about their children's dental problems. Parents chose the lack of brushing with the highest rate (40.5%) as the source of the problem. 95.0% of the parents stated that existing dental caries in their children can be prevented, and 73.5% of them stated that visiting a dentist could be prevent the problem. No statistically significant relationship was found between the parents' feelings of guilt due to their children's dental problems and the sources of the problem, types of prevention, and sociodemographic characteristics. Parents should take the necessary responsibility for their children's oral health. Families should be informed about their children's oral health and encouraged to practice.

Keywords: Dental caries, Early childhood caries, Guilt, Parents.

ÖZ

Bu çalışmanın amacı, çocuklarda erken çocukluk çürüğü (EÇÇ) ve şiddetli EÇÇ (S-EÇÇ) durumlarını inceleyerek, ebeveynlerin çocuklarının diş çürüğüne bağlı oluşan problemlerle ilgili suçluluk duygularını değerlendirmek ve ebeveyn suçluluk hissi ile sosyodemografik faktörler arasındaki ilişkiyi incelemektir. Çalışmaya 72 aydan küçük diş çürüğü olan çocuklar dahil edildi (n=200). Ebeveynler sosyodemografik bilgileri ve uyarlanmış ECOHIS sorularını içeren iki bölümden oluşan anketi yanıtladı. Sonuçlar ki-kare ve tek faktörlü Lojistik Regresyon testi ile analiz edildi. Çocukların %85.5'i S-ECC, %14.5'i ECC idi. Ebeveynlerin %27.5'i çocuklarındaki diş problemleri nedeniyle suçluluk hissettiğini bildirdi. Ebeveynler problemin kaynağı olarak en yüksek oranla (%40.5) fırçalama yetersizliğini seçti. Ebeveynlerin %95.0'i çocuklarında var olan diş çürüklerinin önlenebileceğini, %73.5'i en çok diş hekimine gitmenin problemi önleyebileceğini belirtti. Ebeveynlerin çocuklarındaki diş problemleri nedeniyle duydukları suçluluk hisleri ile problemlerin kaynakları, önlenibilme türleri ve sosyodemografik özellikler arasında istatistiksel anlamlı ilişki bulunmamıştır. Ebeveynler, çocuklarının ağız sağlığı için gerekli sorumluluğu almalıdır. Aileler, çocuklarının ağız sağlığı konusunda bilgilendirilmeli ve uygulamaya teşvik edilmelidir.

Anahtar kelimeler: Ebeveyn, Erken çocukluk çağı çürükleri, Diş çürükleri, Suçluluk.

INTRODUCTION

Early childhood caries (ECC) are the most common chronic disease in children. ECC is defined as the presence of one or more primary teeth affected by dental caries (with or without cavities) in a child younger than 6 years of age (Dentistry., 2021). ECC is also considered as an important health problem all over the world (Branger et al., 2019). Although it is thought that the prevalence of ECC has decreased in recent years with the advances in the prevention and treatment of oral health problems, it is still common (Bönecker & Cleaton-Jones, 2003). ECC is more common, especially in countries with low socioeconomic status (Heaton, Cherg, Sohn, Garcia, & Galea, 2020). The dietary content of the child, feeding frequency, socioeconomic status of the parents, education level, and oral hygiene knowledge have a role in the etiology of ECC (Arora, Schwarz & Blinkhorn, 2011).

ECC affects children's social and cognitive interactions and neurodevelopment. This is particularly common in racially, culturally, or ethnically diverse communities, single-parent or low-income families (Shackleton et al., 2018). The pain accompanying ECC affects the child's eating, speaking, and sleep quality. There are also infections, abscesses, and chewing difficulties. Due to all these symptoms, children's development, general health, school success, and psychosocial status are adversely affected (Arora, Schwarz & Blinkhorn, 2011).

Although it is not life-threatening, the quality of life of children with ECC is adversely affected (Folayan & Olatubosun, 2018). ECC has adverse effects not only on children but also on parents. Mothers and fathers feel guilty about their children's pain due to ECC and the resulting sleep disorder, loss of concentration at school, and negative effects on school success, malnutrition, and symptoms. This sense of guilt also has a negative impact on the quality of life of families (Abanto et al., 2011).

Sense of guilt is an emotional warning system that we learn during our social development, starting from childhood. Its purpose is to let us know when we have done something wrong, to help us have insight into the consequences of our actions, and to show us how those consequences affect ourselves or others. Parents feel guilty when their child has oral health problems. Carvalho et al. found that 24% of parents feel guilty about their child's oral health problems (Carvalho, Abanto, Pinheiro, Lussi & Bönecker, 2018). In another study, they evaluated the effects of dental caries and traumatic dental injuries in children on the quality of life of families, together with the income status of the family, and determined that low income level was effective on quality of life (Abanto et al., 2012). In their study, Gomes et al. reported

that the formation of toothache, cavitary lesions, and traumatic dental injuries cause a sense of guilt in the parents of preschool children (Gomes et al., 2014).

The aim of this study is to find out the frequency of parents who feel guilty about their children's problems related to dental caries. It is also to examine ECC and S-ECC status in children and to examine the possible relationship between parental guilt and demographic and socioeconomic factors.

MATERIALS AND METHODS

This study was conducted in accordance with the guidelines of the Helsinki Declaration of Human Rights. Ethical approval of the study was obtained from the Inonu University Non-Interventional Research Ethics Committee. The study was conducted at İnönü University Faculty of Dentistry Pedodontics Clinic between January 2022 and July 2022. The children younger than 72 months, with ASA I-II and ECC who applied to the clinic for examination, and parents who volunteered to have no obvious learning disability were included. The parents with children who are 72 months old or older than 72 months and who refused to participate in the questionnaire were excluded. All pediatric patients included in the study and their parents were informed with detailed information, and asked to sign the consent form.

Oral Examination

The dental examinations of the children were performed under the reflector light with a mirror and probe after the teeth were dried with compressed air. All examinations were performed by a single experienced dentist (B.D.) for standardization purposes. In the examination, the presence of caries (dft index), malocclusion status (present/none), and traumatic dental injury (present/none) were evaluated.

The caries assessment in primary teeth was performed with the decayed, missing and filled teeth index (dft; the number of decayed (d) and filled (f) teeth (t)) recommended by the World Health Organization. Missing teeth that were not lost due to caries were not included in the dft score (eg, trauma, physiological tooth extraction). For the children aged between 0 and 36 months, if one or more dmfs surfaces were observed, this was accepted as S-ECC. For the children between 36 and 47 months, smooth surfaces in the maxillary anterior teeth which have one or more cavities, filled or missing (due to caries), or a dmfs score higher than four were accepted as S-ECC. In children older than 48 months, smooth surfaces in the maxillary anterior teeth with one or more cavities, filled or missing (due to caries) or dmfs score higher than five were accepted as S-ECC (Drury et al., 1999; Duman, Selen & Demir, 2022). Colored occlusal

fissures, white spots without cavitation, tooth wear, and erosions without any significant deterioration in enamel structure were not considered caries.

The malocclusion status of the patients was evaluated clinically according to previous studies (Abanto et al., 2011). In the presence of anterior open bite, crossbite, increased or decreased overjet, and increased or decreased overbite, malocclusion was recorded as "present", if these conditions were not present, it was recorded as "absent". Traumatic dental injuries were recorded as present/absent according to the criteria suggested by Andreasen (Andreasen, Andreasen & Andersson, 2018). After the examination was completed, the parents were asked to answer the survey questions.

Preparation and Implementation of the Survey

The questions asked to measure parents' guilt were prepared (Peker, Uysal & Bermek, 2011) by conducting a Turkish version of the Early Childhood Oral Health Impact Scale (ECOHIS) (Carvalho et al., 2018; Taran & Mammadli, 2021) and a related literature review. (Table-1) The survey consisted of two parts. The questions in the first part included socio-demographic information about the parents and general information about their children. Questions about the age and gender of the child, the parent (mother/father) who participated in the questionnaire, the age of the parents (≤ 30 , > 30), their educational status (\leq high school, $>$ high school), the income level of the family (minimum wage/ above minimum wage), the person who the child lives with, the place of residence (central district/rural), and the number of children (1/2/3/4/5) were asked. The second part consisted of questions measuring the sense of guilt that parents felt due to dental problems caused by dental caries in their children.

Table 1. Questions on the Broad-Spectrum Psychological Variables Related to Feelings of Guilt of Parents

Q1. In your opinion, do you think your child has problems in his/her teeth?
Q1.1. What is the problem?
Q1.2. In your opinion, what is the source of the problem in your child's tooth or teeth?
Q 2. Have you, or any other members of the family, ever felt guilty for the dental problems or dental treatments of your child?
Q3. Do you think this problem could have been avoided?
Q3.1. How to avoid it?
Q4. How would you describe your child's oral health?

ECOHIS is a frequently used survey to assess parents' perception of the impact of oral health-related quality of life on preschool children and their families. There is a question about guilt in the "family anxiety" section of this survey. In the original form of the questionnaire, the answer to the question about guilt has 5 options (never, almost never, sometimes, mostly and very often), but due to the distribution of answers in statistical analysis, the answers had 2 options ("No" for the answer "never", "Yes" for all other answers). In the questions, the

presence of dental problems in their children, whether they feel guilty about this problem, their thoughts about the preventability of these problems, and how they define their child's oral health were questioned. The questionnaires in which the question "Do you think there is a problem with your child's teeth?" (Question 1) were excluded from the study because the related questions can not be answered. Also, the questionnaires in which problems other than dental caries were marked for the question "What is the most important problem in your child's teeth?" (Question 1.1) were also excluded from the study. It was stated that more than one option can be selected (multiple answers) in the questions "What do you think is the source of the problem in your child's tooth or teeth?" (Question 1.2) and "How can the problems in your child's teeth be prevented?" (Question 3.1), only one choice can be selected in the other questions in the questionnaire and it was verbally conveyed to the parents.

Statistical Analysis

Data were analyzed with a confidence level of 95% using the statistical software packages SPSS 26 and AMOS 21.0. Frequency and percentage (n (%)) statistics were provided for categorical (qualitative) variables. In the study, the relationship between demographic and clinical characteristics and Early Childhood Caries, the child's dental problems, and the state of feeling guilty about their treatment were analyzed with the Chi-square test, and the factors affecting the sense of guilt were analyzed with the single-factor Logistic Regression analysis.

RESULTS

213 parents and children participated in the study. The questionnaires in which the question "Do you think there is a problem with your child's teeth?" (Question 1) was answered no, and the questionnaires in which problems other than dental caries were marked in the question "What is the most important problem in your child's teeth?" (Question 1.1) were excluded from the study. Our study group was composed of 200 children with dental caries problems (50.5% male, 49.5% female; S-ECC:85.5%, ECC:14.5%) and their parents (mother: 65.5%, father: 34.5%). The mean age of the children was 4.10 ± 0.92 , and the dft score was 9.15 ± 4.24 (Table 2).

Table 2. Distribution Frequencies of the General Characteristics of the Child, the Socio-Economic and Demographic Data, and the Child's Oral Health Problems

		n	%
General characteristics			
Child's sex	Female	99	49.5
	Male	101	50.5
Child's age (years)	2	15	7.5
	3	31	15.5
	4	74	37.0
	5	80	40.0
Socio-economic and demographic data			
Parents who participated in the survey	Mother	131	65.5
	Father	69	34.5
Mother's age (years)	≤30	63	31.5
	>30	137	68.5
Mother's schooling (years)	≤12	141	70.5
	>12	59	29.5
Father's age (years)	≤30	40	20.0
	>30	160	80.0
Father's schooling (years)	≤12	123	61.5
	>12	77	38.5
Region of residence	Town Center	170	85.0
	Countryside	30	15.0
Family income*	≤Minimum wage	100	50.0
	>Minimum wage	100	50.0
Number of children	1	36	18.0
	2	77	38.5
	3	68	34.0
	≥4	19	9.5
Child's oral health problems			
Caries severity	ECC	29	14.5
	S-ECC	171	85.5
Malocclusion	Yes	12	6.0
	No	188	94.0
Traumatic dental injury	Yes	7	3.5
	No	193	96.5

*Minimum wage in Turkey. In 2022, the lowest minimum wage was ±4.260 TL, equivalent to ±285 USD.

65.5% of the parents are mothers. 68.5% of the mothers are over the age of 30, and 70.5% had a high school or lower education level. 80.0% of the fathers were over the age of 30, and 61.5% had a high school or lower education level. 50.0% of the parents' monthly income was above the minimum wage, and 85.0% reside in the central district. 27.5% of the parents reported that they or someone in their family felt guilty about their children's dental problems and dental treatments. Parents chose to brush insufficiency with the highest rate (40.5%) as the source of the problem, and 59.0% classified their child's oral health as moderate. 95.0% of the parents stated that dental caries in their children could be prevented, and 73.5% of the parents thought that going to the dentist could have prevented the problem, which had the highest rate (Table 2) (Figure 1).

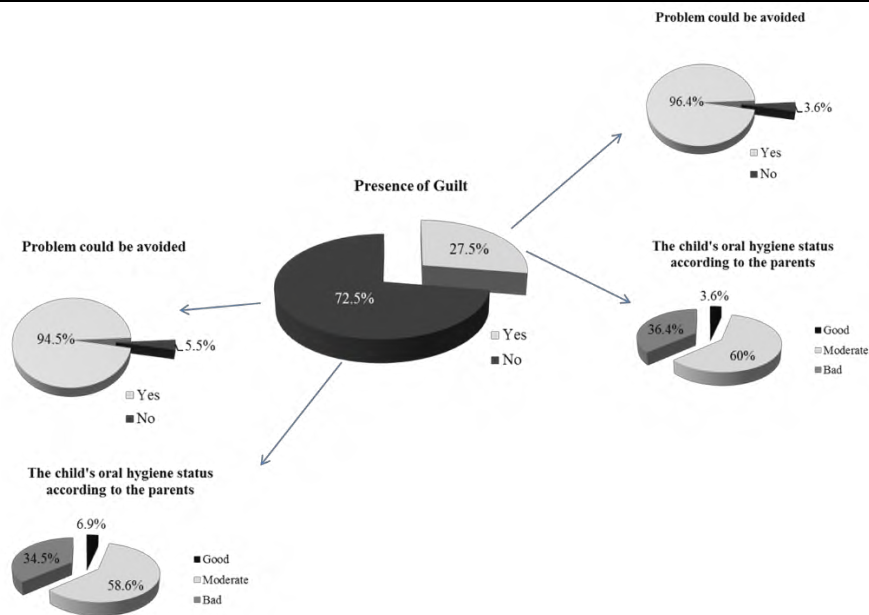


Figure 1. Distribution of Families' Feelings of Guilt According to Responses

There was no statistically significant relationship between early childhood caries and dental problems, guilt about their treatment, and the sources and types of prevention of problems ($p>0.05$) (Table 3).

Table 3. The Relationship Between the Parents' Evaluations of the Reason and Treatment of the Problem and the Feeling of Guilt of Children with S-ECC and ECC

		Early Childhood Caries		P	Parental Guilt		P
		S-ECC	ECC		Yes	No	
		n (%)	n (%)		n (%)	n (%)	
Sources of the problem	Genetic	38 (22.2)	10 (34.5)	.232	13 (23.6)	35 (24.1)	.999
	Drugs used	46 (26.9)	4 (13.8)	.202	13 (23.6)	37 (25.5)	.927
	Lack of brushing	70 (40.9)	11 (37.9)	.920	28 (50.9)	53 (36.6)	.092
	Consumed food	94 (55)	14 (48.3)	.640	24 (43.6)	84 (57.9)	.070
Types of problem avoidance	Visiting dentist	126 (73.7)	21 (72.4)	.999	44 (80)	103 (71)	.270
	Improving brushing	75 (43.9)	17 (58.6)	.203	26 (47.3)	66 (45.5)	.824
	Improving diet	46 (26.9)	8 (27.6)	.999	12 (21.8)	42 (29)	.402
	Using drugs	5 (2.9)	0 (0)	.999	2 (3.6)	3 (2.1)	.617

* $p<0.05$ significant relationship, $p>0.05$ no significant relationship; chi-square

According to the results of the chi-square test, there was no statistically significant relationship between dental problems, guilt related to their treatment, and demographic and clinical characteristics ($p>0.05$). According to the single-factor Logistic Regression analysis results, multiple-factor logistic regression could not be performed because there was no statistically effective factor on feeling guilty due to dental problems and treatments ($p>0.05$) (Table 4).

Table 4. Association Between Parental Guilt and the Independent Variables

Independent variable	Parental Guilt			One-factor model (Logistic Regression)			
	Yes n (%)	No n (%)	p	OR	%95GA OR	p	
General characteristics							
Child's sex	Female	25 (25.3)	74 (74.7)	.481	0.800	0.429-1.490	.481
	Male	30 (29.7)	71 (70.3)		1		
Child's age (years)	2-3	13 (28.3)	33 (71.7)	.590	1.265	0.555-2.880	.576
	4	23 (31.1)	51 (68.9)		1.448	0.710-2.952	
	5	19 (23.8)	61 (76.3)		1		
Socio-economic and demographic data							
Parents who participated in the survey	Mother	36 (27.5)	95 (72.5)	.999	0.993	0.519-1.916	.993
	Father	19 (27.5)	50 (72.5)		1		
Mother's age (years)	≤30	21 (33.3)	42 (66.7)	.279	1.515	0.789-2.906	.212
	>30	34 (24.8)	103 (75.2)		1		
Mother's schooling (years)	≤12	37 (26.2)	104 (73.8)	.658	0.810	0.415-1.582	.538
	>12	18 (30.5)	41 (69.5)		1		
Father's age (years)	≤30	15 (37.5)	25 (62.5)	.166	1.800	0.865-3.748	.116
	>30	40 (25)	120 (75)		1		
Father's schooling (years)	≤12	29 (23.6)	94 (76.4)	.159	0.439	0.322-1.136	.538
	>12	26 (33.8)	51 (66.2)		1		
Region of residence	Town Center	48 (28.2)	122 (71.8)	.739	1.293	0.521-3.210	.580
	Countryside	7 (23.3)	23 (76.7)		1		
Family income	≤Minimum wage	26 (26)	74 (74)	.635	0.860	0.462-1.601	.635
	>Minimum wage	29 (29)	71 (71)		1		
Number of children	1	9 (25)	27 (75)	.156	1.193	0.480-2.963	.704
	2	27 (35.1)	50 (64.9)		1.933	0.968-3.858	
	≥3	19 (21.8)	68 (78.2)		1		
Child's oral health problems							
Caries severity	S-ECC	47 (27.5)	124 (72.5)	.999	0.995	0.412-2.401	.991
	ECC	8 (27.6)	21 (72.4)		1		
Oral hygiene	Good	2 (16.7)	10 (83.3)	.784	0.500	0.101-2.487	.397
	Moderate	33 (28)	85 (72)		0.971	0.504-1.871	
	Bad	20 (28.6)	50 (71.4)		1		
Psychological variables							
Sources of the problem(Q2.2)	Genetic	13 (23.6)	35 (24.1)	.999	0.973	0.469-2.017	.941
	Drugs used	13 (23.6)	37 (25.5)		0.903	0.437-1.866	
	Lack of brushing	28 (50.9)	53 (36.6)		1.800	0.961-3.371	
	Consumed food	24 (43.6)	84 (57.9)		0.562	0.300-1.052	
Do you think this problem could have been avoided?(Q3)	Yes	53 (27.9)	137 (72.1)	.730	1.547	0.318-7.525	.588
	No	2 (20)	8 (80)		1		
Types of problem avoidance (Q3.1)	Visiting dentist	44 (80)	103 (71)	.270	1.631	0.769-3.459	.202
	Improving brushing	26 (47.3)	66 (45.5)		1.073	0.576-1.999	
	Improving diet	12 (21.8)	42 (29)		0.684	0.329-1.425	
	Using drugs	2 (3.6)	3 (2.1)		1.786	0.290-10.989	

Chi-square: χ^2 *p<0.05 significant relationship, Logistic Regression: p<0.05 significant effect

DISCUSSION

In this study, we evaluated parents' sense of responsibility for the problems caused by dental caries in their children through the concept of 'guilt', as in the studies of Carvalho et al (Carvalho et al., 2018). A sense of guilt can be the first step in changing a behavior. For this reason, the attitudes and behavior of the parents, who stated that they felt guilty, about their children's oral health can be changed by considering that they feel responsible (Gomes et al., 2014). In our study, the sense of guilt in parents was evaluated by reducing one problem in the Turkish version of ECOHIS to two options (yes/no) (Peker et al., 2011). Unlike the studies on the sense of guilt in parents, the study group consisted of parents who think that the most important source of the problem in their children's teeth is tooth caries, and the relationship with ECC and S-ECC was evaluated separately (Carvalho et al., 2018; Gomes et al., 2014).

In this study, the presence of S-ECC in children was found to be quite high (85.5%). 27.5% of the parents of children with S-ECC and 27.6% of the parents of children with ECC stated that they felt guilty about this situation. This rate was found to be similar to the rate of Carvalho et al. (23%) and, as stated in their studies, constituted only 25-30% of the study group. Based on the age group in which the ECC is seen, oral hygiene and care in these children are under the responsibility of the parent. Considering the relation of guilt to responsibility, the fact that the majority of parents do not feel guilt may be an indicator of their unconsciousness to ensure the oral hygiene of their children.

As a result of our epidemiological survey, it was observed that the sense of guilt of 27.5% of the families about dental caries in the children did not have a significant relationship with the sociodemographic characteristics and the presence of ECC, S-ECC. Previous studies have shown that, although the education and income status of the family is especially related to the ECC, these two factors may constitute a limitation in accessing information (Duijster, de Jong-Lenters, Verrips, & van Loveren, 2015; Javed, Feng, & Kopycka-Kedzierawski, 2017). In this case, families may be expected to feel guilty because they do not have sufficient information and equipment. However, this was not confirmed in our study. This may be related to the sample size.

In our study, no significant relationship was found between the presence of ECC and S-ECC and the sense of guilt of the families. In their study, Carvalho et al. stated that the sense of guilty of 24% of the parents caused by dental caries in their children was associated with ECC (Carvalho et al., 2018). Gomes et al. obtained a parental guilt rate as 22.8% in a similar way

and reported that it was associated with oral health problems in children (Gomes et al., 2014). We think that this difference may be due to the number of questionnaire participants.

In our study, 28.6% of the families who defined their children's oral hygiene as poor in the families with ECC and S-ECC stated that they felt guilty about this situation. In the study of Gomes et al., this rate was found to be 43.2%. This difference may be due to the fact that the geographical regions where the questionnaire was conducted were different. Considering the ECC and S-ECC rates in children, it can be interpreted that they are aware that oral hygiene is poor and that families who do not feel guilty do not have the awareness that the control of oral hygiene in their children is under their responsibility.

96% of parents who felt guilty about dental caries in their children stated that this was preventable. The majority of the parents of children with S-ECC stated that they thought the problem was caused by a lack of brushing (40.9%) and the food consumed (55%). According to the results of our study, the guilt rates of the parents who were aware of the cariogenic nutrition and oral hygiene deficiency, which were the factors causing ECC, were 50.9% and 43.6%. This rate shows us that families are aware that they have the responsibility of ensuring the oral hygiene of their children and regulating their diet, but they do not put this awareness into action.

73.7% and 72.4% of the families with S-ECC and ECC respectively stated that dental problems in their children can be prevented by visiting a dentist. 43.9% and 58.6% stated that the problem could be prevented by tooth brushing. It was observed that the parents had an idea about how to prevent dental caries in their children. However, the high rates of S-ECC and ECC in children indicated that they were inadequate in practice. In a study on the formation of behavior that promotes oral health in children, families stated that they needed help in practice (Qiu et al., 2020). As a result of the study, considering the 'dentist visit' option, which is quite high compared to other options, raising the awareness of families about oral hygiene and nutrition in their children during these visits may be an important step and opportunity to prevent ECC.

The proportion of parents choosing to regulate the diet was only 26.9% and 27.6% for S-ECC and ECC, respectively. Carbohydrate-weighted diet, which is an important factor in the formation of caries, is one of the risk factors for ECC (Anil & Anand, 2017). Although families were aware that caries may be caused by nutrition, the S-ECC rate detected in children clearly revealed that adequate nutritional balance was not achieved. In the preschool period, parents should be made aware of how nutrition should be regulated and encouraged to implement proper nutrition. Talekar et al. have also stated that parents need the motivation to ensure and

maintain the oral hygiene of their children, especially in the preschool period (Talekar, Rozier, Slade, & Ennett, 2005). Oral hygiene training should also be emphasized with the regulation of diet in maternal training programs.

The limitation of our study is the number of parents participating in the questionnaire. When this study is conducted with more parents, we think that sociodemographic characteristics and parental education level can be associated with guilt.

CONCLUSION

In order to prevent ECC, parents need to be aware that they are responsible for the oral health of their children. Families should also be informed to gain this awareness. In particular, the parents of children aged 0-5 should be informed about the importance of oral hygiene and their children should be trained on how to implement it. If parents control the oral care that their children need to do regarding oral health and dietary content, both ECC and families' sense of guilt can be prevented (Taran & Mammadli, 2021).

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