

ORIGINAL ARTICLE

Children, maternal and socioeconomic characteristics influence oral hygiene habits in schoolchildren

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Manuscript received: may 2021

Manuscript accepted: december 2021

Version of record online: june 2022

Abstract

Background: the prevention of dental caries is basically done by brushing and flossing the teeth. The adoption of these habits, especially in children, is a complex process that depends on factors related to different aspects of life.

Objective: to determine the association between children's, maternal and socioeconomic characteristics with oral hygiene habits in students aged 7 to 10 years in Vitória, Espírito Santo, Brazil.

Methods: cross-sectional study conducted with probabilistic sample of triple stage with final study population of 1,282 students. Data were collected using a questionnaire applied to children and questionnaire sent to parents to fill out and return. The outcome was the variable summary called "Oral Hygiene Practices" with three possible combinations: less favorable level, intermediate level and more favorable level. The independent variables were children's, maternal and socioeconomic characteristics. The Multinomial Regression Analysis was performed between the independent variables that showed significance less or equal to 0.10 in the Bivariate Analysis and the summary variable. The significance level for the variables in the final model was $p < 0.05$ and less favorable level was used as reference.

Results: most were female (58.0%), aged 8 and 9 (56.1%) and enrolled in public schools (82.8%). The most favorable oral hygiene level showed the highest prevalence (78.0%) among schoolchildren. Remained associated to more favorable level in the final model the variables: living with father and mother in the same home (OR=2,88; IC95%=1,15-7,20), dental appointment (OR=3,01; IC95%=1,32-6,85), cavity experience (OR=2,88; IC95%=1,15-7,20) and own a toothbrush (OR=4,72; IC95%=1,43-15,66).

Conclusion: social determinants have a strong influence on the adoption of positive habits. It is necessary for public health a more comprehensive approach to the perspective of health inequalities so that the family and social context should not be overlooked.

Keywords: oral hygiene, habits, child, social determinants of health.

Suggested citation: Zambaldi MPM, Bisi Molina MC, Martinelli KG, dos Santos-Neto ET. Children, maternal and socioeconomic characteristics influence oral hygiene habits in schoolchildren. *J Hum Growth Dev.* 2022; 32(2):202-213. DOI: <http://doi.org/10.36311/jhgd.v32.13163>

Authors summary

Why was this study done?

It is in childhood that the child is more likely to develop oral hygiene habits and assimilate its importance. Therefore, it is recommended to know the factors that influence the adoption of more favorable oral hygiene habits and how much these factors contribute to the acquisition of these habits.

What did the researchers do and find?

A cross-sectional school-based study was carried out with 1,282 schoolchildren aged 7 to 10 years. The oral hygiene habit was classified as less favorable, intermediate, and more favorable, according to the frequency of brushing and flossing. It was found that having their own toothbrush, having had at least one dental appointment in their lifetime, previous experience with caries, adequate birth weight and living with their father and mother were factors that contributed to the children having more healthy oral hygiene habits.

What do these findings mean?

Having contact with the dental service in early childhood is essential for the child to adopt more favorable oral hygiene habits, either through a routine consultation or due to the need caused by the experience of caries in childhood. As well as socioeconomic, maternal and child factors must be considered for the performance of professionals in the field of oral health for the adoption of more favorable oral hygiene habits

INTRODUCTION

Removal of biofilm from dental surfaces occurs mainly through brushing and flossing, which significantly contributes to the prevention of oral diseases¹. Although oral hygiene methods are widely disseminated, the actual adoption of health behaviors is a very complex mechanism². In this context, the general determinants of health related to the physical, social, political, economic and cultural environment in which individuals live become protagonists in the adoption of habits related to health care³.

Children are particularly susceptible to the conditions to which they are exposed, so that their health behaviors are constantly being shaped by the environment, past life history and personal experiences². Therefore, some factors will contribute to the effective adoption of their oral hygiene habits, such as: individual characteristics^{4,5}; socioeconomic factors related to family income^{6,7}, housing conditions⁸, maternal education level⁹⁻¹¹ and characteristics concerning the social support received by their family and friends^{5,10,12}.

In Brazil, the young population is significant since in 2021 of the 213 million Brazilians, about 30 million were aged between 5 and 14 years¹³ and almost all of them can be found in the school environment. In addition, the school plays a fundamental role in the formation of attitudes and values by bringing together children at ages that favor the assimilation of preventive measures, such as hygiene habits that are formed in childhood¹⁴. The school environment also influences the children's socialization process, as children, when living with teachers and friends, assimilate their behavior and shape attitudes and behaviors related to their own oral health².

The present study has as its research scenario the municipality of Vitória-Espírito Santo (ES), Brazil, which stands out among Brazilian capitals for presenting favorable socioeconomic characteristics, such as: the third largest Gross Domestic Product (GDP)¹⁵ per capita in 2019 and the best SUS Performance Index (IDSUS) in 2012¹⁶. Given these considerations, the objective of this study was to verify the association between socioeconomic factors, maternal and child characteristics and the performance of oral hygiene practices in schoolchildren with 7 to 10 years.

METHODS

Study Design, Location and Period

This is a cross-sectional study, with data collected between May and December 2007, as part of the Study: "Nutrition and Health of schoolchildren aged 7 to 10 years enrolled in public and private schools in Vitória - ES, Brazil (SAUDES)⁹.

Study Population and Eligibility Criteria

Study participants were selected in a triple-stage probabilistic sampling process⁹ so that spatial coverage could generate a representative sample of the city's population, as well as a representative proportion of genders (female and male), ages (7, 8, 9 and 10 years) and education networks (public and private). Thus, the final sample consisted of 1,282 schoolchildren.

Data Collection

Data collection was performed using two instruments: the first applied to children by researchers trained to answer questions and the second sent to those responsible for self-completion. The children's form addressed issues related to feeding practices and oral health, as well as anthropometric data on the child. The questionnaire given to those responsible covered information about the child's mother, socioeconomic aspects and other variables.

In the present study, children's oral hygiene habits and their relationship with child, maternal and socioeconomic characteristics were investigated. In this way, the variables related to the frequency of daily brushing and flossing were synthesized in a summary variable called "oral hygiene practices".

To obtain the summary variable, each possible response was scored according to the "most favorable" to "least favorable" situation, so that the frequency of brushing three or more times a day was classified as +3 points, twice a day equals +2 points, once a day equals +1 point. When brushing did not occur during the day, the score considered was -1 point. Flossing was classified as: sometimes (+1 point), yes (+2 points) and no (-1 point).

For each child participating in the study, the points referring to the frequency of brushing and flossing were added together, determining three possible situations

concerning oral hygiene practices: less favorable situation (score -2 and 0), intermediate situation (score 1, 2 and 3), more favorable situation (scores 4 and 5).

The independent variables used were grouped into child characteristics, maternal characteristics and socioeconomic characteristics. Child characteristics included: caries experience, sex, age, type of school, lunch companion, dinner companion, lunch location, dinner location, and birth weight. The maternal characteristics were related to the number of children; schooling; occupation of mothers of children participating in the study; and, the socioeconomic characteristics considered were: joint father and mother residence, human household agglomeration, education of the head of residence, socioeconomic class, dental appointment at least once in a lifetime and possession of the child's own toothbrush.

Data Analysis

Statistical analyzes were performed using the SPSS for Windows 17.0 program. Initially, the existence of an association between the three possible situations of the variable of oral health practices and the factors under study was investigated through exploratory bivariate analyzes with Yates' chi-square test of association. Next, the Multivariate Multinomial Regression analysis was performed between the outcome variable "Oral hygiene practices" and the independent variables that showed a significance level lower than or equal to 0.10 in the bivariate analysis, so that, for each independent variable, the odds ratio and confidence interval were obtained. The least favorable situation was used as the reference category.

The variables related to education of the head of the family and socioeconomic class were not included

in the final analysis model because they are strongly associated with each other and with maternal education (p-value<0.05). However, maternal schooling functioned as an adjustment variable, as well as lunch location. The Pseudo-R² statistic (Cox & Snell and Nagelkerke) was used to choose the best fit of the model, whose value was closer to 1. The significance level adopted for the variables in the final model was p<0.05.

Ethical and Legal Aspects of the Research

The research from which the present study originated was approved by the Research Ethics Committee of the Biomedical Center of the Federal University of Espírito Santo on 10/26/06, under registration number CEP/UFES 089/06. The performance of the study in public schools was officially authorized by the Municipal Department of Education of the Municipality of Vitória and all children participating in the research had the Free and Informed Consent Term signed by their guardians.

RESULTS

Of the 1,282 students participating in the study, most were female (58.0%), enrolled in public schools (82.8%) in the city of Vitória-ES, with a predominant age of 8 and 9 years. Most children were born with normal weight (90.8%) had someone from the family as company during lunch (73.2%) and dinner (81.7%) and had lunch (59.1%) and had dinner (59.4%) watching television. Regarding oral hygiene practices, the following frequencies were identified: 3.5% of the children had a less favorable oral hygiene practice, 15.5% had an intermediate practice and 81.0% had a more favorable oral hygiene practice. In addition, 44.4% of students reported caries experience (table 1).

Table 1: Distribution of variables related to child characteristics of the SAÚDES Study. Vitória/ES, Brazil, 2007

Variables	Categories	Total	%
Practice of oral hygiene* (n=1.250)	less favorable	44	3.5
	intermediary	194	15.5
	more favorable	1.012	81.0
Caries experience* (n=1.274)	yes	566	44.4
	At the	509	40.0
	Do not know	199	15.6
Sex	Male	538	42.0
	Female	744	58.0
Age (in years)	Seven	252	19.7
	Eight	359	28.0
	Nine	360	28.1
	Ten	311	24.3
school type	public	1.061	82.8
	private	221	17.2
Lunch company* (n=1.275)	By herself	173	13.6
	with someone in the family	933	73.2
	other people	169	13.3
Company at dinner* (n=1.265)	By herself	129	10.2
	with someone in the family	1.033	81.7

Continuation - Table 1: Distribution of variables related to child characteristics of the SAÚDES Study. Vitória/ES, Brazil, 2007

Variables	Categories	Total	%
Lunch place* (n=1.278)	other people	103	8.1
	Table	509	39.8
	Watching TV	755	59.1
Dining venue* (n=1.265)	other activity	14	1.1
	Table	492	38.9
	Watching TV	751	59.4
Birth weight* (n=1.193)	other activity	22	1.7
	Less 2500g	110	9.2
	2500g or more	1.083	90.8

As for the characteristics of the children's mothers, the results showed that most women had studied from 9 to 11 years (41.3%), had two children (40.5%) and worked outside the home and/or were self-employed professionals. (62.4%). Regarding the socioeconomic variables of the families surveyed, there was a predominance of minors who lived with both parents in the same residence (66.3%), families with up to five inhabitants (80.8%), families belonging to the socioeconomic class D+E (41.6%) and families in which the head of household had 9 to 11 years of schooling (36.0%). In addition, 85.7% of the children

had already been to the dentist at some point in their lives and 97.7% had their own toothbrush (table 2).

Tables 3 and 4 present the results of the bivariate analyzes related to child, maternal and socioeconomic characteristics and the three possible outcome scenarios. In these analyses, oral hygiene practices were associated, considering a significance level of 10%, with: at least one dental appointment in life ($p < 0.001$), own toothbrush ($p < 0.001$), caries experience ($p < 0.001$). < 0.001), sex ($p = 0.036$), age ($p = 0.003$), company at dinner ($p = 0.084$), lunch location ($p < 0.001$) and birth weight ($p = 0.018$).

Table 2: Maternal and socioeconomic characteristics of children in the SAÚDES Study. Vitória/ES, Brazil, 2007

Variables	Categories	N	%
Number of children* (n=1.261)	One	271	21.5
	Two	511	40.5
	Three	276	21.9
	Four or more	203	16.1
Maternal education* (n=1.255)	1 to 4 years	132	10.5
	5 to 8 years	360	28.7
	9 to 11 years	518	41.3
	12 years or older	245	19.5
Maternal occupation* (n=1.254)	Employees / liberal professional	782	62.4
	Unemployed	232	18.5
	Housewife	240	19.1
Joint Residence Father/Mother* (n=1.249)	Yes	842	66.3
	No	428	33.7
Household human agglomeration* (n=1.237)	Up to 5 people	1.000	80.8
	More than 5 people	237	19.2
Head's education* (n=1.147)	1 to 4 years	163	14.2
	5 to 8 years	340	29.6
	9 to 11 years	413	36.0
	12 years or older	231	20.1
Socioeconomic class*(n=1.123)	A+B	262	23.3
	C	394	35.1
	D+E	467	41.6
At least one dental appointment in life* (n=1.275)	Yes	1.093	85.7
	No	182	14.3
Owning your own toothbrush	Yes	1.253	97.7
	No	29	2.3

*The variables with missing data had the total entered after the identification of the variable. Source: SAÚDES Study. 2007.

Table 3: Bivariate analysis of child characteristics with the outcome of oral hygiene practice of children in the SAÚDES Study. Vitória/ES, Brazil, 2007

Variables	Categories	Total	Oral Hygiene Practice			p value(χ^2)
			Less Favorable	Intermediaries	More Favorable	
Caries Experience	Yes	553	9 (1.6%)	66 (11.9%)	478 (86.4%)	<0.001
	No	494	26 (5.3%)	97 (19.6%)	371 (75.1%)	
	Do not know	195	9 (4.6%)	30 (15.4%)	156 (80.0%)	
Child's Gender	Male	522	21 (4.0%)	96 (18.4%)	405 (77.6%)	0.036
	Female	728	23 (3.2%)	98 (13.5%)	607(83.4%)	
Child's age	Seven or eight	596	31 (5.2%)	98 (16.4%)	467 (78.4%)	0.003
	Nine or ten	654	13 (2.0%)	96 (14.7%)	545 (83.3%)	
School Type	Public	1.035	40 (3.9%)	157 (15.2%)	838 (81.0%)	0.285
	Toilet	215	4 (1.9%)	37 (17.2%)	174 (80.9%)	
Company at Lunch	By herself	167	8 (4.8%)	27 (16.2%)	132 (79.0%)	0.815
	With someone in the family	909	29 (3.2%)	138 (15.2%)	742 (81.6%)	
	Other people	167	7 (4.2%)	27 (16.2%)	133 (79.6%)	
Company at Dinner	By herself	125	9 (7.2%)	21 (16.8%)	95 (76.0%)	0.084
	With someone in the family	1.008	30 (3.0%)	151 (15.0%)	827 (82.0%)	
	Other people	100	4 (4.0%)	20 (20.0%)	76 (76.0%)	
lunch spot	Table	497	7 (1.4%)	61 (12.3%)	429 (86.3%)	<0.001
	Watching TV	735	36 (4.9%)	129 (17.6%)	570 (77.6%)	
	Other activity	14	1 (7.1%)	4 (28.6%)	9 (64.3%)	
dinner place	Table	479	11 (2.3%)	69 (14.4%)	399 (83.3%)	0.338
	Watching TV	732	31 (4.2%)	120 (16.4%)	581 (79.4%)	
	Other activity	22	1 (4.5%)	3 (13.6%)	18 (81.8%)	
birth weight	Less 2500g	106	8 (7.5%)	11 (10.4%)	87 (82.1%)	0.018
	2500g or more	1059	31 (2.9%)	167 (15.8%)	861 (81.3%)	

Regarding maternal and socioeconomic characteristics, there was an association with the outcome variables: maternal education ($p=0.004$); joint residence with father and mother ($p<0.001$); head's education ($p=0.012$) and socioeconomic class ($p=0.061$).

Source: SAÚDES Study, 2007.

Taking oral hygiene practices at the least favorable level as a reference, the following were associated with the intermediate level: birth weight (OR=3.69; 95%CI=1.15-11.88), father and mother living together (OR=3.09; 95%CI=1.29-7.43) and at least one dental appointment in life (OR=2.52; 95%CI=1.02-6.27). However, at the most favorable level, two other variables were significantly

associated in the final model: caries experience (OR=2.88; 95% CI=1.15-7.20) and owning a toothbrush (OR=4.72; 95% CI=1.43-15.66), in addition to the variables: joint father and mother residence (OR=2.87; 95% CI=1.26-6.53) and at least one dental appointment in their lifetime (OR=3.01; 95% CI=1.32-6.85), according to table 5.

Table 4: Bivariate analysis of maternal and socioeconomic characteristics with the outcome of oral hygiene practice of children in the SAÚDES Study. Vitória/ES, Brazil, 2007

Variables	Categories	Total	Oral Hygiene Practice			p valor
			Less Favorable	Intermediaries	More Favorable	
Number of children	One	261	9 (3.4%)	39 (14.9%)	213 (81.6%)	0.335
	Two	501	20 (4.0%)	73 (14.6%)	408 (81.4%)	
	Three	269	4 (1.5%)	47 (17.5%)	218 (81.0%)	
	Four or more	198	11 (5.6%)	31 (15.7%)	156 (78.8%)	
Maternal Education	1 to 4 years	130	10 (7.7%)	14 (10.8%)	106 (81.5%)	0.004
	5 to 8 years	352	19 (5.4%)	55 (15.6%)	278 (79.0%)	
	9 to 11 years	500	8 (1.6%)	78 (15.6%)	414 (82.8%)	
	12 years or older	241	6 (2.5%)	42 (17.4%)	193 (80.1%)	
Maternal Occupation	Freelance maid/professional	757	22 (2.9%)	117 (15.5%)	618 (81.6%)	0.611
	unemployed	229	9 (3.9%)	34 (14.8%)	186 (81.2%)	
	Housewife	236	12 (5.1%)	36 (15.3%)	188 (79.7%)	
Joint Residence Father/Mother	Yes	823	17 (2.1%)	127 (15.4%)	679 (82.5%)	<0.001
	No	416	27 (6.5%)	63 (15.1%)	326 (78.4%)	
Household Human Agglomeration	Up to 5 people	973	31 (3.2%)	148 (15.2%)	794 (81.6%)	0.332
	More than 5 people	232	12 (5.2%)	36 (15.5%)	184 (79.3%)	
Chief's Education	1 to 4 years	161	13 (8.1%)	24 (14.9%)	124 (77.0%)	0.012
	5 to 8 years	327	17 (5.2%)	49 (15.0%)	261 (79.8%)	
	9 to 11 years	402	7 (1.7%)	61 (15.2%)	334 (83.1%)	
	12 years or older	226	5 (2.2%)	37 (16.4%)	184 (81.4%)	
Socioeconomic Class	A+B	258	7 (2.7%)	39 (15.1%)	212 (82.2%)	0.061
	C	383	8 (2.1%)	64 (16.7%)	311 (81.2%)	
	D+E	452	25 (5.5%)	61 (13.5%)	366 (81.0%)	
At least one dental appointment in life	Yes	1.063	28 (2.6%)	164 (15.4%)	871 (81.9%)	<0.001
	No	180	16 (8.9%)	29 (16.1%)	135 (75.0%)	
Owning a Dental Brush	Yes	1222	37 (3.0%)	188 (15.4%)	997 (81.6%)	<0.001
	No	28	7 (25.0%)	6 (21.4%)	15 (53.6%)	

Table 5: Multivariate analysis of the intermediate and most favorable categories in relation to the least favorable oral hygiene practice of children in the SAÚDES Study. Vitória/ES, Brazil, 2007**

Least Favorable Level of Oral Hygiene Practices - Reference Category		Categories	Crude OR (95% IC)	Adjusted OR (95% IC)
Oral Hygiene Practices (Intermediate level)	Sex	Female	1.00	-
		Male	1.07 (0.56-2.07)	-
	Age	7-8 years	1.00	-
		9-10 years	2.34 (1.15-4.73)	-
	Birth weight	Less than 2500g	1.00	1.00
		2500g or more	3.92 (1.46-10.52)	3.69 (1.15-11.88)
	Father/Mother joint residence	No	1.00	1.00
		Yes	3.20 (1.63-6.31)	3.09 (1.29-7.43)
	Caries experience	No	1.00	1.00
		Yes	1.97 (0.87-4.46)	1.54 (0.59-4.05)
	At least one dental appointment in life	No	1.00	1.00
		Yes	3.23 (1.56-6.71)	2.52 (1.02-6.27)
	Own toothbrush	No	1.00	1.00
		Yes	5.93 (1.88-18.65)	3.67 (0.84-15.98)
Oral Hygiene Practices (Most Favorable Level)	Sex	Female	1.00	-
		Male	0.73 (0.40-1.34)	-
	Age	7-8 years	1.00	-
		9-10 years	2.78 (1.44-5.38)	-
	Birth weight	Less than 2500g	1.00	1.00
		2500g or more	2.55 (1.14-5.73)	2.50 (0.92-6.78)
	Father/Mother joint residence	No	1.00	1.00
		Yes	3.31 (1.78-6.16)	2.87 (1.26-6.53)
	Caries experience	No	1.00	1.00
		Yes	3.72 (1.72-8.03)	2.88 (1.15-7.20)
	At least one dental appointment in life	No	1.00	1.00
		Yes	3.69 (1.94-6.99)	3.01 (1.32-6.85)
	Own toothbrush	No	1.00	1.00
		Yes	12.58 (4.84-32.69)	4.72 (1.43-15.66)

**Model adjusted by the variables that remained in the adjusted model plus the covariates: lunch location and maternal education.

Source: SAÚDES Study, 2007.

DISCUSSION

The adoption of positive behaviors by individuals regarding their oral health is influenced by a series of external factors, such as: socioeconomic level, income, education¹⁷, housing and housing conditions¹⁸, and mainly by their individual characteristics¹⁹. Health is, therefore, the result of different modes of social organization²⁰.

The variable possession of own toothbrush was associated, with the outcome at the most favorable level, since children who had a toothbrush had almost five times the chance of having a more favorable oral hygiene practice, in relation to a less favorable practice, than those children who did not have a toothbrush or shared it at

home. It should be understood that access to the toothbrush tool is the initial presupposition for the incorporation of oral hygiene habits by the child²¹, but not the only one.

Considering that in childhood, parents and family are the most important influence on the development and formation of oral health habits by children^{2,22,23}, this study also investigated aspects concerning the family environment in which the child was inserted. Regarding family aspects, the results showed a positive association between the fact that the child lives in the same house with the father and mother and oral hygiene practices at an intermediate and more favorable level, when considering the less favorable situation as a reference. Thus, schoolchildren who lived

with their father and mother in the same house were about three times more likely to have an intermediate or more favorable oral hygiene practice than those children who did not have a joint residence with both parents. Based on this scientific evidence, the importance of family structure in children's health behaviors is contacted and that parents together are the main responsible for teaching oral health to minors^{24,25}.

Similarly, other investigations have shown results similar to those found in the present study, by pointing to an association between the habits and lifestyle of families and the frequency of brushing by children. Maes *et al.*²⁶ showed that in children and adolescents aged 11 to 15 years, those who lived with both parents in the same household were more likely to brush their teeth more than once a day compared to those who lived with only one parent. responsible.

In another study, carried out by Levin *et al.*⁵, with children aged 11 to 15 years, the chance of brushing their teeth twice a day was lower among those who lived with only one parent compared to those who lived with both. In a survey conducted in 32 countries around the world, with parents of children aged 3 and 4 years old, it was observed that when parents encourage children to brush at least twice a day, this is essential for the habit to be acquired and perpetuated. by minors^{26,27}.

In addition to the influence that parents have on the frequency of oral hygiene practices of their children, it is also observed that families of divorced/separated parents face situations that can negatively influence the physical health of their members²⁸. The decrease in the economic resources available to meet family needs, low levels of social support and changes in routine resulting from family restructuring can weaken the quality of physical health of minors²⁸, since poor family cohesion is directly related to a greater chance of low frequency of daily brushing by children and adolescents¹¹. Thus, it can be inferred that the adoption of more favorable oral hygiene habits depends on the favorable family environment and that parents have a decisive influence on the oral health of their children.

Regarding the characteristics of those responsible for the minors, maternal schooling was not significantly associated with the practice of oral hygiene at a more favorable level, contrary to some studies^{6,29,30}. However, this finding corroborates the study by Casanova-Rosado *et al.*⁴ in which maternal and paternal education levels were not different between the high and low brushing frequency groups. However, in order to represent socioeconomic variables: education of the head and social class, it was inserted as an adjustment variable in the final model.

It should be considered that, despite the knowledge acquired through schooling, it allows greater access to health information, by allowing individuals to make more positive decisions about health care and to perpetuate care in their family environment³¹. In addition, the teaching of oral hygiene methods is widespread in society, especially in the school environment, which can contribute to reducing the inequalities of information that the different levels of education provide. The Brazilian government's Programa Saúde na Escola (PSE) can be cited as an example. It has been instituted in the municipalities since 2007, with

the purpose of promoting the general and oral health of students in public education institutions. Among the actions concerning oral health are: oral health education, supervised brushing and topical application of fluor³². In the specific case of Vitória-ES, where the present study was conducted, health actions in schools have been carried out systematically, even before the launch of this policy.

The association of oral hygiene practices with the use of dental services has also been reported by different scientific studies^{17,33}. In this study, a dental appointment performed at least once in a lifetime was significantly associated with the variable "oral hygiene practices", demonstrating that those who had a dental appointment have approximately three times the chance of having a more favorable oral hygiene practice than those children who have never been to the dentist.

These findings corroborate the research conducted by Casanova-Rosado *et al.*⁴, whose results showed a higher probability (37%) of brushing their teeth, at least once a day, in children who had already been to the dentist. Similarly, other studies^{30,17} have reported a higher frequency of daily brushing in groups that use dental services more frequently. The association of dental consultation with a more favorable oral hygiene practice may occur due to more constant guidance by a trained professional on the importance of hygiene habits in maintaining oral health, encouraging the child to brush and use wire more often. In addition, the consultation seems to stimulate oral hygiene when compared to the less favorable level. The scientific literature reports that children develop a greater ability to incorporate care taught by a qualified professional⁴.

Low birth weight (<2500g) was also significantly associated with intermediate level of oral hygiene practice. Children with low birth weight have an increased risk of cerebral palsy, seizures, severe mental retardation, respiratory tract infections, among other risks³⁴. In the oral cavity, there may also be alterations related to defects in dental enamel, alteration in the chronology of tooth eruption and predisposition to dental caries lesions in the primary dentition, in addition to dysfunctions in the craniofacial complex that can cause palate deviation³⁵.

In view of the related complications, the results found may be due to the association between psychosocial aspects and the adoption of positive habits related to oral health. The study by Davlogio *et al.*¹⁰ showed that those adolescents who did not feel discriminated against and were accepted by their social group brushed their teeth more frequently. In another study conducted by Koerber *et al.*¹² those children who did not have problems with their physical appearance also adopted more favorable oral hygiene habits.

Among the oral diseases, dental caries is the main disease that affects the oral cavity. In this sense, the removal of biofilm from the dental surface through brushing by schoolchildren contributes significantly to its prevention¹. The results of the present study showed an association between the positive caries experience and the most favorable level of oral hygiene practice, contrary to some studies^{4,36,37} that described a positive association between a higher frequency of brushing and flossing and a lower incidence of caries. However, the studies presented^{4,36,37}

consider the frequency of brushing limited to once or twice a day, without considering the use of dental floss. In this study, the assessment of the levels of oral hygiene practices was more rigorous, because the frequency of brushing, at the most favorable level, for example, considered the child brushing twice or more times a day, linked to the use of the toothbrush. floss sporadically or frequently. This may explain the apparent contradiction between the present study and the scientific literature consulted.

In addition, previous caries experience can have a positive influence by encouraging the adoption of more frequent hygiene habits, since health attitudes and behaviors are significantly affected by life experiences and personal histories².

The main limitation of the study is the time elapsed from data collection to publication (15 years), however, as it is an association study and not a prevalence study, the findings remain valid. Other limitations are related to the fact that the information obtained from the children and from the guardians' questionnaire are subject to information and memory bias. In addition, the associations found should be analyzed with caution, since the study does not intend to make direct inferences between causes and effects, but rather to assess the complexity of behavioral and social elements involved in children's oral hygiene practice.

Despite being a school-based study, the inference of the results for a population of non-school children is strong. With the inclusion of schoolchildren in the design, almost all children aged 7 to 10 years were obtained, since more than 99%³⁸ of children aged 6 to 14 years are enrolled in the education system.

CONCLUSION

The adoption of oral hygiene habits in children is a complex behavior determined by a variety of factors related to different aspects of life. Among the child characteristics studied, birth weight and caries experience were associated with intermediate and more favorable oral hygiene practice, respectively. The results of this study reinforce that family

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cohesion is important for the frequency of performing oral hygiene habits, in the same way as the use of health services through dental appointments and the possession of one's own toothbrush without sharing.

The importance of social determinants in the adoption of positive habits to maintain adequate oral health is evident, reinforcing the need for a more comprehensive approach from the perspective of social inequalities. In addition, a greater understanding on the part of health professionals is of fundamental need of how health behaviors evolve, develop and change so that knowledge about oral hygiene methods is transmitted individually according to the social and family context in which each child is inserted. In addition, the considerations explained in this study can be used to support actions and health programs that are more positive and effective in relation to the adoption and perpetuation of oral hygiene habits and maintenance of oral health by children and those involved in their social context.

Author Contributions

Conception, planning, analysis, interpretation of results and writing of the work: MPMZ; Design, planning, interpretation of results and final review of the work: MCBM; Analysis, interpretation of results and writing of the work: KGM; conception, planning, interpretation of results, writing of the work and final review of the work: ETSN. All authors approved the final version submitted.

Funding

This project was funded by the Vitória Science and Technology Support Fund (FACITEC).

Acknowledgments

Municipal Department of Education of Vitória-Espírito Santo, Brazil.

Conflicts of Interest

The authors declare that they have no conflicts of interest regarding the authorship and publication of this article.

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Resumo

Introdução: a prevenção da cárie dentária é realizada basicamente pela escovação e uso do fio dental. A adoção desses hábitos, principalmente em crianças, é um processo complexo que depende de fatores relacionados a diferentes aspectos da vida.

Objetivo: determinar a associação entre características infantis, maternas e socioeconômicas com hábitos de higiene bucal em escolares de 7 a 10 anos de Vitória, Espírito Santo, Brasil.

Método: estudo transversal realizado com amostra probabilística em três estágios com população final do estudo de 1.282 alunos. Os dados foram coletados por meio de questionário aplicado às crianças e aos pais para preenchimento e devolução. O desfecho foi a variável resumo denominada; Práticas de Higiene Bucal; com três combinações possíveis: nível menos favorável, nível intermediário e nível mais favorável. As variáveis independentes foram características das crianças, maternas e socioeconômicas. A Análise de Regressão Multinomial foi realizada entre as variáveis independentes que apresentaram significância p -valor $<0,10$ na Análise Bivariada e a variável resumo. O nível de significância para as variáveis no modelo final foi de p -valor $<0,05$ e o nível menos favorável foi utilizado como referência.

Resultados: a maioria das crianças era do sexo feminino (58,0%), com idade entre 8 e 9 anos (56,1%) e matriculada em escolas públicas (82,8%). O nível de higiene bucal mais favorável apresentou a maior prevalência (78,0%) entre os escolares. Permaneceram associadas ao nível mais favorável no modelo final as variáveis: morar com pai e mãe no mesmo domicílio (OR=2,88; IC 95%=1,15-7,20), consulta odontológica (OR=3,01; IC 95%=1,32-6,85), experiência em cárie (OR=2,88; IC 95%=1,15-7,20) e possuir escova de dentes (OR=4,72; IC 95%=1,43 -15,66).

Conclusão: os determinantes sociais têm forte influência na adoção de hábitos positivos. É necessário para a saúde pública uma abordagem mais abrangente na perspectiva das desigualdades em saúde para que o contexto familiar e social não seja negligenciado.

Palavras-chave: higiene bucal, hábitos, criança, determinantes sociais da saúde.

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