Child-parent agreement on Oral Health Knowledge, Self-Perception, and Behavior in Late Childhood and Early Adolescence

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Abstract:
This study aimed to investigate the proportion of agreement between parents and children on oral health knowledge, self-perception, and behavior in students aged 8–14 years. A cross-sectional study was conducted with 135 elementary school student-parent dyads. The participants completed a structured questionnaire that included closed questions with dichotomous and 5-point Likert scale items covering aspects related to their knowledge, beliefs, and myths about oral health, as well as their self-perception and behaviors. The proportion of child-parent agreement was calculated for each variable. Data were analyzed using Chi-square and Fisher's exact test. Multivariate linear regression models were performed to evaluate predictors of agreement. Child-parent dyads had significant agreement levels in most responses regarding oral health knowledge/beliefs than oral health self-perception and behaviors. The proportion of agreement was higher in questions about the relationship between sugar and dental caries (0.95, 95% CI: 0.90–0.98), the preventability of dental caries (0.94, 95% CI: 0.89–97), and the protective effect of tooth brushing (0.94, 95% CI: 0.88–0.97). In the multivariate regression model, the child's older age (Beta = 0.552, P = 0.003) and the higher parent education level (Beta = 0.254, P = 0.023) were predictors for greater agreement on oral health knowledge. The findings suggest that children and parents have high agreement on oral health knowledge; however, their agreement regarding oral health self-perception and behavior is low.
Keywords: Oral health, parent-child relations, health knowledge, health behavior, self-perception, socioeconomic factors.

Concordância pai-filho sobre conhecimentos, autopercepção e comportamentos de saúde bucal no final da infância e início da adolescência

Resumo:
Este estudo teve como objetivo investigar a proporção de concordância entre pais e filhos sobre conhecimento, autopercepção e comportamento em saúde bucal em escolares de 8 a 14 anos. Foi realizado um estudo transversal com 135 díades pais-alunos do ensino fundamental que responderam

a um questionário estruturado, com perguntas fechadas dicotômicas e do tipo Likert de 5 pontos, abordando aspectos relacionados aos seus conhecimentos, crenças e mitos, autopercepção e comportamentos em saúde bucal. A proporção de concordância entre pais e filhos foi calculada para cada variável. Os dados foram analisados usando o teste qui-quadrado, exato de Fisher e modelos de regressão linear multivariada para avaliar preditores de concordância. As díades pais-filho apresentaram níveis de concordância significativos na maioria das respostas sobre conhecimentos/crenças sobre saúde bucal do que sobre autopercepção e comportamentos de saúde bucal. A proporção de concordância foi maior em questões sobre a relação entre açúcar e cárie dentária (0,95, IC 95%: 0,90–0,98), a possibilidade de prevenção da cárie dentária (0,94, IC 95%: 0,89–97) e o efeito protetor de escovação dos dentes (0,94, IC 95%: 0,88–0,97). No modelo de regressão multivariada, a idade avançada da criança (Beta = 0,552, P = 0,003) e o maior nível de escolaridade dos pais (Beta = 0,254, P = 0,023) foram preditores de maior concordância no conhecimento sobre saúde bucal. Os achados sugerem que crianças e pais têm alta concordância no conhecimento sobre saúde bucal; no entanto, sua concordância em relação à autopercepção e comportamento de saúde bucal é baixa.
Palavras-chave: Saúde bucal, relações pais-filhos, conhecimentos em saúde, comportamentos relacionados com a saúde, autopercepção, fatores socioeconômicos.

Acuerdo padre-hijo sobre los conocimientos, la autopercepción y el comportamiento de la salud bucal en la infancia tardía y la adolescencia temprana

Resumen:
El objetivo de este estudio fue investigar la proporción de acuerdo entre padres e hijos sobre los conocimientos, la autopercepción y el comportamiento en materia de salud bucal en escolares de 8 a 14 años. Se realizó un estudio transversal con 135 díadas de padres y alumnos de primaria que respondieron a un cuestionario estructurado con preguntas cerradas dicotómicas y tipo Likert de 5 puntos, relativas a sus conocimientos, creencias y mitos, autopercepción y conductas de salud bucal. Se calculó la concordancia entre padres e hijos para cada variable. Los datos se analizaron mediante la prueba chi-cuadrado, exacta de Fisher y modelos de regresión lineal multivariante. Las díadas padres-hijos mostraron niveles significativos de acuerdo en la mayoría de las respuestas sobre conocimientos/creencias de salud bucal que sobre autopercepción y conductas. La proporción de acuerdo fue mayor en las preguntas sobre la relación entre el azúcar y la caries (0,95; IC 95%: 0,90-0,98), la posibilidad de prevenir la caries (0,94; IC 95%: 0,89-97) y el efecto protector del cepillado dental (0,94; IC 95%: 0,88-0,97). En el modelo de regresión multivariante, la mayor edad del niño (Beta = 0,552; P = 0,003) y el mayor nivel de escolarización de los padres (Beta = 0,254; P = 0,023) fueron predictores de un mayor acuerdo en los conocimientos sobre salud bucal. Los resultados sugieren que los niños y los padres están muy de acuerdo en los conocimientos sobre salud bucal; sin embargo, su acuerdo en cuanto a la autopercepción y la conducta es baja.
Palabras clave: Salud bucal, relaciones padre-hijo, conocimientos de la salud, conductas relacionadas con la salud, autopercepción, factores socioeconómicos.

INTRODUCTION

The transition from late childhood to early adolescence, typically between the ages of 10 and 14 years old (COSTA *et al.*, 2022), is a complex period of human development characterized by physical, behavioral, emotional, mental, and social changes (LANDIS, 2020; SPEZZIA, 2021).

During this transitional period, important skeletal and dental developments occur, such as the eruption of permanent molars (SABER *et al.*, 2018). In addition, dietary changes occur, leading to increased consumption of snacks and foods eaten outside the home. This can lead to excessive consumption of sugary drinks, soft drinks, and snacks between meals, making adolescents more susceptible to the development of caries lesions (SPEZZIA, 2021).

In addition to nutrition, socioeconomic factors, and parenteral perceptions and beliefs about oral health have a major impact on children's oral health in the early stages (ADAIR *et al.*, 2004; ALMAJED *et al.*, 2024; CHHABRA; CHHABRA, 2012), especially during the eruption stage. Furthermore, parental education and community awareness help to reduce children's vulnerability (MATTHEUS, 2010). Interventions that target behavioral development in early childhood are critical because children's general health and personality are linked to and influence their physical health as they develop (KUBZANSKY; MARTIN; BUKA, 2009)

During this phase, the knowledge acquired about general and oral health should be practiced and maintained throughout life (SPEZZIA, 2021). A previous study has shown that the oral health knowledge acquired during childhood and adolescence is related to caries control (NEVES *et al.*, 2020) and is strongly associated with social and family factors, such as income inequality, access to education (VINER *et al.*, 2012), parental education level (PAULA; AMBROSANO; MIALHE, 2015), and individuals' understanding and personal control over their own oral health (MARMOT *et al.*, 1991). Self-rated oral health, sociodemographic factors, and behaviors of oral health behaviors of adults are associated with oral health control beliefs (PEKER; BERMEK, 2011). Thus, the parent-child agreement relationship is of great importance because parents' socioeconomic status, knowledge and habits may influence their children's habits (CASTILHO *et al.*, 2013) and oral health development (OKADA *et al.*, 2002).

The lack of understanding of knowledge, beliefs, self-perceptions, and behaviors during late childhood and early adolescence confirms the knowledge gap and calls for further research. As psychosocial changes occur during late childhood and early adolescence (MCADAMS; OLSON, 2010; YURGELUN-TODD, 2007) when children begin to develop autonomy (GROOTENS-WIEGERS *et al.*, 2017), this study aimed to assess child-parent agreement on oral health knowledge, self-perception, and behaviors. By understanding the influence of parents on aspects related to oral health, it is possible to address the lack of

knowledge and apply preventive measures and hygiene in the child-parent scenario (PRABHU *et al.*, 2013). Understanding these factors will help the adolescent dentistry (odontohebiatrist) – a specialty of dentistry that focuses on the oral health of adolescents with an emphasis on prevention and health promotion (SPEZZIA, 2021) – to develop public health strategies to prevent disease progression and improve the quality of life of children as they grow.

MATERIALS AND METHODS

Study design

A cross-sectional study was conducted with a sample of child-parent dyads as approved by the Research Ethics Committee of the Federal University of Maranhão (opinion number: 2.284.768). Only students and parents who agreed to participate in the study and signed the Assent Form and Informed Consent Form (ICF) were included.

Study location and sample

The study was conducted in São Luís, Maranhão, Brazil. The municipality had an estimated population of 1,101,884 inhabitants (based on 2019 Brazilian census data) and a schooling rate of 96.8% among children aged 6–13 years (IBGE, 2019). In addition, only a few municipal teaching units have a dental care service.

Students from public schools in São Luís and their parents answered the structured questionnaires addressing socioeconomic and demographic data, knowledge about oral health and preventive measures, self-perception/self-evaluation, and behaviors. Closed questions with dichotomous (yes or no) and 5-point Likert-type items were utilized. Both groups answered the questionnaires individually, except for the socioeconomic part exclusively answered by the parents.

The present study only included children between 8 and 14 years old, in accordance with the age adopted by World Health Organization for epidemiological interviews, totaling

270 participants among parents and children. Parents were invited to participate in the survey during parent-teacher meetings at their schools, while those who did not attend the school meetings were contacted via telephone to schedule an appointment. The final sample comprised 135 5th–8th grade students enrolled in municipal elementary schools and their respective parents.

Data collection

Children and parents were asked to answer 20 questions related to oral health knowledge and beliefs (myths), self-perception, and behavior. On the other hand, only the parent group answered the remaining 14 questions regarding socioeconomic data which included level of education, number of residents in the house, monthly family income (in Brazilian minimum wage, about US$237.25 per month in 2019), participation in social programs, and access to health care (public or private).

Statistical analysis

The data were analyzed using Stata version 17.0 (Stata Corp., College Station, TX, USA). Chi-square test or Fisher exact test was used for the comparative analysis between child and parent groups. The proportion of agreement (child-parent dyads agreeing responses/total number of responses, ranged from 0 to 1) and 95% confidence interval (95% CI) for each oral health question was calculated. In addition, it was calculated the number of agreeing answers by thematic group (oral health knowledge/beliefs, self-perception, and behavior). Multivariate linear regression models were performed to identify sociodemographic factors associated with child-parent agreement. The significance level adopted was 5%.

RESULTS

A total of 135 dyads were included in the present study, with most of the children in the 10–11 years age group (57.8%). There was a higher frequency of female parents (79.3%), with more than 8 years of education (68.2%). The distribution of social data showed that 51.9% had monthly family income between 2 and less than 5 minimum wages (51.9%), 57% lived in houses with up to 3 people, 54.1% received some government assistance, and 88.9% used public health services only (Table 1).

Table 1 – Demographic and socioeconomic characteristics of the evaluated sample.

Variables	n	(%)
Child's sex		
Female	61	(45.2)
Male	74	(54.8)
Child's age		
8-9 years old	27	(20.0)
10-11 years old	78	(57.8)
12-14 years old	30	(22.2)
Parent's sex		
Female	107	(79.3)
Male	28	(20.7)
Parent's education level		
≤ 8 years	43	(31.8)
> 8 years	92	(68.2)
Household monthly income (in BMW)		
Less than 2	32	(23.7)
2 to less than 5	70	(51.9)

5 or above	33	(24.4)
Household size		
2-3 persons	77	(57.0)
4-5 persons	37	(27.4)
6 persons or above	21	(15.6)
Social welfare benefits		
No	62	(45.9)
Yes	73	(54.1)
Health services access		
Only public service	120	(88.9)
Public and Private service	15	(11.1)

BMW, Brazilian minimum wage was about US$237.25 per month in 2019.
Source: Authors.

Table 2 presents the comparative and child–parent agreement analysis of oral health knowledge. There were significant differences in questions about the transmissibility of caries disease ($P < 0.001$), the influence of fluoride on dental caries prevention ($P < 0.001$), and oral health beliefs (antibiotics use and strong teeth) ($P < 0.05$). The proportion of agreement was higher in questions about the relationship between sugar and dental caries (proportion of agreement: 0.95, 95% CI: 0.90–0.98), the preventability of dental caries (proportion of agreement: 0.94, 95% CI: 0.89–97), and the protective effect of tooth brushing (proportion of agreement: 0.94, 95% CI: 0.88–0.97).

Table 2 – Distribution of oral health knowledge and beliefs data and child-parent agreement.

Variables	Children	Parents	*P*	roportion of agreement [95% CI]
	n (%)	n (%)		
Should you visit a dentist only when you have a pain?			0.234	0.88 [0.82-0.93]
No	123 (91.1)	128 (94.8)		
Yes	12 (8.9)	7 (5.2)		
Is dental caries a transmissible disease?			<0.001*	0.59 [0.50-0.67]
No	108 (80.6)	78 (58.6)		
Yes	26 (19.4)	55 (41.4)		
Can dental caries be prevented?			0.722	0.94 [0.89-0.97]
No	3 (2.2)	5 (3.7)		
Yes	131 (97.8)	130 (96.3)		
Can dietary patterns influence dental caries?			0.075	0.83 [0.76-0.89]
No	15 (11.1)	7 (5.2)		
Yes	120 (88.9)	128 (94.8)		
Can sugar and candy cause tooth decay?			0.213	0.95 [0.90-0.98]
No	1 (0.7)	5 (3.7)		
Yes	134 (99.3)	130 (96.3)		
Does tooth-brushing prevent tooth decay?			0.172	0.94 [0.88-0.97]
No	2 (1.5)	6 (4.5)		
Yes	133 (98.5)	128 (95.5)		
What is the indication of dental flossing?			0.485	0.68 [0.59-0.76]
It performs interdental cleaning	107 (83.6)	101 (80.1)		

It replaces tooth-brushing	2 (1.6)	1 (0.8)		
It cleans all parts of the teeth	7 (5.5)	7 (5.6)		
It doesn't need to be used every day	3 (2.3)	1 (0.8)		
You should stop using it when your gums bleed	9 (7.0)	16 (12.7)		
Does fluoride help prevent tooth decay?			<0.001*	0.75 [0.62-0.85]
No	12 (8.9)	16 (11.8)		
Yes	54 (40.0)	110 (81.5)		
I don’t know what fluorine is	69 (51.1)	9 (6.7)		
Does dental sealant prevent tooth decay?			0.078	0.60 [0.77-0.86]
No	4 (3.0)	12 (9.0)		
Yes	17 (12.6)	21 (15.5)		
I don’t know what sealant is	114 (84.4)	102 (75.5)		
Some people are born with teeth that are less resistant to dental caries (“weak teeth”)			0.308	0.28 [0.20-0.36]
Totally disagree	23 (17.0)	17 (12.6)		
Disagree	10 (7.4)	18 (13.3)		
Neither agree nor disagree	17 (12.6)	13 (9.6)		
Agree	60 (44.5)	55 (40.8)		
Totally agree	25 (18.5)	32 (23.7)		
Antibiotics use during childhood can weaken teeth			<0.001*	0.16 [0.10-0.24]
Totally disagree	44 (33.1)	7 (5.2)		
Disagree	19 (14.3)	7 (5.2)		
Neither agree nor disagree	21 (15.8)	17 (12.6)		
Agree	32 (24.0)	42 (31.1)		

Totally agree	17 (12.8)	62 (45.9)		
Some people have strong teeth due to:			0.016*	0.82 [0.74-0.88]
Genetic inheritance from parents	0 (0)	3 (2.2)		
Good financial status	2 (1.5)	2 (1.5)		
Good hygiene and food	127 (95.5)	118 (87.4)		
I don't know	3 (2.3)	12 (8.9)		

95% CI, 95% confidence interval. *Statistically significant differences between child and parent groups (P <0.05).
Source: Authors.

The data analysis showed a low child-parent agreement on oral health self-perception (Table 3). The parents reported a higher percentage of dissatisfaction with their teeth than the child group (P = 0.001). On the other hand, most children rated their oral health as "good", while most parents rated their oral health as "average" (P <0.001).

Table 3 – Distribution of oral health self-perception data and child-parent agreement.

Variables	Children	Parents	*P*	Proportion of agreement [95% CI]
	n (%)	n (%)		
Dental appearance satisfaction			0.001*	0.23 [0.16-0.31]
Very satisfied	17 (12.8)	7 (5.2)		
Satisfied	50 (37.6)	36 (26.7)		
Neither satisfied nor dissatisfied	31 (23.3)	25 (18.5)		
Dissatisfied	23 (17.3)	48 (35.6)		
Very dissatisfied	12 (9.0)	19 (14.1)		
Oral health self-assessment			<0.001*	0.33 [0.25-0.42]

Very good	12 (8.9)	4 (3.0)
Good	67 (49.6)	40 (29.6)
Average	47 (34.8)	70 (51.9)
Poor	7 (5.2)	13 (9.6)
Very poor	2 (1.5)	8 (5.9)

95% CI, 95% confidence interval. *Statistically significant differences between child and parent groups (P <0.05).
Source: Authors..

Table 4 shows the distribution of agreement on oral health behavior. Around 91.8% of children reported no need for supervision when they brush their teeth, while 94.1% of the parents reported the need for supervision (P < 0.001), reflecting a low child-parent agreement (proportion of agreement: 0.12, 95% CI: 0.07–0.19). Similarly, 95.5% of children reported that they do not have to brush at school, while 83% of parents reported that children need to (P <0.001), reflecting low child-parent agreement (proportion of agreement: 0.17, 95% CI: 0.12–0.25). However, we observed a high child/parent agreement regarding sharing of toothbrush (proportion of agreement: 0.91, 95% CI: 0.84–0.95), with 6.7% of children and 2.2% of parents agreeing.

Table 4 – Distribution of oral health behavior data and child-parent agreement.

Variable	Children	Parents	*P*	Proportion of agreement [95% CI]
	n (%)	n (%)		
Shared toothbrush use			0.136	0.91 [0.84-0.95]
No	126 (93.3)	132 (97.8)		
Yes	9 (6.7)	3 (2.2)		
Frequency of daily toothbrushing			0.701	0.48 [0.40-0.57]
1 time/day	2 (1.5)	2 (1.5)		
2 times/day	13 (9.6)	8 (5.9)		
3 times/day	86 (63.7)	87 (64.4)		
> 3 times/day	34 (25.2)	38 (28.2)		
Supervised tooth-brushing by parents or guardians			<0.001*	0.12 [0.07-0.19]
It is not necessary	124 (91.8)	8 (5.9)		
It is necessary	11 (8.2)	127 (94.1)		
Daily tooth-brushing at the school			<0.001*	0.17 [0.12-0.25]
It is not necessary	128 (95.5)	23 (17.0)		
It is necessary	6 (4.5)	112 (83.0)		
Last visit to the dentist			0.077	0.36 [0.28-0.45]
Never visited the dentist	24 (17.8)	11 (8.2)		
More than 1 year	50 (37.0)	63 (47.0)		
6 months to 1 year	22 (16.3)	18 (13.3)		
Less than 6 months	39 (28.9)	42 (31.4)		
Reason for the last visit to the dentist			0.095	0.36 [0.28-0.45]

Never visited the dentist	24 (17.8)	11 (8.3)
Regular checkup	38 (28.2)	31 (23.5)
Orthodontic treatment	11 (8.1)	15 (11.4)
Dental pain	32 (23.7)	34 (25.8)
Other	30 (22.2)	41 (31.0)

95% CI, 95% confidence interval. *Statistically significant differences between child and parent groups (P <0.05).
Source: Authors.

In total, at least 50% of the parents and children had a high agreement on ten oral health questions (mean: 10.5 ± 1.9). Multivariate regression models were used to identify sociodemographic factors that predicted the degree of agreement between children and parents on questions of oral health knowledge/beliefs, self-perception, and behaviors (Table 5). Results showed that higher child age (Beta = 0.552, P = 0.003) and higher parent education level (Beta = 0.254, P = 0.023) positively related to the high number of concordant responses on oral health knowledge/beliefs in the sample evaluated. Additionally, girls showed greater agreement with their parents regarding oral health self-perception (Beta = 0.226, P = 0.040). However, sociodemographic factors did not affect the number of concordant answers regarding oral health behaviors.

Table 5 – Multiple regression analyses of the demographic and socioeconomic predictors on the total number of oral health child-parent agreements.

Predictor factors	Number of child-parent agreements on oral health questions								
	Knowledge and belief			Self-perception			Behavior		
	R^2/ RMSE	Beta	*P*	R^2/ RMSE	Beta	*P*	R^2/ RMSE	Beta	*P*
Model	0.173/1.303			0.111/0.617			0.046/1.101		
Female child		0.157	0.495		**0.226**	**0.040***		0.212	0.277
Child age		**0.552**	**0.003***		0.116	0.183		-0.010	0.948
Mother		0.087	0.766		0.205	0.144		-0.290	0.244
Parent education level		**0.254**	**0.023***		0.028	0.594		-0.017	0.851
Household monthly income		-0.177	0.403		0.166	0.100		0.133	0.458
Household size		0.177	0.258		-0.001	0.992		0.117	0.373
Social welfare benefits		-0.391	0.122		0.004	0.969		-0.105	0.621
Private health services access		0.411	0.311		0.055	0.772		-0.426	0.214

R^2, Coefficient of determination; RMSE, Root mean square error; Beta, Coefficient of regression. *P <0.05.
Source: Authors.

DISCUSSION

The main findings of this study suggest that the child-parent agreement is higher in oral health knowledge than oral health self-perception and behaviors. Furthermore, older children and parents with higher education levels had a higher child-parent agreement on oral health knowledge and beliefs. Additionally, female children had a higher number of agreeing with their parents on oral health self-perception questions.

Parents' knowledge, beliefs, myths, and behaviors about oral health influence the family's oral health status (GARCIA *et al.*, 2015), and children learn health practices and behavioral habits from their home, with parents, especially mothers, being their main model (OKADA *et al.*, 2002). This study has shown that both parents and children demonstrate a good knowledge of the etiological factors of caries. Despite the high variation in the child-parent agreement on oral health questions in this study, the children express a higher percentage of accuracy regarding the concept of transmissibility of dental caries. This may be due to the increasing implementation of national oral health programs in Brazilian schools (BRAZIL, 2020) and its strong influence on the diffusion of oral health knowledge (LATTANZI, *et al.*, 2020). Volunteers in the study are enrolled in public schools, where they learn to acquire a more scientific way of thinking (GEETHAPRIYA; ASOKAN; KANDASWAMY, 2017) and form opinions rationally as individuals (LATTANZI *et al.*, 2020).

The study findings showed that parents and children had a high agreement regarding the importance of a balanced, low-sugar diet, and tooth brushing. However, the knowledge about the benefits of fluoride use was more evident only in the parent group, and both groups did not know about dental sealing. Although the dentist's role in orienting and raising awareness about the importance of prevention and care is necessary for the promotion of oral health (BLUMER *et al.*, 2018), we found that less than 50% of parents/children visit the dentist annually, with 17.8% of children and 8.2% of parents never visiting the dentist.

In terms of dental beliefs and myths, parents and children agree on the issue related to teeth "being born weak". However, unlike parents, a large majority of children totally disagreed with the fact that antibiotics in childhood can cause "weak teeth". Dental practitioners can explain and promote the benefits of dental prevention and treatment to parents if they know and understand cultural myths and beliefs (CHHABRA; CHHABRA, 2012). Additionally, a higher prevalence of dental myths has been observed in older and female

individuals. Mothers, who exert great influence during their children's development (KHAN; DAWANI; BILAL, 2012; SINGH *et al.*, 2012), comprised 79.3% of our study sample.

The present data showed that about 67% of parents had negative self-assessment of their oral health (regular, bad, or very bad), while 61% of children had positive self-assessment of their oral health, indicating the absence of significant agreement regarding oral health self-assessment and satisfaction between these groups. Epidemiological studies have revealed a trend toward a decline in caries rates in Brazil in recent decades, especially in children 12 years of age (BRAZIL, 2014). Studies suggest that the expansion of water fluoridation throughout the country, the marketing of fluoridated toothpastes, creation and restructuring of public health dentistry programs (CRUZ; NARVAI, 2018), as well as the increasing implementation of oral health programs in schools have contributed to the reduction of caries rates and have possibly resulted in the better perception and self-evaluation by children. The high rate of negative self-assessment among parents may be associated with environment-related factors, such as social relationships and esthetic demands (strongly observed in females). This is in agreement with studies that reported a more negative self-evaluation that increases with age (CORASSA *et al.*, 2022) and is generally associated with females (OLUTOLA; AYO-YUSUF, 2012), who represented a large part of the sample.

Since knowledge and self-perception influence individual behavioral decisions, we observed a significant agreement between the responses of parents and children regarding oral hygiene habits: not sharing toothbrushes and daily brushing frequency of 3 times or more. Studies have suggested that brushing habits of parents influence the brushing behaviors of their children (ADAIR *et al.*, 2004). Additionally, others have noted that parental supervision plays a key role in this process as children are still in the process of developing fine motor coordination and may have been brushing their teeth incorrectly (HAMILTON *et al.*, 2018). However, our study revealed that 91.8% of children did not receive help from their parents during brushing. On the other hand, although parents agree that it is necessary to brush their teeth at school (94.1%), their children report not finding this practice necessary (98.1%), presenting low child-parent agreement (0.12, 95% CI: 0.07–0.19). The lack of implementation of permanent educational programs and promotion of oral health plans and daily tooth brushing in schools (RODRIGUES; MATIAS; FERREIRA, 2016) contribute to this disagreement.

The study findings showed that less than 50% of the parents reported to visit the dentist annually, and among them, less than 30% routinely visit the dentist. Furthermore, we found that 8.2% of the parents and 17.8% of the children never went to the dentist. These may be associated with the difficulty in accessing oral health services, since most of the interviewees live in rural areas. Thus, individuals with less privileged socioeconomic status are more likely to use dental services if they are available for free and close to their homes (PRABHU *et al.*, 2013).

The regression model that was used revealed an association between the number of concordant answers and sociodemographic factors only in the items "oral health knowledge and beliefs" and "self-perception." Studies suggest that economic aspects and the low level of education of parents are connected and affect the knowledge and oral health habits of their children (WILLIAMS; WHITTLE; GATRELL, 2002). Parents who have a higher level of education show greater agreement with their children regarding oral health knowledge. Additionally, 68.2% of parents have more than 8 years of schooling and only 8.2% of children have never visited a dental office. This implies that having a higher level of education results to better paid jobs, thus, providing more access to dental services (NEVES *et al.*, 2020).

Moreover, we noticed that parent/child oral health-related agreements were higher the older the children were, which is in accordance with Piaget's sequential invariant development theory which stated that as the child gets older, the level of knowledge related to oral health is expected to increase (GEETHAPRIYA; ASOKAN; KANDASWAMY, 2017).

The regression analysis indicated that the child's sex is the only sociodemographic factor predictive of agreement as female children tended to agree more with their parents on oral health self-perception. Girls are more interested in their oral health and give it more importance compared with boys (ŠTEFANOVÁ *et al.*, 2020). In addition, parental influencing factors are at the level of knowledge and behavior for girls (CASTILHO *et al.*, 2013).

A limitation of this study is the use of a convenience sample from the northeastern region of Brazil, which may limit the generalizability of the results to other cultural and social contexts worldwide. Another limitation is the cross-sectional design of the study, which restricts the ability to infer causality between the factors. To address these issues, future studies should have a longitudinal design and include participants from diverse regions or

countries to increase the sample's diversity, enabling a more comprehensive understanding of the investigated phenomena.

CONCLUSION

In conclusion, the findings suggest that children in the late childhood to early adolescence phase, from families where mothers are the primary guardian, with more than 8 years of education, and who exclusively use public dental services, demonstrate a high level of agreement in their knowledge about oral health. Both the child's older age and the parents' higher educational level are positively related with a greater number of concordant answers regarding oral health knowledge and beliefs. However, there are still disagreements between this parent-child dyad regarding certain knowledge, such as the transmission of caries and the use of fluorides, as well as beliefs such as the use of antibiotics and the genetic influence on the quality of teeth. Under these conditions, there is low agreement regarding self-perception and oral health behaviors, and there is no consensus between parents and children regarding the need for supervision during brushing and the importance of brushing at school. Notably, in terms of self-perception of oral health, girls were more in agreement with their parents. In this study, sociodemographic factors do not seem to affect the number of concordant answers in relation to oral health behaviors.

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