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Original Article

Relationship between Perception of Oral Health, Clinical Conditions and Socio-Behavioral Factors of Mother-Child

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Abstract

Objective: To verify a mother's perception about her and her child`s oral health as well as to analyze its association with socio-behavioral factors. **Material and Methods:** The study was conducted with 73 pairs of mother and child, through interviews, using a semi-structured questionnaire and clinical exam. The clinical variables studied were: caries prevalence and gingival diseases and nonclinical variables: socio-behavioral factors, perception and habits. Bivariate analyzes, logistic regression and odds ratio ($p \leq 0.05$ and 95% CI) were employed. **Results:** Most mothers considered their oral health as poor (57.5%) and their children as good (68.5%). In the multivariate analysis, measures of self-perception of oral health were significantly associated with the presence of caries in the mother ($p < 0.01$), and oral health perception of the child was related to the presence of caries ($p < 0.01$) and marital status (0.05). **Conclusion:** The clinical and behavioral factors were associated with the measures of perceived oral health.

Keywords: Dental Caries; Oral Health; Risk Factors; Socioeconomic Factors.

Introduction

The oral health status of a person affects their entire overall health. The patient's behavior in seeking dental treatment is affected by perceptions and the importance that the patient gives to their oral health [1] and not only by their need for treatment. Therefore, for a patient, in addition to the quantitative data of a disease (clinical signs), it is important to analyze the qualitative data, that is, to not only know the clinical condition of the sick individual, but also how the individual recognizes him/herself, as well as his/her conception regarding oral health.

The clinical situation only takes the opinion of the professional into account and ignores the understanding of the individual. Yet the use of measures that assess how a person thinks about his/her health is valuable, such as self-perception, making it possible to check for the possibility of changes in behavior. When the patient is motivated and aware of their own condition, there is an interest to take care of their health and improve their quality of life [2].

The perception is subjective, combining physical components and emotional wellness, being influenced by behaviors related to health care [3]. It is related to clinical factors, such as missing teeth or decayed teeth, and subjective factors such as disease symptoms or desire to smile, speak or chew [4].

Public health programs that are planned and assessed based only on the clinical factors interpreted by the professional may have incomplete information for the individual seeking care because they do not prioritize groups that are really in need. So it is important to understand the relationship between self-perceived oral health and the impact it may have on the quality of life. Data on self-perception serve to complement the clinical indicators routinely used by dentists and are attempts to obtain a way that facilitates the collection of data, both individually as well as socially [1-3,5].

The perception of individuals about their oral health may be related to clinical conditions as well as socioeconomic and behavioral conditions, such as caries index, family income, educational level, and even visits to the dentist [6-10].

The attitude of parents and their perception has been considerably investigated in the prevention of early childhood caries [10]. The health and well-being of children and youths are dependent on the practices and beliefs of the primary caregiver. For this reason, several psychosocial and behavioral factors of early childhood caries differ from factors for tooth decay in older children [11].

Therefore, the objective of the present study was to investigate the association between a mother's perception about her and her child´s oral health, as well as its association with the clinical and socio-behavioral factors.

Material and Methods

This observational cross-sectional study was conducted in 2006. Ten schools registered in the School A cross-sectional study was conducted with research subjects of the longitudinal study of

births started in 2007 in the northwestern region of São Paulo – Brazil [12], which aimed to analyze the health of both mother and child from pregnancy to the complete age of four of the child.

The final sample consisted of 73 pairs of mothers and children, a number obtained by calculation through finite populations [13]. To calculate the sample size, the prevalence of caries in deciduous teeth was considered, according to the literature in 35% [14], the significance level (α = 0.05), the absolute sampling error (6.4%) and the finite population during the study period (March-July 2007) (N = 120) [13].

Inclusion criteria for sample selection were: pregnant women enrolled in the public health service (Basic Health Units), in the period from March to July 2007, who were pregnant in the last trimester of pregnancy. The study excluded those who refused to sign the consent form and those who were not in their last trimester of pregnancy and those who have changed their address and were not found in their homes for the four years of monitoring. After four years of monitoring, the total sample consisted of 73 pairs of mothers and children.

A pilot study was conducted, with a population similar to the main study, to calibrate the researchers, setting instrument of data collection and clinical examination of the child and the mother, with a team of an interviewer and a recorder. In the intra-observer agreement test, the Kappa test was 0.91.

Data were collected using a semi-structured questionnaire, pre-tested in a pilot study, containing variables such as socioeconomic, behavioral, and self-perception of oral health. At the full four years of age (2011), the mothers were interviewed again in their homes with a questionnaire about their perception of the dental health of their child.

The non-clinical variables studied were: socioeconomic and behavioral factors - family income (up to 2 minimum wages – R$ 1,356.00 and 2 or more minimum wages), maternal education (up to 12 years of study – up to completion of high school and 12 years of study or more), maternal employment (yes or no), living with a partner (yes and no), primigravida, ie first pregnancy (yes or no) and mother and child going to the dentist in the last 12 months (yes and no).

Physical examinations were performed on the mother and child using the World Health Organization (WHO diagnostic criteria)[15]. The tests were made using a dental mirror and probe (WHO probe CPI) for epidemiological surveys under natural light, with the examiner and the patient seated. The clinical measures examined were: the dmft (equal to 0 and $\geq$ 1) and DMFT indexes (low - up 6.0 or high - $\geq$ 6.0), decayed teeth of the mother and child (yes and no), the mother´s lost teeth (yes and no), and severe gingival diseases in the mother, ie, periodontal loss (yes and no).

The dependent variable was recorded by the question: How do you assess your oral health / how do you assess the oral health of your child. Responses were based on the 5-point Likert scale (bad, poor, regular, excellent and good) and subsequently dichotomized as bad (bad, poor and regular) and good (excellent and good) of mother and child. We recorded the mother's perception about the presence of dental and gengival diseases in her mouth and her child´s (yes and no).

At the end of all the interviews, the questionnaires and medical records were reviewed by the staff for further typing in the analysis programs. The data were processed using the Epi Info 2000 program [16] and analyzed with the Biostat program version 5.3 of free distribution[17].

The statistical analysis included the descriptive and inferential analysis, with a significance level of $p \leq 0.05$ and a confidence interval (CI) of 95%.

The variables that had a p-value of ≤ 0.20 were included in the analysis of multiple logistical regression. The results were presented using frequencies and an Odd Ratio (OR) with a 95% CI.

This study was approved by the Ethics and Human Research of the Araçatuba School of Dentistry - FOA / UNESP and informed consent was obtained by the research subject before the start of the interviews and clinical examination.

Results

Most mothers assessed their oral health (n = 42 to 57.5%) as bad and the children (n = 50 to 68.5%) as good.

The average age of mothers at childbirth was 29,9 (± 5,7) years. The DEFT average of the mother was 12.07 (± 6.10), the filled teeth element (58.2%) was the most prevalent in pregnant women, followed by the caries (21.2%) and extracted (20.6%) elements. Most mothers had periodontal pockets of up to 3 mm (75.3% - 55).

In the bivariate analysis (table 1), the self-perceived oral health was associated with caries ($p < 0.01$) and the perception of dental problems in the mother was associated with the presence of caries ($p < 0.01$) and going to the dentist routinely ($p = 0.02$).

Table 1. Numerical distribution and percentage of mothers according to clinical and non-clinical measures of self-perception of oral health - Araçatuba, 2011.

	Self-perceived oral health				Have dental diseases?				Have gingival diseases?			
	Good n (%)	Bad n (%)	p	OR CI (95%	No n (%)	Yes n (%)	p	OR CI (95%	No n (%)	Yes n (%)	P	OR CI (95%
DEFT												
≤ 6	6 (8.2)	6 (8.2)	0.78	1.02	8 (11.0)	4 (5.5)	0.37	2.20	-	-	-	-
>6	25 (34.3)	36 (49.3)	0.29 – 3.61		29 (39.7)	32 (43.8)	0.60 – 8.11		-	-	-	-
Serious problem in the gengiva												
No	24 (32.9)	30 (41.1)	0.75	1.37	-	-	-	-	46 (63.0)	8 (11.0)	0.93	0.67
Yes	7 (9.6)	12 (16.4)	0.46 – 4.02		-	-	-	-	17 (23.3)	2 (2.7)	0.13 – 3.50	
Presence of caries in the mother												
No	15 (20.5)	5 (6.8)	<0.01	6.94	17 (23.3)	3 (4.1)	<0.01	9.35	-	-	-	-
Yes	16 (21.9)	37 (50.8)	2.15 – 22.34		20 (27.4)	33 (45.2)	2.43 – 35.97		-	-	-	-
Family income												
Up to 2 MS	26 (35.6)	39 (53.5)	0.40	0.40	32 (43.8)	33 (45.2)	0.73	0.58	57 (78.1)	8 (11.0)	0.65	2.37
≥ 2 MS	5 (6.8)	3 (4.1)	0.08 – 1.82		5 (6.9)	3 (4.1)	0.12 – 2.36		6 (8.2)	2 (2.7)	0.40 – 13.85	
Education												
Up to 12years	25 (34.3)	40 (54.8)	0.11	0.21	31 (42.5)	34 (46.6)	0.27	0.30	55 (75.3)	10 (13.7)	0.51	-
≥12 years	6 (8.2)	2 (2.7)	0.03 – 1.11		6 (8.2)	2 (2.7)	0.05 – 1.62		8 (11.0)	0 (0.0)	-	

Maternal employment												
No	16 (21.9)	20 (27.4)	0.92	1.17	18 (24.7)	23 (31.5)	0.28	0.53	36 (49.4)	5 (6.8)	0.93	1.33
Yes	15 (20.5)	22 (30.2)	0.46 – 2.97		19 (26.0)	13 (17.8)	0.21 – 1.36		27 (37.0)	5 (6.8)	0.35 – 5.07	
First pregnancy												
No	16 (21.9)	28 (38.4)	0.29	0.53	20 (27.4)	24 (32.9)	0.39	0.59	36 (49.3)	8 (11.0)	0.30	0.33
Yes	15 (20.5)	14 (19.2)	0.20 – 1.38		17 (23.3)	12 (16.4)	0.22 – 1.51		27 (37.0)	2 (2.7)	0.06 – 1.69	
Live with a partner												
No	24 (32.9)	33 (45.2)	0.87	0.93	27 (37.0)	30 (41.1)	0.43	0.54	49 (67.1)	8 (11.0)	0.79	0.87
Yes	7 (9.6)	9 (12.3)	0.30 – 2.86		10 (13.7)	6 (8.2)	0.17 – 1.68		14 (19.2)	2 (2.7)	0.16 – 4.59	
Routine visit to the dentist												
No	18 (24.7)	33 (45.2)	0.10	0.38	21 (28.8)	30 (41.1)	0.02*	0.26	42 (57.5)	9 (12.3)	0.26	0.22
Yes	13 (17.8)	9 (12.3)	0.13 – 1.05		16 (21.9)	6 (8.2)	0.08 – 0.78		21 (28.8)	1 (1.4)	0.02 – 1.87	
Tooth loss												
No	12 (16.4)	14 (19.2)	0.68	1.38	12 (16.4)	14 (19.2)	0.74	0.75	-	-	-	-
Yes	18 (24.7)	29 (39.7)	0.52 – 3.64		25 (34.3)	22 (30.1)	0.28 – 1.97		-	-	-	

The deft average of the children was 1.79 (± 2.88), and the caries element (81.5%) was the most prevalent, followed by the obturated (16.7%) and extracted (1.8%) elements.

No mother noticed problems in the gengiva of their child (table 2), however, almost 25% of the population confirmed problems in the oral health of their children. The mother´s perception of the child's oral health and the presence of dental diseases was associated with a higher deft (p = 0.01 and p <0.01, respectively) and the presence of caries in children (p = 0.05 and p <0 01, respectively). The perception of the oral health of the children was related to primigravida mothers, or who were in the first pregnancy (0.01).

Table 2. Numerical distribution and percentage of children according to the clinical and non-clinical variables of oral health with measures of mother's perception about the child's oral health - Araçatuba, 2011.

Variables	Perception of oral health of child				Has dental diseases			
	Good n (%)	Bad n (%)	P	OR CI 95%	No n (%)	Yes n (%)	p	OR CI 95%
Ceo								
0	32 (43.8)	7 (9.6)	0.01*	4.06	37 (50.7)	2 (2.7)	<0.01	16.44
≥1	18 (24.7)	16 (21.9)	1.41 – 11.72		18 (24.7)	16 (21.9)	3.40 – 79.37	
Presence of caries								
No	39 (53.4)	12 (16.4)	0.05*	3.25	44 (60.2)	7 (9.6)	<0.01	6.28
Yes	11 (15.1)	11 (15.1)	1.12 – 9.35		11 (15.1)	11 (15.1)	1.98 – 19.56	
Family income								
Up to 2 MS	45 (61.7)	20 (27.4)	0.98	1.35	49 (67.2)	16 (21.9)	0.68	1.02
≥ 2 MS	5 (6.8)	3 (4.1)	0.29 – 6.20		6 (8.2)	2 (2.7)	0.19 – 5.57	
Education								
Up to 12 years	44 (60.3)	21 (28.8)	0.99	0.69	50 (68.6)	15 (20.5)	0.64	2.00
≥12 years	6 (8.2)	2 (2.7)	0.13 – 3.76		5 (6.8)	3 (4.1)	0.42 – 9.36	
Maternal employment								
No	29 (39.8)	12 (16.4)	0.11	2.41	33 (45.2)	8 (11.0)	0.37	1.87
Yes	16 (21.9)	16 (21.9)	0.92 – 6.35		22 (30.1)	10 (13.7)	0.64 – 5.49	
First pregnancy								
No	31 (42.4)	13 (17.8)	0.01*	3.90	33 (45.2)	11 (15.1)	0.84	0.95
Yes	11 (15.1)	18 (24.7)	1.44 – 10.51		22 (30.1)	7 (9.6)	0.32 – 2.84	
Lives with partner								
No	42 (57.5)	15 (20.5)	0.13	2.80	44 (60.3)	13 (17.8)	0.71	1.54
Yes	8 (11.0)	8 (11.0)	0.89 – 8.78		11 (15.1)	5 (6.8)	0.45 – 5.24	
Routine visit to the dentist								

No	43 (58.9)	20 (27.4)	0.79	0.92	47 (64.4)	16 (21.9)	0.97	0.73
Yes	7 (9.6)	3 (4.1)	0.21 – 3.93		8 (11.0)	2 (2.7)	0.14 – 3.82	

Table 3 shows the multivariate analysis of the mother's perception about your oral health and your child with the study variables.

Table 3. Multiple logistical regression analysis between the variables and perceptions of oral health of the mothers and children - Araçatuba, 2011.

	Variables	p	Coefficient	Standard error	OR	CI (95%)
Self-perception of oral health	Presence of caries	p<0.01	1.77	0.62	5.88	1.75 – 19.79
	Trip to the dentist	0.14	0.84	0.58	2.32	0.75 – 7.18
	Education	0.30	0.98	0.95	2.65	0.41 – 17.21
Self-perception of dental diseases	Presence of caries	p<0.01	2.22	0.71	9.21	2.31 – 36.74
	Routine visit to the dentist	0.02*	1.31	0.60	3.73	1.14 – 12.15
Perception of oral health of child	Presence of caries	0,50	-0.69	0.21	0.49	0.06 – 3.90
	DMTF	0.01*	0.53	0.21	1.70	1.13 – 2.58
	Primigravida	0.95	-0.03	0.63	0.96	0.28 – 3.30
	Mother´s work	0.41	0.51	0.64	1.67	0.48 – 5.91
	Lives with partner	0.05*	1.43	0.74	4.20	0.98 – 17.98
Perception of child`s oral diseases	dmtf	0.03*	0.37	0.18	1.45	1.02 – 2.05
	Child´s caries	0.76	0.28	0.93	1.32	0.21 – 8.23

Discussion

The results of the present study revealed that mothers who presented poor oral conditions realized these conditions, and also realized the poor oral health status of their children. Moreover, the behavioral factor, such as the routine trip to the dentist, and social, such as marital status, was associated with the measures of oral health perception.

The data of self- perception are important to meet the individual's needs and to prioritize treatments for risk groups, but the international and national studies are scarce in relation to the perception of mothers about their own health and that of their children [2,10,13].

The self- perception may be related to socioeconomic and behavioral factors, such as income, education, maternal employment and regular visits to the dentist [6,7,10].

In the present study, there was no association with the measures of perception of oral health and socioeconomic factors. This can be explained by the homogeneity of this population, ie, the majority lived with a partner, had low income and low education. This finding was also pointed out in another study of school mothers of an oral health program with homogeneous characteristics in the population [18].

The behavioral factor, routine trip to the dentist, was associated with the extent of awareness about diseases in the teeth (p = 0.02), as a protective factor (OR = 0.26), this means that the greater the perception of oral health, the higher the frequency of dental visits [3]. The lack of routine visits

to the dentist increases the chances of the individual to perceive poorer oral health [19], as verified in the study.

The characteristics, attitudes and parental perceptions may not only influence the very use of dental services, but also the use of dental services for children, because children depend on their parents to visit the dentist [20].

The first-time mothers, or primigravida, tend to worry more about the health of their children [21], as observed in our study in the bivariate analysis ($p = 0.01$).

The mothers perceived gingival (16.4%) and dental diseases (49.3%) in their mouths. The clinical examination indicated that most mothers had periodontal problems with periodontal pockets up to 3 mm (75.3%), it is that they did not notice this problem. Periodontal diseases are infections that have exacerbated and tranquil periods that are not often diagnosed until irreparable damage occur in the teeth or buccal structures [22].

When only mothers who only had gingival bleeding were isolated, compared to mothers of healthy periodontium (n=5), there was no statistically significant difference ($p = 0.58$) between the presence of bleeding and their perception of gingival problems, suggesting that the onset of periodontal problems is discrete and there is difficulty for the patient to perceive the problem. Even when this is present, as also observed in another study, where it was realized that gingival bleeding was not an indicator of inflammatory disease for the patients, the search for professional care was difficult [23].

The perception of oral health is an important indicator of health because it summarizes the objective health condition, subjective responses, values and cultural expectations [1,17]. In the present study, most mothers perceived their oral health as bad (57.5%) and good (42.5%), and in relation to the child, the majority (68.5%) stated as good. No mother noticed gingival diseases in their children, but 24.7% of the mothers perceived diseases in their teeth.

It is often frequent, in dental care research or survey types, the difference between the account of the subject and the oral health condition observed by the professional. This suggests that clinical measures of health used by the dentist are relatively weak predictors of perceived oral health of people or that many diseases detected by examination are asymptomatic and probably unknown to the individual1.

Mothers who presented poor states of oral health realized this condition in the evaluation of self-perception ($p < 0.01$), these data supported with other study [24].

Children who had poor oral health conditions on clinical examination were reported in the perception of mothers ($p < 0.01$), as verified in another study conducted to evaluate the relationship between the knowledge of parents or guardians of the state and oral health status of their child [10]. There was a statistically significant association between the mother's perception about the presence of caries in their teeth ($p < 0.01$), and the mother's perception about the oral health of their child and of this oral condition ($p < 0.01$).

In the present study, mothers and children that presented dental caries or periodontal problems were referred for dental treatment and education meetings in oral health.

The mother is the nucleus of the family. She is the reference in the transmission of habits, customs and health practices [10,25]. t is of utmost importance to include the data of the mother in the child's treatment, since it is a reference to the child in health matters [18,26]. The unfavorable maternal perception to the child's oral health should be considered as a risk indicator, since she realizes the real risks when they present themselves [27].

In countries like Brazil, of continental dimensions, with pent-up demand and limited resources, prioritization can be based on the perception to identify groups of individuals most affected by psychosocial impacts produced by oral diseases. Therefore, these findings may be useful in identifying mothers and children most in need of care, as well as the disclosure of problems in self-esteem, a fundamental aspect to be addressed in health promotion strategies.

A limitation of the study was the sample size and this may explain why the study was extracted from the mothers accompanied by a larger longitudinal study. The nature of the questionnaire is also a limitation, since mothers and caregivers can provide answers that reflect how they wish to be perceived against answers that represent the true nature of the situation. Another limitation regarded the study design, of cross-sectional type and therefore had some biases, such as memory or social desirability, and inability to provide further evidence in the results, making the need for longitudinal studies necessary. It is necessary to carry out studies with a larger and more heterogeneous population to verify the relation of the variables with income and education.

Conclusion

The perception of oral health of mothers was associated with the observed clinical conditions. The presence of dental caries in children was perceived by the mother. Behavioral factors, such as live with partner and routine visit to the dentist, were associated with the measures of perception.

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