

PARENTS FOOD CHOICE MOTIVE, ATTITUDES AND THEIR ASSOCIATION WITH CHILDREN'S FOOD PREFERENCES WITH ECC: CASE-CONTROL STUDY

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Article Received on 23/11/2024

Article Revised on 13/12/2024

Article Accepted on 03/01/2025

ABSTRACT

Background: Children learn about food choices between 2 and 5 years of age and make food preferences based on the food items that they are exposed to, during this period. They depend on parents for providing food, and hence, food choices of the parents play an important role in their diet. Parents can impact their children's eating habits by making some foods more accessible. By their own eating habits and food choices, parents can serve as role models of eating behaviour which then has effect on oral health. **Aim:** To assess the Parents food choice motive, attitude and their association with children's food preferences with ECC. **Objective:** To evaluate the Parents food choice motive, attitude and their association with children's food preferences with case group (with ECC). **Materials and Methods:** A total of 335 school going children of age 3-5 years were examined and questionnaire forms were collected from their parents. They were divided into case and control group and results will be evaluated on basis of their answers. **Results:** Food choices motives, attitudes were associated with dental caries. The results were statistically significant. **Conclusion:** Food choice motives, convenience of buying food for the parents and the sugar exposure in the diet of children is associated with ECC.

KEYWORDS: ECC, food choices, Parents Motive.

INTRODUCTION

Early childhood caries (ECC) is marked by the existence of at least one decayed, missing or filled tooth surface in any deciduous tooth of a child aged 71 months or younger.^[1]

It develops resulting from the interaction of a host, fermenting carbohydrate and cavity-causing bacteria over time.^[2] It is further impacted by biological, psychosocial and economic risk factors,^[3] furthermore dietary sugar exposure can alter the microbial composition, increase levels of cavity-causing bacteria and contribute to the onset of tooth decay.^[4]

Food choices can be described as the selection of foods for consumption contributed by the combined reinforcing and interacting effects of various factors.^[5] Children develop their understanding of food choices between the ages of 2 year and 5 year forming preferences based on the foods they are exposed to during this time, since they rely on their parents for food provision parental food

choices strongly impact their diet.^[6] Unhealthy dietary preferences can lead to unhealthy eating habits in children negatively impacting their overall well-being and raising their risk of developing tooth decay.

Various factors including psychosocial and economic status, parenting practices and attitudes significantly influence food choices,^[7] although various individual and environmental factors influence children's food intake food preferences have consistently proven to be especially impactful. Identifying the factors that shape food preferences in this age group is crucial for designing effective interventions to enhance children's oral health.^[6]

Food selections and eating habits intake efforts to prevent or reduce the risk of ecc through dietary modifications can be complex and require carefully designed theory-driven interventions. Gaining a comprehensive understanding of the perspectives of parents of Indian children with ecc is a crucial step in

developing targeted programs to mitigate ecc risk.^[8] Therefore, the present study was designed to examine parents' food choice motives and attitude and their association with children's food preferences in children with ecc compared to those without ecc.

AIM: To assess the Parents food choice motives, attitude and their association with children's food preferences with Early Childhood Caries (ECC).

OBJECTIVES: To evaluate the Parents food choice motive, attitude and their association with children's food preferences with case group (with ECC).

MATERIALS AND METHODS: This study was conducted among preschool children using a case-control study design.

SAMPLING AND SAMPLE SIZE: The participants were selected from the preschools of Indore city. A list of preschools of the city was drawn and the schools were selected by a simple random sampling technique using a random number table. All the children attending the selected schools formed the study population, from which the final sample was drawn based on the inclusion and exclusion criteria. The sample size was calculated as 400 with an equal number of cases and controls.

ETHICAL ISSUES: A written informed consent was obtained from parents, and the headmaster/headmistress of the preschools gave a written approval before the study. Institutional Ethics Committee provided a clearance before beginning the study. Informed consent forms were sent to 400 parents of children studying in six kindergarten schools and 335 parents consented to participate in the study.

INCLUSION CRITERIA

- Preschool children aged 3 to 5 years
- Children whose informed consent had been obtained.
- Children present at the day of examination

EXCLUSION CRITERIA

- History of systemic or mental illness.
- Children whose parents refused to fill the questionnaire were excluded from the study.

MATERIALS

- Oral Examination Form
- Questionnaire form
- Mouth Mirror
- CPITN Probe
- Kidney Trays
- Disposable Glass
- Cotton Holder
- Waste Dispenser
- Disinfectant
- Torch
- Head caps and mouth masks

PROCEDURE

A. Questionnaire - Parents were requested to answer a structured questionnaire before the examination. The questionnaire was distributed in the preschools with an instruction to parents to fill them at home and return within 72 h. Incompletely filled questionnaires were sent back to the parents, at least twice, with a request to completely fill them.

The questionnaire consisted of demographic details of the child, such as age, gender, and socioeconomic status (according to Kuppuswamy scale).^[9] The parents motives for food choice of their child were assessed using a modified Food Choice Questionnaire (FCQ) that consists of 36 items.^[6] The questions were under the domains of health, convenience, price, sensory appeal, quality, mood, familiarity, ethical concern, weight control, what the child wants and others preference. The parental attitudes toward child sugar snacking were assessed based on a scale given by Adair et al.^[10] on parental attitudes, which consist of two domains: (a) importance and their intention to control child sugar snacking and (b) perception of parental efficacy in controlling child sugar snacking.

Before utilizing in the study, the test-retest reliability of the questionnaire was assessed by requesting 10 parents who were otherwise not included the study to respond to the questionnaire. At the end of the study, out of 400 participants, 65 participants who returned partially filled or did not return the questionnaire or did not fulfill the inclusion-exclusion criteria were excluded from the study.

B. Oral examination: A total of 400 school going children of 3-5 years were examined. Cases and controls were selected after an oral examination in their respective preschools. Children with ECC were cases and those without ECC were controls. The child was reclined on a table with the examiner standing behind the child's head. All teeth were examined using mouth mirror and WHO probe under the illumination of focusable flash light. The teeth were dried with sterile gauze before the examination and an assistant charted decay-missing-filled teeth index (DMFT) in accordance with the WHO-DMFT criteria.^[11]

A close ended questionnaire was circulated among the parents of both case and control group in local language & was collected within 2 days. Out of 400 questionnaire only 335 responded.

STATISTICAL ANALYSIS: The data collected was entered in Microsoft Excel and subjected to statistical analysis using Statistical Package for Social Sciences (SPSS, IBM version 20.0). The level of significance was fixed at 5% and $p \leq 0.05$ was considered statistically significant. Kolmogorov-Smirnov test and Shapiro-Wilks test were employed to test the normality of data. Chi square test was performed for quantitative variables.

RESULTS

The mean age of the children whose parents were included in the study was found to be $4.03 \pm .81$ years with 161 males and 174 females. The cases and controls were almost equally distributed. out of 335 children's 51% were cases and 49% were control.

Table 1 shows that a major portion of participants preferred food that contains no adhesives and also the food which are good for their child's health. Hence results found to be statistically significant.

Table 2 shows that major of the parents prefer food according to the mood of the child.

Whereas in table 3 parents prefer food which the child usually ate for their routine or as per the child's wish. Results were statistically significant.

According to table 4 most of the parents preferred packed food and results were statistically significant. Interestingly when seen relation between food and ecc children prefer both salty and sweet food, results were statistically significant.

According to table 6 children prefer food which look good hence were more prone to caries.

In table 7 most of the parents preferred freshly prepared hot food but close relationship was seen among control and case group where results were statistically significant.

In table 8 on asking about the knowledge of parents if sugar consumption had relation to dental caries, 93 percent of parents agreed, hence results was found statistically significant.

Table 1: Association between selection of health and nutritional value of food and early childhood caries.

Q1. You select health and nutritional value of food to be as same is					
	That is good for his/her health	Contains no additives	Is Nutritious for him/ her	Good for Weight control	p Value
Control	57%	8%	35%	0%	0.001(s)
Cases	46%	51%	2%	1%	

Table 2: Association between provision of food in accordance to the mood of the child and early childhood caries.

Q2. Do you provide food accordingly to mood of the child			
	Yes	No	p value
Control	74%	26%	0.213
Cases	80%	20%	

Table 3: Association between provision of food in accordance to child's wish and early childhood caries.

Q3. Do you give food according to his wish				
	Usually what child eats	As per child asks	Eaten by others/ fellow kids.	p value
Control	30%	63%	6%	0.001(s)
Cases	51%	47%	1%	

Table 4: Association between foods preference and early childhood caries.

Q4. What kind of food do you prefer			
	Freshly prepared	Packed	p value
Control	76%	24%	0.001(s)
Cases	47%	53%	

Table 5: Association between foods preference and early childhood caries.

Q5. What kind of food do you prefer				
	Salty	Sweet	Both	p value
Control	21%	41%	37%	0.001(s)
Cases	15%	25%	60%	

Table 6: Association between foods liked by child with early childhood caries.

What kind of food does your child like				
	Which Looks good	Which Smell nice	which taste good	p value
Control	54%	5%	40%	0.088
Cases	60%	10%	30%	

Table 7: Association between foods preference when child is hungry and early childhood caries.

Q7. If child is hungry what easy option do you prefer			
	To fresh prepare hot food	Biscuit / Chips	p value
Control	45%	55%	.019*(s)
Cases	57%	43%	

Table 8: Association between opinion regarding dental caries reduction and early childhood caries.

Q8. Dental caries can be controlled by reducing the sugar consumption			
	Agree	Disagree	p value
Control	88%	12%	0.149
Cases	93%	7%	

DISCUSSION

A case-control study was conducted to investigate the influence of parents' motives and food choices related to sugar consumption on the development of caries. The results indicate that among the motives and food choices the convenience of food purchases by parents and children's dietary sugar exposure are linked to the occurrence of ECC. The samples were matched based on age, gender, and socioeconomic status to reduce confounding, as these factors are known to affect motives and food choices & dietary habits.^[12] The FCQ, developed by Steptoe et al., was used to assess parental motives and food choice for their child,^[13] it has been extensively utilized to investigate motives and food choices in diverse populations.^[6,14] The study results revealed that a significant majority of participants preferred non-adhesive foods and foods beneficial for their child's health (Table 1). Similar findings were observed in studies conducted in other populations. Parents of children without ECC (control group) prioritized the nutritional value of food, while those with ECC (case group) favoured food perceived as beneficial for their child's health, a trend also reported by Samaddar et al. (2021).^[15] In the case group, parents selected food based on the child's mood, whereas in children with ECC, parents chose food according to the child's requests. Parents generally preferred foods that their child routinely consumed or desired, consistent with findings from a study by Russell et al. (2014).^[6] This, along with evidence indicating that giving children the freedom to choose what and when to eat or offering them a wide variety of food options, is linked to less healthy eating patterns in children.^[16,17] The child's likes and dislikes were the top priority among various factors, as parents prioritized their children eating food over its nutritional content, as observed by Anjum et al.^[18] Children without ECC tend to have a stronger preference for salty and sweet foods, as also noted by Russell et al. (2014) and Bouhlal et al. (2013).^[19] Based on the results of our study, it can be inferred that parents of children with ECC had motives and food choices similar to those of parents of children without ECC, with the exception of packaged food and convenience in purchasing food. The case group showed a preference for packaged food. A Norwegian study found that the "convenience" food choice motive was associated with the consumption of readily available processed foods.^[19] Most parents preferred freshly prepared hot food,

although a close relationship was observed between the control and case groups. Despite being aware of healthy food choices, parents often purchase cariogenic foods due to their easy availability, as noted by Anjum et al.^[18] Parents in both the case and control groups believed that it was important to regulate sugar consumption. This suggests a gap between parents' attitudes and motives regarding food choices and their children's actual food consumption. This indicates a mismatch between parents' attitudes and motives concerning food choices and their children's actual food consumption. Possible reasons for this discrepancy could include conflicting child preferences and demands, as well as time constraints, as observed by Russell et al. The results are consistent with those of Samaddar et al.^[15] and Adair et al.^[10] study supports the hypothesis that parental attitudes have a significant impact on the oral health practices of their children. In another study involving Indian mothers, it was found that despite having a good understanding of cariogenic foods, mothers still purchased them for their children.^[19] there is a need to replace sweetened beverages, candies, and other sticky sugary foods with unsweetened, healthier alternatives, while also enhancing their accessibility and availability. There is a need to replace sweetened beverages, candies, and other sugary, sticky foods with unsweetened, healthy options and improve their accessibility and availability. Community-based initiatives and policies are necessary to improve the access to and availability of healthy, non-cariogenic foods. Therefore, further studies with a larger sample size, exploring the role of parents' occupation, socioeconomic status, and attitudes toward diet in food choices among parents of children with ECC, can be conducted. The association between motives and food choices, high sugar consumption, and ECC suggests a need for further studies to investigate the factors contributing to elevated sugar intake in children with ECC.

CONCLUSION

There has been a very close relation between the food choices of case and control group children. The parents of both cases and the control groups consider it important serving healthy and nutritious food to their children. However, the availability of cariogenic foods and the ease of buying these items is a food choice motive associated with parents of children with ECC. Though parents were aware that sugary food items are cariogenic,

yet the perceived efficacy to control the intake of sugar by their children was low.

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