

Evaluating Eating Habits and Preferences among Primary School Children in Chennai: A Comprehensive Cross-Sectional study

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Abstract-

Background: Dental caries is a persistent oral health challenge, especially among children, with multifaceted factors influencing its development. This study explores the less-explored relationship between children's eating behaviour traits and dental caries, recognising the critical role of early dietary habits and behaviours in oral health.

Materials and Methods: A six-month cross-sectional study involving 254 parents assessed various demographic, oral hygiene, and eating behaviour traits among children. Questionnaires, including the Comprehensive Feeding Questionnaire (CEBQ), were used to collect data. Ethical approval and informed consent were obtained.

Results: The results showed that 53.1% of children brush their teeth once a day, 47.5% experiencing dental caries, and various eating behaviour traits. Slower eating habits, occasional snacking, and food preferences emerged as influential factors, with high food fussiness associated with a 2.4 times higher caries risk.

Conclusion: This study provides insights into the relationship between eating behaviour traits and dental caries in children. The findings support the importance of early dietary habits and behaviours in oral health, which can inform targeted interventions and prevention programs, enhancing awareness among parents and health care professionals.

Keywords: Dental caries, Primary School Children, Eating Habits, Preferences, Chennai, Cross-Sectional Study

INTRODUCTION

Oral health holds significant importance as it serves as the initial point of contact for food consumption. Caries is a common dental issue, frequently observed in children, and it arises due to the accumulation of food debris on the teeth, leading to the development of cavities. Dental caries, commonly known as tooth decay, represents a significant and persistent oral health challenge, particularly among children. Despite advancements in dental care and oral hygiene education, dental caries continues to affect the overall health and well-being of young individuals, with consequences extending into adulthood.¹ A comprehensive understanding of the factors contributing to the development of dental caries in children is imperative for formulating effective preventive strategies and interventions. One of the lesser-explored areas in this field is the relationship between a child's eating behaviour traits and the prevalence of dental caries. A child's eating behaviour traits encompass various aspects, including dietary preferences, mealtime behaviours, food choices, and responses to hunger and satiety cues.² These behaviours may have a profound impact on their oral health. Among these contributing factors, a child's eating behaviour traits play a pivotal role, shaping their dietary habits and influencing their susceptibility to dental caries.³ The oral cavity, with its complex ecosystem of bacteria and oral hygiene practices, represents a dynamic environment where dietary choices can either promote or hinder the formation of dental caries. Children, in particular, are a vulnerable population in this regard, as their eating habits are often shaped during early developmental stages, and they may lack the knowledge and discipline to make healthy food choices. While the relationship between sugar consumption and dental caries is well-established, there is a growing body of research suggesting that eating behaviour traits, such as snacking frequency, meal patterns, and food preferences, are equally significant in determining a child's oral health.⁴ The aim of this study is to provide an in-depth insight into the complex interactions between a child's eating and behavioural characteristics and the occurrence of dental caries.

MATERIALS AND METHODS

This research utilised a cross-sectional approach to investigate the relationship between a child's eating behaviour traits and dental caries. The study was carried out over a six-month period, spanning from June 2023 to October 2023. This

time frame encompassed data collection, analysis, and the compilation of the final report. The study focused on parents and their perceptions of their children's eating behaviour traits and dental health. The research was conducted among patients attending the paediatric OP of a private dental college and three primary schools in Chennai. Ethical approval was obtained from the Institutional Review Board. A sample of 254 participants were selected through convenient sampling method. The questionnaire employed in this study consisted of 20 questions aimed at investigating a child's eating behaviour traits and their relationship with dental caries. The CEBQ, which is used in this study, is generally regarded as one of the most comprehensive instruments in assessing children's eating behaviour. The questionnaire was validated during the pilot study and showed adequate consistency (Cronbach's alpha = 0.78). The first section of the questionnaire recorded the demographic details and the second part consisted of questions related to child's eating behaviour. Data collection was carried out through the distribution of printed questionnaires to parents after obtaining permission from the concerned authorities. Participants were reassured regarding the confidentiality and privacy of their information during the research process and were asked to provide appropriate answers. The collected data was encoded and subjected to analysis using IBM SPSS Version 26 software. Cross tabulations were made and statistical significance were assessed using Pearson's Chi-square test.

RESULTS

In this study, a total of 254 parents participated. Among them, 36% were employed as professionals, 48% worked in skilled positions, and 16% were unemployed. The mean age of the children involved in the study was 8 years. In terms of gender, 46.5% of the children were female, and 53.5% were male. When it came to birth order, 52.8% were firstborn, 33.5% were second-born, and 9.1% were third-born, with the remainder falling into other categories. Regarding their understanding of dental caries, 57.5% of the parents considered it a disease. Additionally, 47.5% of the parents reported that their child had experienced dental caries, this was statistically significant [p- value .034]. The vast majority (93.7%) of parents mentioned that their child used toothbrush and toothpaste as cleaning aids for oral hygiene. In terms of brushing frequency, 53.1% of the children brushed their teeth once a day. Moreover, 42.1% of the children rinsed their mouths after each meal. Eating behaviour traits were also examined. Approximately 61.8% of parents noted that their child sometimes kept food in their mouth while eating, and 54.7% said their child occasionally finished their meal on time. In terms of preferences, 53.5% of the children occasionally asked for cold drinks. A minority (28%) of parents mentioned that their child always ate slowly. Nearly half (49.2%) reported that their child sometimes liked to try new foods at home, and 49.5% felt their child ate less when they were unwell. When it came to overeating, 44.4% of parents stated that their child never ate too much. A significant portion (35.4%) mentioned that their child always enjoyed a wide variety of foods. About 53.5% reported that their child took more than 30 minutes to finish a meal, and 66.9% said their child sometimes left some food on their plate at the end of a meal. A small percentage (16.1%) of parents noted that their child never enjoyed eating. In terms of food preferences, 47.5% of parents indicated that their child liked both liquid and solid foods. Furthermore, 24.8% reported that their child frequently consumed sweets. Additionally, 48% of parents mentioned that, even when their child was full, they sometimes found room to eat their favourite foods. Finally, 37.7% of parents observed that their child couldn't always finish their whole meal after having snacks before eating.

Table 1. Distribution of subjects based on demographic details

		Mean	Standard Deviation
AGE	6-10 (Range in years)	8.06	1.534
		FREQUENCY (N)	PERCENTAGE (%)
GENDER	MALES	136	53.4
	FEMALES	118	46.5
BIRTH ORDER	1ST	134	52.8
	OTHER	120	47.2
TOTAL		254	100.0

Table 2: Comparative Analysis of Dental Caries and Oral Hygiene Practices among Different Demographic Groups

Question	Options	Gender (%)		p-value	Birth Order (%)		p-value
		Female	Male		1st	Others	
1. Is dental caries a disease?	Don't know	65 (55.1)	70 (51.5)	.837	12 (9.0)	12 (10.0)	.034*
	Yes	1 (0.8)	1 (0.7)		54 (40.3)	30 (25.0)	
	No	52 (44.1)	65 (47.8)		68 (50.7)	78 (65.0)	
2. Does your child ever had dental caries?	Don't know	35 (29.7)	42 (30.9)	.781	7 (5.2)	7 (5.8)	.122
	No	35 (29.7)	35 (25.7)		71 (53)	47 (39.2)	
	Yes	48 (40.7)	59 (43.4)		56 (41.8)	65 (54.2)	

3. What is the type of cleaning aid will your child use?	Finger brushing	2 (1.7)	1 (0.7)	.878	1 (0.7)	2 (1.7)	.629
	Tooth paste and brush	3 (2.5)	4 (2.9)		128 (95.5)	110 (91.7)	
	Tooth powder	110 (93.2)	128 (94.1)		3 (2.2)	4 (3.3)	
	others	3 (2.5)	3 (2.2)		2 (1.5)	4 (3.3)	
4. How often does your child brush your teeth?	Once a day	60 (50.8)	70 (51.5)	.837	72 (53.7)	63 (52.5)	.324
	Twice a day	49 (41.5)	1 (0.7)		0 (0.0)	2 (1.7)	
	Several times a week	8 (6.8)	65 (47.8)		62 (46.3)	55 (45.8)	
5. Does your child rinse his/her mouth after every meal?	No	35 (29.7)	42 (30.9)	.781	41 (30.6)	36 (30.0)	.505
	Yes	35 (29.7)	35 (25.7)		33 (24.6)	37 (30.8)	
	sometimes	48 (40.7)	59 (43.4)		60 (44.8)	47 (39.2)	

* Statistically significant
Pearson's Chi-square test

Table 3: Eating Habits and Preferences among Children: A Gender and Birth Order Perspective

Question	Options	Gender		P-Value	Birth Order		P-Value
		Females	Males		1st	Others	
While eating does your child always have food in his / her mouth?	Always	10 (8.5)	11 (8.1)	.878	12 (9.0)	12 (10.0)	.678
	Never	37 (31.4)	39 (28.7)		54 (40.3)	30 (25.0)	
	Sometimes	71 (60.2)	86 (63.2)		68 (50.7)	78 (65.0)	
Does your child finish his/her meal on time?	Always	24 (20.3)	26 (19.1)	.654	0 (0.0)	1 (0.8)	.663
	Never	27 (22.9)	38 (27.9)		7 (5.2)	7 (5.8)	
	Sometimes	67 (56.8)	72 (52.9)		71 (53.0)	47 (39.2)	
Does your child always ask for cold drinks?	Always	20 (16.9)	33 (24.3)	.082	24 (17.9)	29 (24.2)	.629
	Never	26 (22.0)	39 (28.7)		29 (21.6)	36 (30.0)	
	Sometimes	72 (61.0)	64 (47.1)		81 (60.4)	55 (45.8)	
Does your child eats slowly?	Always	36 (30.5)	35 (25.7)	.198	44 (32.8)	27 (22.5)	.324
	Never	21 (17.8)	37 (27.2)		27 (20.1)	31 (25.8)	
	Sometimes	61 (51.7)	64 (47.1)		63 (47.0)	62 (51.7)	
Does your child prefers tasting new foods at home?	Always	44 (37.3)	38 (27.9)	.057	43 (32.1)	39 (32.5)	.505
	Never	15 (12.7)	32 (23.5)		22 (16.4)	25 (20.8)	
	Sometimes	59 (50.0)	66 (48.5)		69 (51.5)	56 (46.7)	
Does your child eats less when he / she is not feeling well?	Always	46 (39.0)	45 (33.1)	.510	47 (35.1)	44 (36.7)	.177
	Never	17 (14.4)	26 (19.1)		22 (16.4)	21 (17.5)	
	Sometimes	55 (46.6)	64 (47.1)		65 (48.5)	54 (45.0)	
While eating does your child eats too much?	Always	9 (7.6)	13 (9.6)	.787	11 (8.2)	11 (9.2)	.296
	Never	51 (43.2)	61 (44.9)		61 (45.5)	51 (42.5)	
	Sometimes	58 (49.2)	62 (45.6)		62 (46.3)	58 (48.3)	
Does your child enjoy a wide variety of foods?	Always	49 (41.5)	41 (30.1)	.166	47 (35.1)	43 (35.8)	.066
	Never	18 (15.3)	24 (17.6)		20 (14.9)	22 (18.3)	
	Sometimes	51 (43.2)	71 (52.2)		67 (50.0)	55 (45.8)	
How much time does your child takes to finishes his/her meal?	Less than 30 minutes	41 (34.7)	49 (36.0)	.470	44 (32.8)	46 (38.3)	.166
	More than 30 minutes	23 (19.5)	20 (14.7)		25 (18.7)	18 (15.0)	
	Within 30 minutes	52 (44.1)	67 (49.3)		64 (47.8)	55 (45.8)	
Does your child leave some food on his / her plate at the end of a meal?	Always	16 (13.6)	17 (12.5)	.053	18 (13.4)	15 (12.5)	.616
	Never	16 (13.6)	35 (25.7)		25 (18.7)	26 (21.7)	
	Sometimes	86 (72.9)	84 (61.8)		91 (67.9)	79 (65.8)	

Does your child enjoys while eating?	Always	28 (23.7)	32 (23.5)	.941	33 (24.6)	27 (22.5)	.712
	Never	20 (16.9)	21 (15.4)		18 (13.4)	23 (19.2)	
	Sometimes	70 (59.3)	83 (61.0)		83 (61.9)	70 (58.3)	
Does your child prefer more liquid or solid food?	Both	63 (53.4)	57 (41.9)	.201	65 (48.5)	55 (45.8)	.880
	Liquid	32 (27.1)	40 (29.4)		39 (29.1)	33 (27.5)	
	Solid	23 (19.5)	38 (27.9)		30 (22.4)	31 (25.8)	
How often does your child takes sweets?	Always	24 (20.3)	39 (28.7)	.168	47 (35.1)	43 (35.8)	.710
	Never	12 (10.2)	18 (13.2)		20 (14.9)	22 (18.3)	
	Sometimes	82 (69.5)	79 (58.1)		67 (50.0)	55 (45.8)	
Even your child is full up do they find a room to eat his / her favourite food?	Always	23 (19.5)	22 (16.2)	.451	22 (16.4)	23 (19.2)	.522
	Never	34 (28.8)	49 (36.0)		41 (30.6)	42 (35.0)	
	Sometimes	61 (51.7)	65 (47.8)		71 (53.0)	55 (45.8)	
Does your child able to finishes their whole meal after taking snacks before meals?	Always	16 (13.6)	18 (13.2)	.985	23 (19.2)	22 (16.4)	.092
	Never	43 (36.4)	51 (37.5)		42 (35.0)	41 (30.6)	
	Sometimes	59 (50.0)	67 (49.3)		55 (45.8)	71 (53.0)	

Pearson's Chi-square test

DISCUSSION

According to Scaglioni et al., parents play a central role in shaping their children's eating behaviour and food preferences through their own habits and feeding practices.⁵ In our study, it is noteworthy that most parents reported that their children use toothbrushes and toothpaste for maintaining oral hygiene, which is crucial for preventing dental caries. However, only 53.1% of the children brushed their teeth daily. In our research, 47.5% of parents mentioned that their child had experienced dental caries. In comparison, Regina Puspita Sari et al. found that 63% of respondents exhibited poor eating behaviour, and the majority (80.35%) had cavities due to caries.⁶ In our study, 28% of parents noted that their child always ate slowly. In contrast, Nur Alam Fajar's study found that children with a high category of slowness in eating was as high as 66.7%, and food fussiness was prevalent in 50.9%.⁷ Similarly, Veera F. Virkkala's research discovered that higher snacking frequency, a desire to drink slowly, and food fussiness were associated with an increased risk of caries, while enjoying food was linked to a lower caries experience.⁸ We observed that 53.5% of children occasionally requested cold drinks in our study. In contrast, Shqair AQ et al. found that children with dental caries showed higher scores in the desire to drink.⁹ Furthermore, we found that a significant proportion (35.4%) mentioned that their child always enjoyed a wide variety of foods. However, Anandakrishna et al.'s study did not establish a significant relationship between food enjoyment and early dental caries.¹⁰ Additionally, our study revealed that 53.5% of children took more than 30 minutes to finish a meal, potentially indicating slower eating habits, which may contribute to a reduced risk of dental caries, as extended exposure to food can lead to increased saliva production, which aids in protecting against cavities. We also found that a considerable number of children sometimes consumed sweets and could eat their favourite foods even when full, highlighting the importance of monitoring and guiding children's food choices, especially concerning sugary snacks, to maintain good dental health. Nembhwani et al.'s study showed that children with high food fussiness were 2.4 times more likely to develop caries compared to children with low food fussiness, which aligns with the results of our study.¹¹ The observations regarding mealtime habits, such as occasionally retaining food in the mouth while eating and occasionally finishing meals on time, provide insights into eating behaviours that could influence the development of dental caries.

CONCLUSION

In conclusion, this study provides valuable information on various factors related to children's eating behaviour characteristics and their association with dental caries. The findings can help to frame oral health interventions and strategies, as well as to raise awareness among parents and health professionals. Further research and investigation may help establish more specific links between dietary behavioural characteristics and dental caries, potentially leading to targeted interventions and prevention programs

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