



Original Article

Incidence of Dental Caries in Relation with Cariogenic Food and Socioeconomic Status among Pediatric Patients

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Abstract

Introduction: Dental caries is one of the most common oral health diseases among children all over the world and its consequences cause a lot of pain and suffering. In the present study the effect of cariogenic food and socio-economic status in the initiation of dental caries among pediatric patients was assessed.

Methodology: Data were collected with a pretested structured interview schedule from 370 participants and their parents attending dental unit, Rajshahi medical college from July 2017 to December 2018. Oral examination was done by dental mirror and probe under sufficient light to find out the dental caries among the children. Data were analyzed using SPSS method.

Results: 91.35% participants had dental caries. Multiple caries was found highest (56. 58%) in low socio-economic status. 68.38% participants regularly consumed the cariogenic food, of them multiple caries were found in 46.64%.

Discussion: The prevalence of dental caries among participants was found 91.35%. In the present study family income has influence on the dental caries. In the present study 68.38% participants regularly consumed sugar containing food items and among them multiple carious teeth were found in 46.64% participants.

Conclusion: Incidence of dental caries is very high among the children of low socio-economic status and who take cariogenic food frequently specially sugar containing food.

Key words: Dental caries, Cariogenic food, Pediatric patients, Socio-economic status.

TAJ 2019; 32: No-2: 43-47

Introduction

Bangladesh is a small country with a large number of populations. Most of the people are poor and illiterate. They are not concerned about their health especially dental health. Teeth are not only helpful for taking food but also necessary for speaking and beautification. The beauty of the face is much more dependable on setting of teeth and their brightness. Dental caries is the most important and common disease among oral health

problems. Dental caries is a highly prevalent chronic disease and its consequences cause a lot of pain and suffering. Dental caries is a localized, post-erupted, pathological process of external origin involving softening of the hard tooth tissue and proceeding to the formation of a cavity. It affects both deciduous and permanent teeth. If the carious lesion is not treated the pulp will become involved, infection will invade it and set up inflammation which will kill the pulp and often,

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by involving the periodontal membrane, produce an acute alveolar abscess.¹ It is reasonable to assume that tremendous variation in caries incidence exist because of a number of factors affecting caries. Basically, caries occur when there is interaction of four principle factors; the host, cariogenic oral flora and a suitable diet for a sufficient length of time. These factors are related each other in relation of dental caries.² Tooth decay is the most chronic condition affecting children today with 60–90% of school going children having dental cavities or decaying teeth. In addition, oral disease in children and adults is higher among poor and under privileged population groups. Tooth morphology is recognized as an important factor for initiation of caries.

The cariogenicity of micro-organisms is variable. It has been established that all acid producing organisms are not cariogenic. *Streptococcus* plays a vital role in initiation of caries. The main etiological microorganism in occlusal and pit and fissure caries is the *Streptococcus mutans* because it ferments mannitol and sorbitol and forms lactic acid which easily colonizes on tooth surface. Diet influence the dental caries. Modern diet includes refined CHO and soft drinks which helps collection of debris predisposing to more caries.

Sugars are the most common dietary etiological factor of dental caries.³

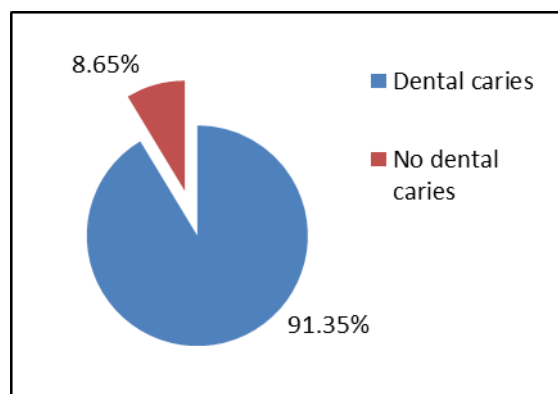
Dental caries is the most prevalent dental affliction of childhood. Despite credible scientific advances and the fact that caries is preventable, the disease continues to be a major public health problem. In developing countries changing life-styles and dietary patterns are markedly increasing the caries incidence.⁴ A common misconception that milk teeth of children will exfoliate and there is a less need to seek expert dental advice may lead to various dental problems such as malocclusions, dental caries and periodontal problems.^{5,6,7}

Materials and Methods

A cross sectional survey using a self-structured questionnaire related to food habits, caries status, socio-economic condition and clinical examination of the oral cavity were conducted among 370 Children of both male and female aged 5 to 12 years attending Department of Pediatric Dentistry, Dental, Unit Rajshahi Medical College, Bangladesh. The study period was from July 2017 to December 2018. Questions were objective and closed ended and were divided into different categories according to the specific areas of food habit. The questionnaires were administered and personal interviews were taken by the investigator in either English or Bangla language.

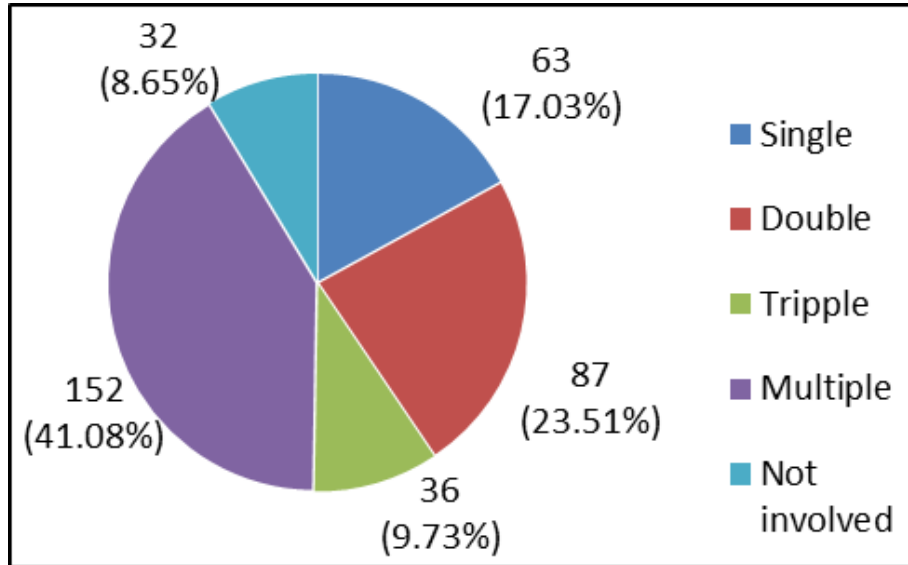
Results

Figure 1: Prevalence of Dental caries and the number of teeth involved



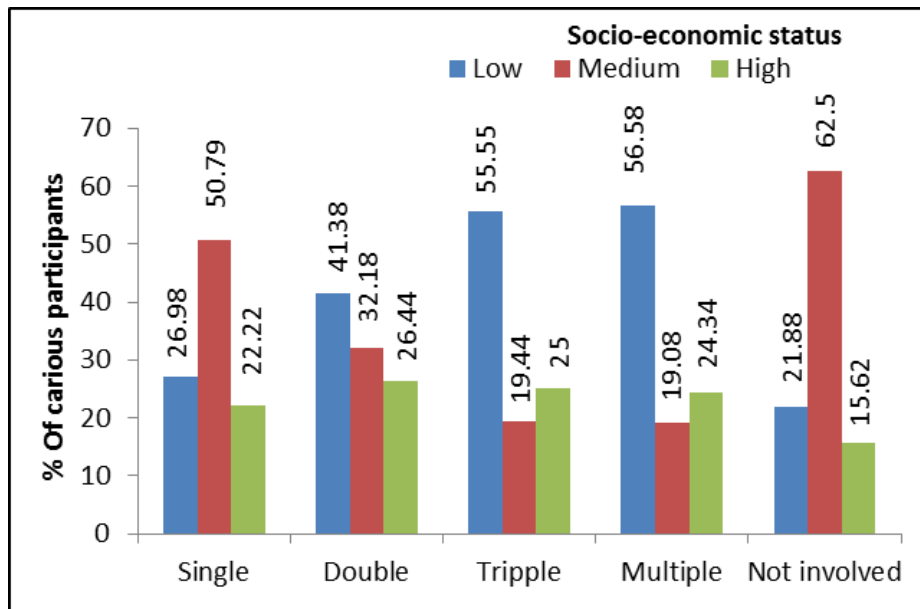
During the study period, 338 children (91.35%) were affected by dental caries.

Figure 2: Distribution of dental caries in relation to the number of teeth involved



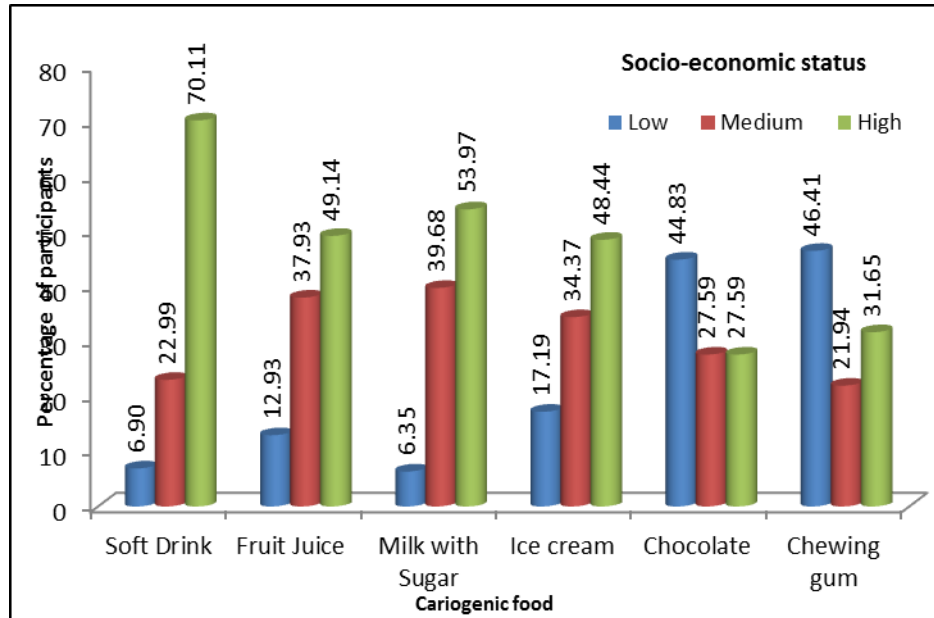
Participants having single tooth involvement were 63 (17.03%) and multiple caries involvement were 152 (41.08%).

Figure 3: Number of carious tooth among participants of different socio-economic status



Multiple caries was found highest in low socio-economic status participants (86, 56.58%).

Figure 4: Distribution of participants based on consumption of different cariogenic foods in relation with different socio-economic status



Out of 370 participants 253 (68.38%) regularly consumed the cariogenic food, of them multiple caries were found in 118 (46.64%) participants.

Discussion

The prevalence of dental caries among participants was found 91.35% which was more or less similar (94.68%).⁸ Most children and 90% of adult had experienced dental caries, with the disease being most prevalent in Asia and Latin American countries.⁹ The prevalence rate of dental caries of the present study (91.35%) was three times higher.¹⁰ This difference might be due to faulty oral health practices and lack of proper awareness about oral health. The highest percentage (80.6%) of children with dental caries was also reported in another study in Nepal.¹¹ Another study reported the prevalence of dental caries as 44.34% which was lower.¹²

In the present study socio-economic status has influence on the dental caries. It was found that 56.58% participants from the low socio-economic status were affected by multiple teeth (more than three teeth) whereas, only 19.08% participants

from the high socio-economic status were affected. The present observation was similar.¹³ It was reported that 63% of participants' family income was low and had dental caries. This result indicated that socio-economic status plays an important role in the causation of dental caries among the children.

About 78.38% of studied participants were found to eat chocolate everyday which was slightly higher (67.02%).⁸ This higher numbers may be due to the easy availability and low cost of chocolate and as well as lack of knowledge of parents about dental caries. Soft drink was taken once in a day by 23.51% participants which was slightly higher (19.15%).⁸

In the present study 68.38% participants regularly consumed sugar containing food items and among them multiple carious teeth were found in 46.64% participants. The result indicates that the participants who took more sugar containing food

items were more sufferers by dental caries. This is similar to the result of another study where 33% patients consumed more sweets, of which 27.30% had multiple caries.¹⁴ The prevalence rate of dental caries was higher in children with higher sugar intake. The present study also indicates that consumption of less sugar containing food can prevent dental caries which is also similar.^{14,15} Restriction of taking sugar based food and proper oral hygiene maintenance decreases the chance of dental caries.

Conclusion

Incidence of dental caries is very high among the children aged 5 to 12 years taking cariogenic food frequently. Moreover, socio-economic status has a direct impact on children's oral health. People from low socio-economic status do not pay enough attention to dental care measures due to lack of awareness and regular preventive visits to a dental professional resulting in the development of dental caries.

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