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ORIGINAL ARTICLE

Impact of Diet on Dental Erosion among Adolescents in Lahore

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ABSTRACT

Objective: This study has planned to explore the dental erosion prevalence among adolescents and relationship of diet with dental erosion among them.

Method: This survey based study was conducted in Lahore. Data was collected from government secondary schools of Lahore. After the approval of research study from institutional ethical review committee, data was collected from 150 students with an age ranged from 13 to 16 years from 5 schools after the permission of principals and parents of the students. Frequencies and percentages were calculated to report the prevalence of dental erosion among adolescents. Chi-square test was used to explore the relationship between diet and dental erosion.

Results: Findings of chi-square revealed a significant difference between the most frequently preferred food and dental erosion among adolescents (X^2=9.67, P=.000). Due to carbonated drinks, 26.67% students were having dental erosion. Dental erosion was found in 20% students who prefer artificial juices, 14.67% students preferred energy drinks, 4% students prefer tea, 2% students prefer coffee, 24.67% students prefer ketchup and 6.67% prefer processed foods.

Conclusion: Dental erosion is 21.42% among school going adolescents with age between ranging from 13 years to 16 years with low socioeconomic status in Pakistan.

Keywords: Dental Erosion, Carbonated drinks, Adolescents, Socioeconomic status

INTRODUCTION

The loss of hard tissue of tooth devoid of any bacterial contribution is known as dental erosion which is a permanent and considerable damage.[1] Dental erosion is a complex procedure based on many chemical events leading from hard tissue softening to complete loss of tooth.[2] The most contributing factor is the exposure to condition of low pH[3,4] which could be internal or external exposure.[5] The origin of dental erosion ranges from acidic sources[6] to the amalgamation of several complex reasons.[7] So, the origin of this dental problem is multifactorial[8] and its progression is based on adopted lifestyle.[9,10] Literature supported the consumption of soft drinks and juices as the potential source of dental erosion among adolecents.[11,12] Intake of processed food is also identified as a major cause of acid production leads to dental erosion.[14]

The frequency of dental erosion has been increased in last 10 years among children and teenagers[15,16] due to which dental community has paying a lot of attention to it.[17] But the dental erosion prevalence as well as the severity measurement is based on the measuring indexes is a cause of different results.[18]

The choice of food is also affected by the socioeconomic background of individuals, as reported in a research study that economic conditions shape the choice among individuals belonged to low socioeconomic status.[19] Considering Pakistan as underdeveloped country, data on the effect of diet on dental erosion is scare, so this study has planned to explore the dental erosion prevalence among adolescents and relationship of diet with dental erosion among them.

METHODOLOGY

This survey based study was conducted in Lahore. Data was collected from government secondary schools of Lahore. After the approval of research study from institutional ethical review committee, data was collected from 150 students with an age ranged from 13 to 16 years from 5 schools after the permission of principals and parents of the students. Data was collected while arranging an oral health maintenance camp in schools. Team of dentists first examined dental erosion status of students of all classes (total number of students examined 700) and recorded age, gender and Monthly income of family as demographic variables. After oral health and dental erosion screening, students with dental erosion were given a survey containing the food choices they regularly like to have. They were asked to record their responses. Collected data was entered in SPSS version 25. Frequencies and percentages were calculated to report the prevalence of dental erosion among adolescents. Chi-square test was used to explore the relationship between diet and dental erosion.

RESULTS

The recorded mean age of students was 14.67years and among 150 students, 45.33% were male students and 54.67% students were females.

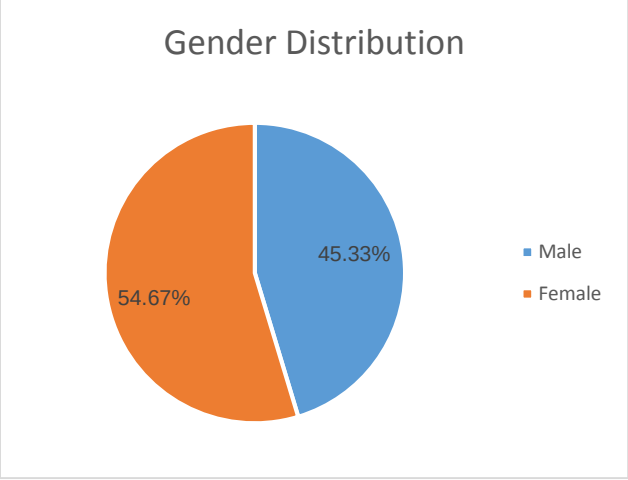
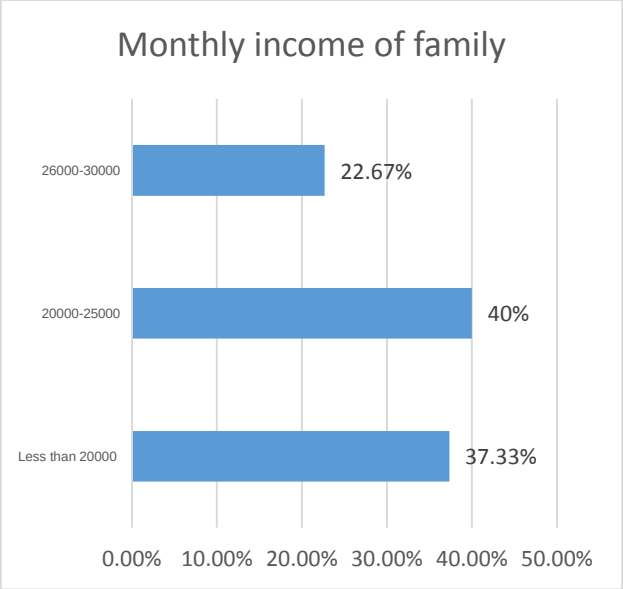


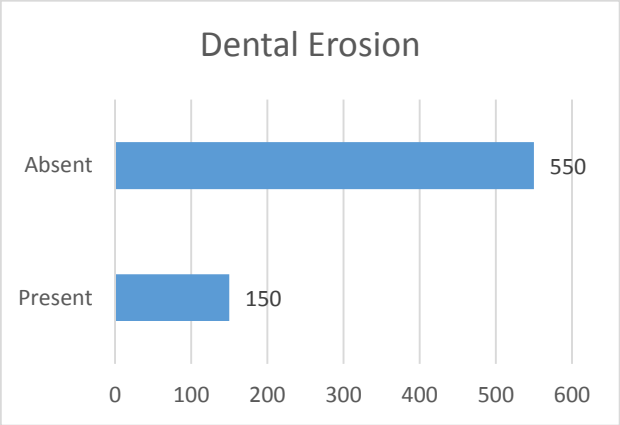
Figure 1: Gender Distribution

Majority of students belonged to the families which were having monthly income between 20thousand rupees to 25thousand rupees (40%). Less than 20thousand rupees as monthly income was reported by 37.33% students.



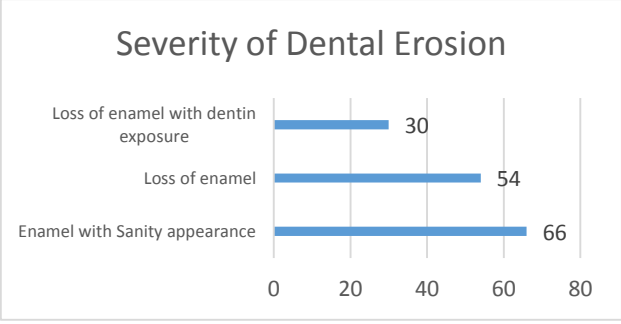
Graph 1: Monthly income of family

Dental erosion was found in 150 students out of 700 students with the age between 13years to 16 years.



Graph 2: Dental Erosion status

Among 150 students, enamel with sanity appearance was the most prevalent condition (66 students). Loss of enamel was found in 54 students whereas only 30 students were having severe condition, i-e. Loss of enamel with dentin exposure.



Graph 3: Severity of Dental erosion

Results of chi-square revealed a significant difference between the most frequently preferred food and dental erosion among adolescents (X^2=9.67, P=.000). Due to carbonated drinks, 26.67% students were having dental erosion. Dental erosion was found in 20% students who prefer artificial juices, 14.67% students preferred energy drinks, 4% students prefer tea, 2% students prefer coffee, 24.67% students prefer ketchup and 6.67% prefer processed foods.

Table 1: Diet and Dental erosion

Food items	Dental Erosion		X^2	Sig.
	Present	Absent		
Carbonated Drinks	26.67%	73.33%	9.67	0.00
Artificial Juices	20%	80%		
Energy Drinks	14.67%	85.33%		
Tea	4%	96%		
Coffee	2%	98%		
Ketchup	24.67%	75.33%		
Processed food	6.67%	93.33%		

DISCUSSION

Dental erosion prevalence varied widely around the globe due to the difference of food choices and health maintenance awareness.[20] In Pakistan, different research has reported different frequencies.[19] But, on comparing the prevalence of dental erosion explored in current study is lower than 46% reported in a study conducted in 2016 in adolescents with age between 12 to 15 years[21] and 42.8% dental erosion in another study.[22]

There is a strong relationship of dental erosion with food preferences, especially, preferring carbonated drinks, artificial juices and sports drinks consumption. Among all these beverages, carbonated drinks are the most dangerous in terms of dental erosion as they have a very low pH than other types of drinks such as fruit juices etc. In Pakistan, consumption of carbonated drinks is greater which also related to the higher risk of having dental erosion.[22]

Occurrence of dental erosion is also related to the manner of food consumption, for instance, carbonated drink consumption with straw causes more dental erosion as compared to its consumption without straw. Direct contact of carbonated drink with the upper ends of teeth is more in case of using straw which causes more dental erosion. Drinking carbonated drink directly is better as it comes directly in contact with soft tissues which quickly swallow the drink while reducing the time of drink to stay in the mouth and affect the enamel.

It was also found that students from low socioeconomic background have higher low prevalence of dental erosion as only 21.42% which was not in supported by a study conducted in Brazil.[23]

In conclusion, dental erosion is 21.42% among school going adolescents between ages ranging from 13 years to 16 years with low socioeconomic status in Pakistan.

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