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PREVALENCE OF PROBLEMATIC EATING BEHAVIOUR IN CHILDREN AND ITS ASSOCIATION WITH EARLY CHILDHOOD CARIES AMONG 36 71-MONTH-OLD CHILDREN: A CROSS SECTIONAL STUDY"

Dental Science

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ABSTRACT

Problematic eating behavior in children includes selective fussy eating, anorexia, pouching of food and neophobia which may increase the risk for the Early Childhood Caries. Moreover, problematic eating behavior present in children are often a precursor of disordered eating later in life.A study was executed among 155 children aged 36-71 months in various schools of Kolkata for the assessment on eating behaviorby using CEBQ questionnaire followed by dental caries evaluationusing ICDAS II Index.The gender distribution and prevalence of ECC was assessed. Food Responsiveness, Emotional Over Eating, Slowness in Eating, Satiety Responsiveness was significantly associated with ECC.

KEYWORDS

Early childhood caries, Problematic eating, ICDAS II, CEBQ.

INTRODUCTION

Dietary pattern hasimportant implications in the development and prevention of various chronic diseases likedental caries in children. Food preferences and eating behaviorsare continuously changing throughout life, under the influence of various factors. Eating behaviors established in childhood often leads to obesity and increased dental caries risk. Although problematic eatingbehaviors are difficult to modify directly, parental feeding practices may be modified to prevent unhealthy eating patterns, thereby restricting development of childhood caries.[1]

Specific eating behaviour may not only increase the risk for Early Childhood Caries (ECC) but they often are a precursor of disordered eating later in life, which have been classified by the Diagnostic and Statistical Manual of Mental Disorders as Eating Disorder Not Otherwise Specified.Thus, aknowledge on eating disorders and their effects on oral & systemic health may help the parents to rectify their children's eating pattern at an early stage & also aid in the pedodontist's diagnosis, intervention and correct referral to other health professionals.[2,3]

Early Childhood Caries (ECC) is a disease characterized by the presence of 1 or more decayed (non-cavitated or cavitated lesion), missing (due to caries), or filled tooth surfaces in any primary tooth in a child 71 month of age or younger. In children younger than 3 years of age, any sign of smooth-surface caries is indicative of Severe Early Childhood Caries. From ages 3 through 5, one or more cavitated, missing (due to caries), or filled smooth surfaces in primary maxillary anterior teeth or a decayed, missing or filled score of ≥4 (age 3), ≥5 (age 4), or ≥6 (age 5) surfaces constitutes S-ECC.[3,4]

The risk factors contributing to the development of early childhood caries are boundless and thus is contemplated as multifactorial.[2,3,4]

However, effect of problematic eating behavior hasbeen unexposed and overlooked in the causation of ECC, therefore, the aim of this study was to assess and analyze the prevalence of problematic eating behavior and its relationship with ECC among 36-71-month old children using CEBQ.

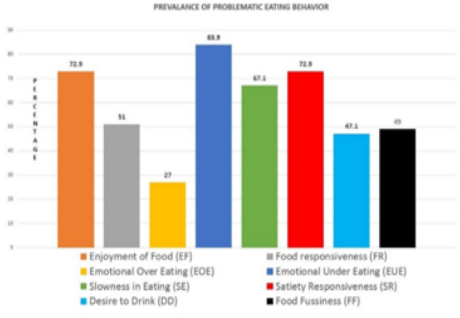
METHODS:

A cross-sectional study was executed in 155 children aged 36-71 months in various schools of Greater Kolkata by using stratified random sampling method from nursery to class one. Consent from the school and the parents were obtained for carrying out dental examination using ICDAS II Index5 for dental caries and for collecting data from the parents through questionnaires.

examination was carried out on chairs using basic diagnostic instruments, according to the guidelines of American Dental Association for Type 3 examination.Children's eating behavior were evaluated by using (CEBQ) form developed by Jane Wardle et al 2001, University College, London, which was answered by the parents. It included food responsiveness (FR), enjoyment of food (EF), food fussiness (FF), and satiety responsiveness (SR), emotional under eating (EUE), desire to drink (DD) and slowness in eating (SE) for the presence or absence of each item.The values were subjected to Pearson's Chi-square statistical analysis with SPSS software 20.

RESULTS

Results showed gender distribution among sample populationto be 43.2% males and 56.8% females with prevalence of ECC being 64.5%.The prevalence of problematic eating behaviors in children of the group were as follows: (As per CEBQ scores) (Graph1).



The association between gender and problematic eating habits was evaluated where only DD was found to be significant ($p<0.05$) among both the genders.

We noticed that problematic eating habits like FR, EOE, SE and SR were giving significant results ($p<0.05$) irrespective of genders. (Table 1)

TABLE 1: ASSOCIATION BETWEEN CARIES PREVALENCE & PROBLEMATIC EATING

CARIES		EF	FR	EOE	EUE	SE	SR	DD	FF
NO	Mean	13.56	12.80	8.11	13.42	7.09	17.22	7.85	15.60
	Median	15.00	11.00	7.00	14.00	6.00	18.00	7.00	14.00
	SD	5.76	6.02	3.88	3.13	4.01	5.14	4.44	7.13
YES	Mean	15.01	14.96	9.55	13.89	17.98	15.43	8.29	14.29
	Median	16.50	15.00	9.00	14.00	20.00	15.00	7.50	13.50
	SD	5.05	6.27	4.24	3.34	3.56	5.41	3.58	6.86
	P value	0.121	0.042	0.021	0.390	<0.001	0.036	0.315	0.260
	Significance	Not significant	Significant	Significant	Not significant	Significant	Significance	Not Significant	Not Significant

DISCUSSION

Earlier, the epidemiological surveys had mainly focused on dmft/dmfs to evaluate the prevalence of caries. It is obvious that such studies relied on recording of cavitated lesions only. While ICDAS allows the recording of both cavitated and noncavitated lesions. Hence in our study we have used ICDAS II in place of DMFT index, as it was advantageous in detecting early carious lesions, specially non cavitated incipient carious lesions, that constitutes one of the important features of ECC as per its definition given by AAPD.[3,5]

The CEBQ is designed to assess eight aspects of children's appetite.(SR) reflects a more sensitive response to internal satiety signals. Studies reveal that eating behaviors are inherited, and appears to be age-related, with younger children being more efficient in adjusting their food when compared to older ones.

The sub-scales like (EF) and (FR) represents a heightened interest in food and a more pronounced responsiveness to environmental food cues.6 In general, these behaviors become more apparent as children get older and become more independent about food intake. In contrast, the sub-scales like (SE) and (FF), reflects a lack of enjoyment and interest in food and have been associated with underweight, whereas (EOE) and (EUE) represent emotionally reactive eating behaviors that theoretically show opposing bodyweight outcomes.[7]

Various researchers have found association between eating behavior in children with BMI, mental health, glucose level etc[7, 8, 9,10] but literature on dental aspects of feeding disorders occurring inchildren has not been well documented. Hence, this was an attempt to scrutinize whether therewas any actual association between various eating behavior inchildren and its relationship with early childhood caries.[2]

The scale DDreflects willingness to drink in children usually sugar-sweetened drinks.Several studies found that BMI was positively associated with DD leading to overweight and obesity.[11]In our study DD was found to be presentin47.1% children but was not significantly associated with ECC which was in accordance to the findings of Anandakrishna L et a[l2].Drinking of milk has decreased, while intake of soft drinks and sweetened juices among children has increased in recent times. This can be a contributory cause of non-carious tooth structure loss & obesity in children.[2,12]

FR is the urge to eat on seeing, smelling or tasting palatable food. Studies carried out by Lewinsohn PM et al,has been found to be more in overweight children.[10,13] Gowey MA et al[10] also found significant association of FR with high post prandial glucose level in children.10 This factor showed 51% of our study group and had significant relationship with ECC. The reason for this was hypothesized by Anandakrishna L2 saying this could be due to increased demineralization due to increased exposure to food resulting in higher ECC prevalence. Hence based on the observations we can infer that frequencyand quantity of food has role in ECC.

Viana V et al[7] suggested that EOE and EUErepresent emotionally reactive behaviors that theoretically is proportional to BMI of a child.[7] EOE was observed in 27% of the sample and was also found to be a highly significant associated with ECC.The reason for this could beincreased demineralization due to greater exposure to food stuffs resulting in higher ECC.

SE is characterized by a reduction in eating rate as a consequence of lack ofenjoyment and interest in food. Slow eating is major concern among children.Various authors have putforththat maternal pressure to eat "healthy" lead to slowness in eating [7,14]. Slow eating among children was a common problem reported by mothers in our study group (67.1%). We found highly statistically significant association in children with ECC and slow eating($p < 0.001$). This is due to the fact that increased duration of contact between tooth & food substances lowers the pH that favors the production of organic acids which demineralize tooth structure[15].

SRrepresents the ability of a child to self-regulate the amount of food intake, based on the sensation of fullness[10]. This was found in 72.9% of the children and was found to be significantly associated with ECC. This can be attributed to increased exposure of children to starch and described by Anandakrishna et a[l2] thatmost of the children do not eat a proper meal as they keep on having snacks in between meals.

Thus, with assessment and scrutinization of all the factors, it has been successfully demonstrated in this study that Problematic Eating Behaviour contributes to the development of Early Childhood Caries.

CONCLUSION

As per IAPD 2019 to reduce the prevalence & burden of ECC worldwide, four key areas are to be focused i.e.Raising awareness about ECC, limiting sugar intake, brushing twice daily and Providing 1st preventive guidance by a health professional.This study was an attempt to emphasize on the 4th key area, as it provided preventive guidance to the parents, making them aware of the ill effects of problematic eatingand its impact on the oral health of their children.

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