SAÚDE E PESQUISA
e-ISSN 2176-9206

ORIGINAL ARTICLE

https://doi.org/10.17765/2176-9206.2025v18e13098

DENTAL SERVICE USE AND ORAL HEALTH PERCEPTIONS AMONG MOTHERS OF CHILDREN AND ADOLESCENTS

USO DE SERVIÇOS ODONTOLÓGICOS E PERCEPÇÃO SOBRE SAÚDE BUCAL POR MÃES DE CRIANÇAS E ADOLESCENTES

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Received: 27 aug. 2024
Accepted: 25 sept. 2024

ABSTRACT: **Aim:** This cross-sectional observational study investigated dental services use and oral health perceptions among mothers of children and adolescents treated at a dental school clinic. **Methodology:** Data were collected via questionnaire (n=210) and analyzed using multiple logistic regression [outcomes: "last visit to the dentist" (LVD) and "satisfaction with teeth" (ST); p<0.05]. **Results:** Most participants (55.7%) reported having their LVD within the past year, and 42.3% were dissatisfied with their teeth. Mothers whose LVD was for treatment needs (TN) (OR=3.83) or who rated their LVD as fair (OR=2.41) were more likely to have had their LVD more than a year ago. Mothers that had lower educational level (OR=2.49), reported TN (OR=6.57), or LVD for pain (OR=3.08) or extraction/treatment (OR=3.38), were more likely to report lower ST. **Conclusions:** Mothers' perceptions of their oral health appeared to be negative as, although most had visited the dentist recently, they still reported needing treatment, experiencing toothache, and being dissatisfied with their teeth.

KEYWORDS: Knowledge; Oral Health; Surveys and Questionnaires.

RESUMO: **Objetivo:** Este estudo observacional tipo transversal investigou o uso de serviços odontológicos e percepção de saúde bucal entre mães de crianças e adolescentes que frequentam uma faculdade de odontologia. **Metodologia:** Os dados foram coletados por questionário (n=210) e analisados por regressão logística múltipla [desfechos: "última visita ao dentista" (UVD) e "satisfação com os dentes" (SD); p<0,05]. **Resultados:** A maioria (55,7%) afirmou ter tido a UVD há menos de um ano e 42,3% relataram não SD. As mães cuja UVD foi por necessidade de tratamento (NT) (OR=3,83) ou avaliação regular da UVD (OR=2,41) tiveram mais chance de UVD há mais de um ano. As mães com menor escolaridade (OR=2,49), ou que reportaram NT (OR=6,57), ou cujo motivo da UVD foi devido à dor (OR=3,08) ou extração/tratamento (OR=3,38) tiveram mais chance de ter menor SD. **Conclusões:** A percepção das mães sobre sua saúde bucal parece ser negativa, pois, apesar da maioria ter visitado o dentista recentemente, ainda relatam necessidade de tratamento, dor de dente e insatisfação com a dentição.

PALAVRAS-CHAVE: Conhecimento; Saúde bucal; Inquéritos e Questionários.

INTRODUCTION

Oral health is considered by the World Dental Federation to be a fundamental component of physical and mental health and vital to well-being that includes "the ability to speak, smile, smell, taste, touch, chew, swallow, and convey a range of emotions through facial expressions with confidence and without pain, discomfort and disease of the craniofacial complex" [1]. Oral health is also regarded as an important variable for quality of life [1].

The majority of prevalent oral diseases can be prevented by adopting good oral hygiene, a proper diet, and health promotion activities. Health promotion is a broad social and political process that involves actions aimed at strengthening individual skills and changing the social, environmental, and economic determinants that influence health. Health promotion also seeks to empower people, both individually and collectively, to gain control over the determinants of health and thereby improve it[2]. In dentistry, inequalities in health promotion and disease prevention persist among countries, mainly due to limited financial resources, inadequate oral health workforce, and insufficient coverage in primary healthcare[3] .

Within the context of health promotion, the role of parents in developing healthy eating and oral habits in children and adolescents is of fundamental importance [4]. During childhood, the family serves as the main reference for the child, while the mother is typically the primary role model within the family group, guiding the child throughout their development [4,5]. Therefore, the importance of the parent-child relationship for maintaining good oral health is clear [6,7].

Furthermore, it is well known that a healthy diet contributes to general health, leading to better quality of life for children and, consequently, their parents [8]. Studies have shown that most mothers who use the public health system have a lower educational level than those using private services [9] and that the majority did not have access to information about oral health for children and adolescents [9,10] .

Other studies show that only a small number of mothers received guidance from pediatricians on how to handle baby oral hygiene, suggesting that lack of information still represents a barrier [11,12,13]. Given that sugar contributes to the development of cavities, especially during the first years of life, it has been suggested that pediatric dentists conduct oral health education activities that target mothers, particularly during the zero to four years age range of children, as it is the most important period for establishing behaviors that will lead to optimal oral health [14].

Thus, efforts to improve and empower parents, especially mothers — the family members most involved with the child and most likely to receive guidance during dental appointments — to gain control over the determinants of health and thereby improve both their own health and that of their families, can have a positive impact on improving the oral health of the next generation [16]. Additionally, early oral health education reduces the chances of dental caries and periodontal diseases, besides encouraging healthy oral hygiene habits [17,18].

Therefore, understanding maternal characteristics and perceptions about oral health can contribute to understanding the behaviors, beliefs, and cultural aspects that influence their oral health and that of their families, as well as provide support for planning and implementing public health policies and strategies.

Considering the dearth of related research, this study investigated dental service use and oral health perceptions among mothers of children and adolescents treated at a dental school clinic.

METHODOLOGY

ETHICAL ASPECTS

All guidelines and regulatory standards for research involving human subjects contained in Resolution No. 466, of December 12th, 2012, and Resolution No. 510, of April 7th, 2016, of the National Health Council were followed. This study is part of a larger project that was approved by the Research Ethics Committee of the School of Dentistry of Araraquara, FOAr/UNESP (CAAE 06969419.8.0000.5416). All participants were informed about the importance of the research and their participation through the Informed Consent Form.

STUDY DESIGN

A cross-sectional observational study based on the application of a questionnaire to mothers of children and adolescents treated at the clinic of the School of Dentistry at Araraquara, UNESP was conducted.

STUDY LOCATION

The study was conducted at the School of Dentistry at Araraquara – São Paulo State University "Júlio de Mesquita Filho" (FOAr – UNESP). The clinics that most frequently treat children are Pediatric Dentistry, Orthodontics, and Public Health III, serving as the sites of data collection. Additionally, mothers waiting in the main hall of the FOAr were also invited to participate in the study.

PARTICIPANTS AND SELECTION CRITERIA

The target population consisted of mothers who attended the Pediatric Dentistry, Orthodontics, and Public Health III clinics at the FOAr, as well as mothers waiting in the FOAr main hall. All mothers who met the inclusion criteria and were present at the data collection points were invited to participate in the study. A sample size of 210 subjects was defined based on the number of mothers who agreed to participate during the data collection period. The inclusion criteria were: a) authorization to participate in the study through signing of the Informed Consent Form; b) being aged > 18 years; c) able to read and write; and d) having children aged ≤ 18 years.

Study variables

The study variables included socioeconomic factors (ethnicity, age, family income, education, domestic appliances, and living arrangement), reported oral morbidity (toothache, need for dental treatment), services use (frequency, reason, location, and quality of dental consultations), perceived oral health (satisfaction), importance of oral health, and personal values. These variables were collected using a printed questionnaire.

QUESTIONNAIRE

Based on a review of the literature for instruments available on the topics investigated, a self-administered questionnaire was developed containing questions probing sociodemographics, oral

morbidity, dental visits [19], perceptions [20], and personal values using Schwartz's Value Survey (SVS), translated and adapted to Portuguese by Menezes et al. [21] with inclusion of the item "oral health" to identify the importance attributed to oral health by respondents within a set of values.

To assess the level of dental pain, participants were asked whether they had experienced toothache in the last six months. If yes, they were asked to rate the intensity of the pain on a scale from 1 to 10, with 1 representing very mild pain and 10 representing very intense pain.

Two pre-tests were conducted between November 21st, 2019 and May 31st, 2021, prior to data collection. Pre-test 1 was conducted with a group of 20 mothers in order to reduce the number of items related to personal values in the SVS, which originally contained 63 values. In the present study, the value "oral health" was added, giving a total of 64 values. After descriptive analysis of the data, the third quartile (score ≥ 4.6 on a scale from 1 to 6, where 1 represents 'not important' and 6, 'supreme importance') was defined as the selection criterion. The values, ranked in descending order of importance were: health (5.75), education (5.72), responsibility (5.70), honesty (5.68), hope (5.68), equality (5.67), politeness (5.67), oral health (5.65), world peace (5.64), loyalty (5.63), freedom (5.60), forgiveness (5.60), self-respect (5.59), social justice (5.56), intelligence (5.47), and hygiene (5.41), with these appearing in random order in the questionnaire.

Pre-test 2, featuring the reduced number of values, was conducted with 10 mothers who attended the dental school clinics, in order to test the methodology and check comprehension of all questions. Since no issues were reported regarding the questions, no further changes were made to the questionnaire.

The pre-test data were not included in the sample or final data analysis.

DATA COLLECTION

The final data collection was carried out between September 2021 and June 2023 by two undergraduate students and two Master's students, duly trained, in the waiting rooms of the clinics that treat children and adolescents, as well as in the entrance hall of the dentistry school. The data collection period was extended due to the COVID-19 pandemic, which resulted in changes to the dental care system at the school.

DATA ANALYSIS

The outcome variables were: "last visit to dentist" and; "satisfaction with teeth." The independent variables were: age (years), ethnicity, marital status, number of children, number of people in household, number of bedrooms, number of domestic appliances, household income, paid employment, educational level, need for dental treatment, toothache in last six months, location, reason for visit, rating, importance score, and personal values scale.

The null hypotheses tested were:

a) H0: There is no association between the independent variables and time since last visit to dentist.

b) H0: There is no association between the independent variables and satisfaction with teeth.

Initially, the data underwent descriptive analysis. Categorical variables were expressed as absolute and relative frequencies, and other variables as mean, standard deviation, and quartiles. Logistic regression models were fitted to explore the relationship between each independent variable

and the outcomes of interest (time since last visit to dentist and satisfaction with teeth). Variables with p<0.20 on individual analyses were selected for entry into multiple logistic regression models. Only variables that maintained p≤0.05 in the multiple models were considered significant in the final models. Odds ratios (OR), along with their respective confidence intervals (95% CI), were calculated from the regression models, providing a measure of the associations between the independent variables and outcomes. The goodness-of-fit of the regression models was assessed based on the Akaike Information Criterion (AIC). All analyses were performed using R software, version 4.3.3, with a significance level of 5%.

RESULTS

Data from 210 mothers of children and adolescents treated at a dental school were analyzed. The mothers had a mean age of 37.8 years (range 18-61 years). Mean level of toothache reported by the mothers in the last six months was 6.6 on a scale of 1 to 10 (Table 1)

Table 1. Descriptive analysis of quantitative variables for mothers of children and adolescents treated at a dental school (n=210).

Variable	Mean	Standard Deviation	Minimum	1st Quartile	Median	3rd Quartile	Maximum
Sociodemographics							
Age (years)	37.8	7.5	18.0	33.0	37.0	42.0	61.0
Number of children	2.3	1.2	1.0	1.0	2.0	3.0	
Number of people in household	4.0	1.4	1.0	3.0	4.0	5.0	9.0
Number of bedrooms	3.1	1.5	1.0	2.0	3.0	4.0	8.0
Number of domestic appliances	7.6	3.4	1.0	5.0	7.0	10.0	20.0
Oral morbidity							
Toothache level in last 6 months	6.6	3.0	1.0	5.0	7.0	10.0	10.0

In terms of ethnicity, most participants self-identified as white (44.3%) or brown (33.8%). Regarding marital status, 53.3% of the mothers reported being married. For occupation, 55.2% of the participants stated they were not engaged in paid employment. Concerning education, the majority of mothers (56.2%) had completed high school level. Furthermore, most of the children/adolescents were receiving care in the area of Pediatric Dentistry, representing 64.8% of the sample. Overall, 77.6% of the mothers believed they needed dental treatment, with 51.9% experiencing toothache in the last six months. Additionally, 55.7% stated they had last visited the dentist less than a year ago, with 49.0% using public services. Regarding, the rating given by mothers for their last visit, 70.5% rated it as very good or good. When probed about satisfaction with their teeth, 42.3% of respondents reported being very dissatisfied or dissatisfied (Table 2).

Table 2. Descriptive analysis of sociodemographics, oral morbidity and dental services use among mothers of children and adolescents treated at a dental school (n=210).

Sociodemographic Variable	Category	Frequency n (%)
Ethnicity	Black	36 (17.1%)
	White	93 (44.3%)
	Yellow	3 (1.4%)
	Brown	71 (33.8%)
	Indigenous	2 (1.0%)
	Not reported	5 (2.4%)
Marital Status	Single	47 (22.4%)
	Married	112 (53.3%)
	Common-law marriage	21 (10.0%)
	Divorced	13 (6.2%)
	Widowed	4 (1.9%)
	Not reported	13 (6.2%)
Clinic attended by child	Pediatric dentistry service	136 (64.8%)
	Orthodontics service	17 (8.1%)
	Public health service III	37 (17.6%)
	Not Reported	20 (9.5%)
Household Income (Brazilian Reais)	≤ 250	12 (5.7%)
	251-500	7 (3.3%)
	2,501-4,500	36 (17.1%)
	4,501-9,500	14 (6.7%)
	> 9,500	0 (0.0%)
	Does not know	15 (7.1%)
	Not reported	10 (4.8%)
Paid Employment	Yes	83 (39.5%)
	No	116 (55.2%)
	Not reported	11 (5.2%)
Education Level	Elementary school 1	12 (5.7%)
	Elementary school 2	27 (12.9%)
	High school	118 (56.2%)
	Higher education	39 (18.6%)
	Specialization	5 (2.4%)
	Master's	0 (0.0%)
	Doctorate	0 (0.0%)
	No formal study	2 (1.0%)
	Does not know	2 (1.0%)
	Not reported	5 (2.4%)
Course completed	Yes	139 (66.2%)
	No	50 (23.8%)
	Not reported	21 (10.0%)
Oral morbidity and dental services use		
Need for dental treatment	Yes	163 (77.6%)
	No	41 (19.5%)
	Not reported	6 (2.9%)
Toothache in last 6 months	Yes	109 (51.9%)
	No	96 (45.7%)
	Not reported	5 (2.4%)
Visit to dentist (ever)	Yes	196 (93.3%)
	No	11 (5.2%)
	Not reported	3 (1.4%)
Time since last dental visit	<1 year	117 (55.7%)
	1-2 years	43 (20.5%)
	≥3 years	32 (15.2%)
	Does not know	12 (5.7%)
	Not reported	6 (2.9%)
Location of visit	Public service	103 (49.0%)
	Private service	61 (29.0%)
	Health plan or insurance	27 (12.9%)
	Others	8 (3.8%)
	Does not know	4 (1.9%)
	Not reported	7 (3.3%)

Oral morbidity and dental services use		
Reason for last visit	Return, prevention, or check-up	44 (21.0%)
	Pain	54 (25.7%)
	Extraction	27 (12.9%)
	Treatment	68 (32.4%)
	Others	12 (5.7%)
	Not reported	5 (2.4%)
Rating of last visit	Very good	76 (36.2%)
	Good	72 (34.3%)
	Fair	35 (16.7%)
	Poor	14 (6.7%)
	Very poor	8 (3.8%)
	Not reported	5 (2.4%)
Satisfaction with teeth	Very satisfied	19 (9.0%)
	Satisfied	49 (23.3%)
	Neither satisfied nor dissatisfied	35 (16.7%)
	Dissatisfied	57 (27.1%)
	Very dissatisfied	32 (15.2%)
	Does not know	8 (3.8%)
	Not reported	10 (4.8%

Regarding the importance attributed by mothers to oral health, on a scale of 1 (not important) to 5 (extremely important), the conditions in descending order were (mean; standard deviation): having no cavities or inflammation (4.82; 0.55), not feeling pain (4.77; 0.64), being able to eat (4.77; 0.56), not having bad breath (4.74; 0.69), being able to communicate well (4.73; 0.62), not having broken or worn teeth (4.67; 0.70), having many teeth (4.45; 0.92), having aligned teeth (4.34; 0.88), and having white teeth (4.25; 0.92). The importance score attributed by mothers to oral health was a mean of 4.6, with a standard deviation of 0.7.

When probed about personal values, on a scale of 1 (not important) to 6 (supreme importance), these were ranked in the following (descending) order (mean; standard deviation): health (5.75; 0.57), education (5.72; 0.62), responsibility (5.70; 0.58), honesty (5.68; 0.60), hope (5.68; 0.63), equality (5.67; 0.61), politeness (5.67; 0.57), oral health (5.65; 0.70), world peace (5.64; 0.80), loyalty (5.63; 0.77), freedom (5.60; 0.64), forgiveness (5.60; 0.68), self-respect (5.59; 0.79), social justice (5.56; 0.79), intelligence (5.47; 0.72), and hygiene (5.41; 1.16).

The results for the analyses of the association with time since last dental visit are presented in Table 3. When analyzing each variable individually, a significant association was found between the reason for the last visit and the outcome ($p<0.05$). Additionally, the variables marital status and rating of last visit had a value of $p<0.20$ on the individual analyses. These variables were therefore entered in the multiple model. The variables reason for last visit and rating of last visit were statistically significant ($p<0.05$). Mothers whose last visit was for extraction, treatment, other reasons, or does not know (OR=3.83; 95% CI: 1.72-9.18) were more likely to have a longer interval since last dental visit compared to mothers who last visited for return, prevention, or check-up ($p<0.05$). Furthermore, respondents who rated their last visit as fair (OR=2.41; 95% CI: 1.09-5.48) were more likely to have a longer time interval since their last visit than mothers who rated their visit as very good or good ($p<0.05$).

Table 3. Crude and adjusted analyses of associations of last dental visit with sociodemographic variables, oral morbidity, services use, importance of oral health, and personal values scale for mothers of children and adolescents treated at a dental school.

Variable	Category	n (%)	Time since last dental visit		Crude OR (95%CI)	*p*-value	Adjusted OR (95%CI)	*p*-value
			<1 year	*≥1 year or does not know				
			n (%)	n (%)				
Age (years)	≤ 37 #	89 (51.4%)	51 (57.3%)	38 (42.7%)	Ref		-	-
	> 37	84 (48.6%)	49 (58.3%)	35 (41.7%)	0.96 (0.52; 1.75)	0.8910		
Ethnicity								
	White	90 (45.0%)	55 (61.1%)	35 (38.9%)	0.79 (0.45; 1.40)	0.4203	-	-
	Black, Yellow, Brown, or Indigenous	110 (55.0%)	61 (55.5%)	49 (44.5%)	Ref			
Marital Status								
	Married or Common-law marriage	128 (66.7%)	68 (53.1%)	60 (46.9%)	1.81 (0.97; 3.38)	0.0643	-	-
	Single, divorced, or widowed	64 (33.3%)	43 (67.2%)	21 (32.8%)	Ref			
Number of children								
	≤ 2 #	125 (62.5%)	73 (58.4%)	52 (41.6%)	0.96 (0.54; 1.71)	0.8824	-	-
	> 2	75 (37.5%)	43 (57.3%)	32 (42.7%)	Ref			
Number of people in household								
	≤ 4 #	132 (67.0%)	73 (55.3%)	59 (44.7%)	1.48 (0.80; 2.73)	0.2136	-	-
	> 4	65 (33.0%)	42 (64.6%)	23 (35.4%)	Ref			
Number of bedrooms	≤ 3 #	130 (67.0%)	73 (56.2%)	57 (43.8%)	Ref		-	-
	> 3	64 (33.0%)	39 (60.9%)	25 (39.1%)	0.82 (0.45; 1.51)	0.5262		
Number of domestic appliances	≤ 7 #	90 (51.7%)	52 (57.8%)	38 (42.2%)	Ref		-	-
	> 7	84 (48.3%)	49 (58.3%)	35 (41.7%)	0.98 (0.54; 1.79)	0.9408		
Household income	≤R$2,500	132 (67.3%)	79 (59.8%)	53 (40.2%)	Ref		-	-
	> R$2,500 or Does not know	64 (32.7%)	35 (54.7%)	29 (45.3)	1.24 (0.68; 2.26)	0.4924		
Paid employment								
	Yes	83 (42.3%)	49 (59.0%)	34 (41.0%)	0.84 (0.48; 1.50)	0.5608	-	-
	No	113 (57.7%)	62 (54.9%)	51 (45.1%)	Ref			

Variable	Category	n (%)	Time since last dental visit		Crude OR (95%CI)	*p*-value	Adjusted OR (95%CI)	*p*-value
			<1 year	*≥1 year or does not know				
			n (%)	n (%)				
Education					0.75 (0.39; 1.45)	0.3874	-	-
	Up to high school level	155 (77.1%)	92 (59.4%)	63 (40.6%)				
	Above high school level	46 (22.9%)	24 (52.2%)	22 (47.8%)	Ref			
Course Completed					1.14 (0.59; 2.19)	0.7058	-	-
	Yes	137 (73.7%)	74 (54.0%)	63 (46.0%)				
	No	49 (26.3%)	28 (57.1%)	21 (42.9%)	Ref			
Need for dental treatment					1.38 (0.68; 2.81)	0.3696	-	-
	Yes	160 (79.6%)	89 (55.6%)	71 (44.4%)				
	No	41 (20.4%)	26 (63.4%)	15 (36.6%)	Ref			
Variable	Category	n (%)	Time since last dental visit		Crude OR (95% CI)	*p*-value	Adjusted OR (95% CI)	*p*-value
			< 1 year	*> 1 year or does not know				
			n (%)	n (%)				
Toothache in last 6 months	Yes	106 (52.5%)	62 (58.5%)	44 (41.5%)	Ref		-	-
	No	96 (47.5%)	54 (56.3%)	42 (43.8%)	1.10 (0.63; 1.92)	0.7478		
Location of visit	Public service	100 (50.0%)	61 (61.0%)	39 (39.0%)	Ref		-	-
	Private service, health plan, insurance, others or Does not know	100 (50.0%)	53 (53.0%)	47 (47.0%)	1.39 (0.79; 2.43)	0.2538		
Reason for last visit	Return, prevention, or check-up	43 (21.3%)	33 (76.7%)	10 (23.3%)	Ref		-	-
	Pain	52 (25.7%)	30 (57.7%)	22 (42.3%)	2.42 (0.99; 5.93)	0.0533	2.30 (0.93; 5.97)	0.0759
	Extraction, treatment, others, or Does not know	107 (53.0%)	52 (48.6%)	55 (51.4%)	3.49 (1.56; 7.79)	0.0023	3.83 (1.72; 9.18)	0.0015

Variable	Category	n (%)	Time since last dental visit		Crude OR (95%CI)	*p*-value	Adjusted OR (95%CI)	*p*-value
			<1 year	*≥1 year or does not know				
			n (%)	n (%)				
Rating of last visit	Very good or good	147 (72.8%)	91 (61.9%)	56 (38.1%)	Ref		Ref	
	Fair	34 (16.8%)	15 (44.1%)	19 (55.9%)	2.06 (0.97; 4.38)	0.0607	2.41 (1.09; 5.48)	0.0312
	Poor, very poor, or Does not know	21 (10.4%)	9 (42.9%)	12 (57.1%)	2.17 (0.86; 5.47)	0.1018	2.53 (0.97; 6.90)	0.0612
Total correct beliefs held about oral health	≤ 5 #	105 (51.5%)	62 (59.0%)	43 (41.0%)	1.15 (0.66; 2.01)	0.6143	-	-
	> 5	99 (48.5%)	55 (55.6%)	44 (44.4%)	Ref			
Importance score	≤ 4.8 #	111 (59.0%)	61 (55.0%)	50 (45.0%)	Ref		-	-
	> 4.8	77 (41.0%)	44 (57.1%)	33 (42.9%)	0.92 (0.51; 1.64)	0.7664		
Total correct knowledge held about oral health	≤ 18 #	134 (65.7%)	75 (56.0%)	59 (44.0%)	0.85 (0.47; 1.52)	0.5807	-	-
	> 18	70 (34.3%)	42 (60.0%)	28 (40.0%)	Ref			
Personal values scale – oral health	Not important, very little importance, little importance, important, or very important	49 (25.5%)	31 (63.3%)	18 (36.7%)	Ref		-	-
	Supreme importance	143 (74.5%)	80 (55.9%)	63 (44.1%)	1.36 (0.70; 2.65)	0.3713		

*Outcome event. # Sample median. Ref: Reference category for independent variables. OR: Odds ratio. CI: Confidence interval. AIC (empty model) = 299.00. AIC (final model) = 266.54.

On the analyses of individual associations with satisfaction with teeth, the variables number of domestic appliances, education, need for dental treatment, location of visit, and reason for last visit were significant ($p<0.05$) (Table 4). Additionally, the variables ethnicity, number of children, number of bedrooms in the residence, household income, paid employment, and presence of toothache in the last 6 months had a value of $p<0.20$. Thus, all these variables were entered in the multiple model, on which only the variables education, need for dental treatment, and reason for last visit remained significant

in the final model (p<0.05). Mothers with lower education (OR=2.49; 95% CI: 1.16-5.37), need for dental treatment (OR=6.57; 95% CI: 2.98-15.20), and whose last visit was for pain (OR=3.08; 95% CI: 1.23-7.96) or procedures for extraction, treatment, other reasons, or don't know (OR=3.38; 95% CI: 1.49-7.83) were more likely to be less satisfied with the condition of their teeth (p<0.05).

Table 4. Crude and adjusted analyses of associations between satisfaction with teeth and sociodemographic variables, oral morbidity, services use, importance of oral health, and personal values scale for mothers of children and adolescents treated at a dental school

Variable	Category	n (%)	Satisfaction with Teeth		Crude OR (95% CI)	*p*-value	Adjusted OR (95% CI)	*p*-value
			Very satisfied and satisfied	* *Neither satisfied nor dissatisfied. dissatisfied. very dissatisfied. or does not know				
			n (%)	n (%)				
Age (years)	≤ 37 #	88 (51.8%)	29 (33.0%)	59 (67.0%)	Ref		-	-
	> 37	82 (48.2%)	29 (35.4%)	53 (64.6%)	0.90 (0.48; 1.69)	0.7404		
Ethnicity	White	91 (46.4%)	35 (38.5%)	56 (61.5%)	0.67 (0.37; 1.22)	0.1876	-	-
	Black. Yellow. Brown. or Indigenous	105 (53.6%)	31 (29.5%)	74 (70.5%)	Ref			
Marital Status	Married or Common-law marriage	130 (68.4%)	43 (33.1%)	87 (66.9%)	1.09 (0.57; 2.07)	0.7943	-	-
	Single. divorced. or widowed	60 (31.6%)	21 (35.0%)	39 (65.0%)	Ref			
Number of children	≤ 2 #	122 (62.2%)	46 (37.7%)	76 (62.3%)	0.61 (0.33; 1.15)	0.1267	-	-
	> 2	74 (37.8%)	20 (27.0%)	54 (73.0%)	Ref			
Number of people in household	≤ 4 #	128 (66.3%)	45 (35.2%)	83 (64.8%)	0.94 (0.50; 1.77)	0.8566	-	-
	> 4	65 (33.7%)	22 (33.8%)	43 (66.2%)	Ref			
Number of bedrooms	≤ 3 #	129 (67.5%)	39 (30.2%)	90 (69.8%)	Ref		-	-
	> 3	62 (32.5%)	27 (43.5%)	35 (56.5%)	0.56 (0.30; 1.05)	0.0714		
Number of domestic appliances	≤ 7 #	93 (52.5%)	23 (24.7%)	70 (75.3%)	Ref		-	-
	> 7	84 (47.5%)	37 (44.0%)	47 (56.0%)	0.42 (0.22; 0.79)	0.0073		
Household income	≤ R$2,500	130 (67.4%)	40 (30.8%)	90 (69.2%)	Ref		-	-
		63 (32.6%)	26 (41.3%)	37 (58.7%)	0.63 (0.34; 1.18)	0.1507		

Variable	Category	n (%)	Satisfaction with Teeth		Crude OR (95% CI)	*p*-value	Adjusted OR (95% CI)	*p*-value
			Very satisfied and satisfied	* *Neither satisfied nor dissatisfied. dissatisfied. very dissatisfied. or does not know				
			n (%)	n (%)				
	> R$2,500 or Don't know							
Paid employment	Yes	81 (42.2%)	34 (42.0%)	47 (58.0%)	0.56 (0.31; 1.02)	0.0594	-	-
	No	111 (57.8%)	32 (28.8%)	79 (71.2%)	Ref			
Education							2.49 (1.16;	
	Up to high school level	152 (77.6%)	45 (29.6%)	107 (70.4%)	2.60 (1.31; 5.17)	0.0063	5.37)	0.0194
	Above high school level	44 (22.4%)	23 (52.3%)	21 (47.7%)	Ref		Ref	
Course Completed	Yes	135 (73.4%)	44 (32.6%)	91 (67.4%)	1.20 (0.61; 2.38)	0.5995	-	-
	No	49 (26.6%)	18 (36.7%)	31 (63.3%)	Ref			

Variable	Category	n (%)	Satisfaction with Teeth		Crude OR (95% CI)	*p*-value	Adjusted OR (95% CI)	*p*-value
			Very satisfied and satisfied	*Neither satisfied nor dissatisfied. dissatisfied. very dissatisfied. or does not know				
			n (%)	n (%)				
Need for dental treatment	Yes	157 (80.1%)	42 (26.8%)	115 (73.2%)	4.89 (2.32; 10.28)	<0.0001	6.57 (2.98; 15.20)	<0.0001
	No	39 (19.9%)	25 (64.1%)	14 (35.9%)	Ref		Ref	
Toothache in last 6 months	Yes	104 (52.8%)	30 (28.8%)	74 (71.2%)	Ref		-	-
	No	93 (47.2%)	38 (40.9%)	55 (59.1%)	0.59 (0.32; 1.06)	0.0777		

Variable	Category	n (%)	Satisfaction with Teeth		Crude OR (95% CI)	*p*-value	Adjusted OR (95% CI)	*p*-value
			Very satisfied and satisfied	*Neither satisfied nor dissatisfied. dissatisfied. very dissatisfied. or does not know				
			n (%)	n (%)				
Location of visit	Public service	98 (50.3%)	25 (25.5%)	73 (74.5%)	Ref		-	-
	Private service, health plan, insurance, others, or Does not know	97 (49.7%)	40 (41.2%)	57 (58.8%)	0.49 (0.27; 0.90)	0.0207		
Reason for last visit	Return, prevention, or check-up	42 (21.3%)	23 (54.8%)	19 (45.2%)	Ref		Ref	
	Pain	53 (26.9%)	16 (30.2%)	37 (69.8%)	2.80 (1.20; 6.51)	0.0169	3.08 (1.23; 7.96)	0.0179
	Extraction, treatment, others, or Does not know	102 (51.8%)	28 (27.5%)	74 (72.5%)	3.20 (1.52; 6.75)	0.0023	3.38 (1.49; 7.83)	0.0039
Rating of last visit	Very good or good |	144 (73.1%)	53 (36.8%)	91 (63.2%)	Ref		-	-
	Fair	32 (16.2%)	8 (25.0%)	24 (75.0%)	1.75 (0.73; 4.17)	0.2081		
	Poor, very poor, or Don't know	21 (10.7%)	6 (28.6%)	15 (71.4%)	1.46 (0.53; 3.98)	0.4639		
	> 5	100 (50.0%)	36 (36.0%)	64 (64.0%)	Ref			
Importance of oral health score	≤ 4.8 #	113 (59.8%)	34 (30.1%)	79 (69.9%)	Ref		-	-
	> 4.8	76 (40.2%)	27 (35.5%)	49 (64.5%)	0.78 (0.42; 1.45)	0.4334		
	> 18	69 (34.5%)	26 (37.7%)	43 (62.3%)	Ref			
Personal values scale - oral health	Not important, very little importance, little importance, important, or very important |	50 (26.0%)	18 (36.0%)	32 (64.0%)	Ref		-	-
	Supreme importance	142 (74.0%)	47 (33.1%)	95 (66.9%)	1.14 (0.58; 2.23)	0.7094		

* Outcome event. # Sample median. Ref: Reference category for independent variables. OR: Odds ratio. CI: Confidence interval. AIC (empty model) = 241.5 (final model) = 219.66.

DISCUSSION

This study investigated satisfaction with teeth and dental service use among mothers of children and adolescents treated at the School of Dentistry at Araraquara, FOAr/UNESP.

Participants had a mean age of 37.8 years, while 44.3% identified as white and 33.8% as brown. With regard to education, 56.2% had completed high school level. Studies show that socioeconomic factors influence access to oral health information [22,23,24].

The study results revealed that 55.7% of mothers reported having visited the dentist within the past year, and average toothache level was 6.6 on a scale of 10. In the study of Domingues [25], the oral health of mothers was associated with frequency of dental visits. Castilho et al. [26] found that the frequency with which pregnant women visited the dentist was low. Although the Ministry of Health has developed strategies to facilitate access to prenatal dental care, including brochures, the National Oral Health Policy, and the Previne Brasil Program [27,28,29], it is essential to overcome barriers that continue to limit access to prenatal dental care and ensure that dental visits become routine.

In the present study, reasons such as extraction and treatment needs were associated with longer time elapsed since last visit, while returns, prevention, and check-ups were associated with more recent visits. A high prevalence of dental visits for prevention within the last year was observed among adults [30]. In the study by Fonseca et al. [31], pain and extraction were the main reasons for visits conducted within the last year. Fagundes et al. [32] analyzed data from the 2019 National Health Survey on dental care in the last year. The authors found that less than half (48.2%) of Brazilian adults surveyed had visited the dentist in the past year. They also noted that the use of public dental services in the past year was higher among adults who reported a higher number of missing teeth and a poorer perceived oral health. Results reported by different studies are conflicting in that the reason for visiting the dentist after a longer period was curative in some cases yet preventive in others. These differences can be explained by the cultural characteristics of the samples, patient age, region, etc.

In terms of evaluation of the last dental visit, 70.5% of respondents rated the service as good or very good, indicating a high level of satisfaction with the dental care provided. Almost half (49%) of the visits involved public health services. According to data from the first cycle of the National Program for the Improvement of Access and Quality in Primary Care conducted between 2012 and 2013, the majority (77%) of users of Primary Care, the service where most dental procedures are offered, reported being satisfied with the care received [33]. Data from the latest national oral health survey showed that only a small minority of adults were dissatisfied with dental care services [34]. Satisfaction with care and treatment offered under Brazil´s Unified Health System (SUS) can encourage the population to continue using the service.

The results of the present study showed that mean importance score attributed to oral health was 4.6, indicating that the participants considered oral health an important factor. The dissatisfaction rate with teeth was 42.3%, proving higher among respondents who had lower educational level, needed dental treatment, and had visited the dentist for pain, treatment, or other reasons. These results are similar to the findings of Moimaz et al. [35]. Today, a smile is considered a fundamental element of a person's aesthetics and self-esteem, leading to high demand for aesthetic procedures, especially among individuals who can afford the service [36].

Indeed, some results of the present study showed that dental aesthetics was deemed a factor with similar importance to function. According to Rocha et al. [36], a good smile aesthetic is strongly associated with good self-esteem, and some individuals avoid going to the dentist or smiling because they are unhappy with their smile. Thus, strategies, both in the public and private sectors, that

encourage the population and health professionals to recognize oral health not only as the ability to smile, but also to speak, smell, taste, touch, chew, swallow, and convey a range of emotions through facial expressions with confidence and without pain, discomfort, or disease of the craniofacial complex, are fundamental [1].

The current findings showed that mothers deem oral health extremely important and define it as having no cavities, inflammation, pain or bad breath, and being able to eat. Considering that childhood is the ideal time to establish healthy oral habits that can last a lifetime, and that children depend on their caregivers to maintain oral health [37], as well as the relationship between maternal habits and children's habits [38], mothers´ emphasis on oral health is believed to contribute to good oral health of their children.

On the personal values scale, all principles were classified by respondents as important or very important most of the time. Politeness, honesty, intelligence, health, responsibility, hope, forgiveness, freedom, oral health, equality, education, loyalty, self-respect, world peace, social justice, and hygiene were the most frequently marked. According to Djehizian and Spinola [38], values are responsible for determining the principles by which society confers meaning and value to the elements that constitute its culture.

Values related to personal responsibility, self-care, and well-being have the potential to promote healthy behaviors, such as maintaining an adequate oral hygiene routine, including regular brushing, flossing, and seeking dental care [39]. Recognizing the importance of values as guides for individual actions, health promotion strategies should encourage the consolidation of health-oriented values, promoting sustainable changes in oral health behaviors [41].

The results of the regression analyses on satisfaction with teeth showed that lower educational level, self-reported need for dental treatment, and reason for last visit (need for treatment) were associated with greater dissatisfaction with teeth. Additionally, the reason (need for treatment) and rating (fair) of last dental visit were statistically associated with a longer time elapsed since last dental visit. Mothers with lower educational level may have faced barriers related to access, such as lack of infrastructure, coverage, and planning of services [42], as well as a lack of oral health literacy, resulting in a greater need for treatment and impacting satisfaction with their teeth. Educational level is also one of the factors that influences the seeking of preventive or follow-up dental visits, since low-educated individuals tend to seek dental care only when there is a need for treatment [43].

In fact, a study conducted by Moimaz et al. [35] found that the need for maternal dental treatment was associated with low educational level. In the study of Bado et al. [40], significant associations were also found between poor self-rated oral health and reason for dental visits, as well as between educational level, reason for dental visits, and poor oral health-related quality of life. More recently, Knorst et al. [44] conducted a systematic review of observational studies to assess the association between socioeconomic level and oral health-related quality of life in children, adolescents, and adults. The results revealed that individuals with lower socioeconomic status had poorer oral health-related quality of life. According to the authors, socioeconomically disadvantaged individuals are more susceptible to risk factors that can negatively impact the functional, psychological, and social dimensions of oral health-related quality of life. Lastly, they suggest the implementation of public policies aimed at reducing social inequalities and improving quality of life indicators.

Considering that lower satisfaction with teeth and longer time elapsed since last dental visit were associated with perceived need for treatment, strategies to facilitate access to oral health services, as well as health promotion and disease prevention actions, are necessary for this population group.

Additionally, the inclusion of content on oral disease prevention in curricula of non-dental health professionals, training of interprofessional teams in oral health promotion and the use of referral protocols, are fundamental steps toward expanding the reach of oral health promotion for both mothers and their children.

Lastly, given the central role of knowledge acquisition in the process of adopting healthy behaviors, educational interventions and inclusive accessible public policies can be effective in improving adherence to the regular use of dental services and appropriate oral hygiene practices.

The study's limitations include its cross-sectional design, which prevents establishing causal relationships, and the sample size, highlighting the need for further research with larger samples. Additionally, the lack of an estimate for the number of mothers attending the dental school makes it impossible to assess the representativeness of the sample.

Future studies should aim to include larger samples, incorporate clinical examinations, and employ broader and more robust data collection instruments to more effectively identify and understand the specific oral health needs of this population.

CONCLUSION

Mothers' perceptions of their oral health appeared to be negative as, although most had visited the dentist recently, they still reported needing treatment, experiencing toothache, and being dissatisfied with their teeth.

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