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DENTAL CARIES AND DIETARY HABITS AMONG UNDERGRADUATE MEDICAL STUDENTS FROM PALAKKAD DISTRICT, KERALA.

Dental Science

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ABSTRACT

Dental caries is an infectious microbial disease of multi factorial origin.Intake of junk foods, soft drinks, sweets were increased among young adults and the traditional eating habits were replaced by high calorie diets. Hence the present study was undertaken among undergraduate medical students to find out the prevalence of dental caries and associated dietary habits.A cross- sectional study was done among undergraduate medical students of our institution and total 554 students were included. They were asked to visit dental clinic for dental examination and their dietary habits were recorded using a self administered questionnaire.The dental caries was present among 428 (77.3%) of undergraduate medical students. The dietary habits like intake of weekly soft drinks, sticky food and weekly going out had a statistically significant association with dental caries. This study reveals early intervention of healthy eating habits among medical students.

KEYWORDS

Dental caries, Dietary habits , Kerala, Medical students

INTRODUCTION

Oral health is an integral part of general health and is essential for well being. It encompasses range of diseases and conditions that include dentalcaries, periodontal disease, tooth loss,oral cancer, birth defects such as cleft lip and palate and oro-dental trauma. The Global Burden of Disease Study 2017 estimated that oral diseases affect 3.5 billion people worldwide, with untreated dental caries being among the most prevalent noncommunicable diseases. (1) Globally, it is estimated that 2.3 billion people suffer from caries of permanent teeth and more than 530 million children suffer from caries of primary teeth.(1)Dental caries results when plaque forms on the surface of a tooth and converts the free sugars (all sugars added to foods by the manufacturer, cook, or consumer, plus sugars naturally present in honey, syrups, and fruit juices) contained in foods and drinks into acids that destroy the tooth over time. A continued high intake of free sugars, inadequate exposure to fluoride and a lack of removal of plaque by toothbrushing can lead to caries, pain and sometimes tooth loss of tooth and chronic infection. Dental caries is an infectious microbial disease of multi factorial origin in which diet, host, and microbial flora interacts over a period of time in such a way so as to encourage demineralization of the tooth enamel with resultant caries formation. It varies with age, sex, socioeconomic conditions, ethnicity, diet, medical conditions and oral hygiene practices. It not only causes pain and discomfort, but also in addition, leads to a financial burden. The prevention of dental caries has long been considered as an important task for the health professionals. Most of the oral diseases or conditions share the risk factors of other non communicable diseases such as tobacco use, alcohol consumption and an unhealthy diet which is high in free sugars.(2)In addition, there is a causal link between dental cariesand Diabetes and obesity. Diet has been associated with the prevalence of dental caries for centuries. It is a major modifiable risk factor in the aetiology of dental caries. A frequent consumption of fermentable carbohydrates is known to play a role in the development of dental caries. The studies have shown that a lower consumption of cariogenic food prevents the development of new lesions while arresting the active carious lesions.(3)The dietary habits and behaviour develops during childhood and adolescence, and this habits tends to continue during adulthood also. Eating patterns and the frequency of consumption are seen to be the most significant factors which contribute to the cariogenicity of the diet. In between meal snacking especially sugar can increase the incidence of caries in individuals with poor oral hygiene. Eating patterns, nutrient composition, improper oral health related behaviours and dental plaque accumulation; all interact and play an important role in caries development.(4) The prevalence of dental caries in India is 49% at 5 years and 12 years, while it shows steady increase from 15 years (60%) to 35-44 years (78%) and peaks at 60-74 year group (84%)(5) . Most of the Indian studies that have been focused on prevalence of dental caries among school children(6,7,8) and only a few studies have been done among young adults.(9,10).More over there are few studies done among medical students, expecting that they have a good oral health knowledge and practice. A study done at Russia showed that undergraduate medical and dental student's oral health status and behaviour were not optimistic.(11) The adolescents and young adults spent their majority of time in schools and colleges where their eating habits and personal behaviour develops. Intake of junk foods, soft drinks, sweets were increased among young adults and the traditional eating habits were replaced by high calorie diets. Hence the present study was undertaken among undergraduate medical students to find out the prevalence of dental caries and associated dietary habits.

Objectives

1. To determine the prevalence of dental caries among undergraduate medical students of Palakkad district, Kerala.
2. To assess the dietary practices followed amongundergraduate medical students
3. To find out the association between the prevalence of dental caries and dietary practices among undergraduate medical students of Palakkad district.

METHODOLOGY

A cross- sectional study was done among undergraduate medical students of our institution during the period of June 2018 to September 2019. All available undergraduate MBBS students of our institution during one month period of data collection were included in the study. Those students who had university exams were excluded from the study. Total 554 students of all batches were asked to visit dentistry department in small groups for dental check up whenever they are free. The oral health of each student was examined by a dental specialist using armamentarium used for dental examination. The students were also given a pre-tested self administered questionnaire and where asked to fill this questionnaire from dentistry department itself when they come for check up. The dental conditions like dental caries, dental plaque and other oral anomalies were screened by a specialist and his findings were entered into the questionnaire. The self-administered questionnaire contain the socio demographic details, dietary practices like type of diet, frequency of eating sticky food and soft drinks , frequency of food from outside and frequency of having tea/ coffee. It also contain the part for the dental specialist to enter the condition of teeth, number of dental caries, plaque, oral hygiene and frequency of brushing. The sticky food used in this study was defined as any food substances like chocolates, cakes, pastries which sticks on the teeth. The data was coded and entered in micro soft excel and statistical software SPSS version 20 was used for analysis. The institutional ethical clearance was obtained.

RESULTS

Out of total 554 undergraduate medical students, more than half 361 (65.2%) of students were females and 193 (34.8%) were males. The mean age was 20.49 + 1.36 ranging from 17 to maximum age 25. Majority of them 531 (95.8%) were staying in the college hostel and only 23 (4.2%) were staying outside. Most of the students 481(86.8%) of them were coming from nuclear family, 59 (10.6%) were from three generation family and 14 (2.5%) were from joint family. More than half of students 301 (54.3%) father's had higher secondary educational status and about 289 (52.2%) of students had their mother's education status up to higher secondary level. All students are coming from APL family.

The dental specialist had found out that dental caries was present among 428 (77.3%) of undergraduate medical students. Out of 428 students with dental caries, about 65% of students had atleast one caries teeth and 35% had two or more caries tooth. Figure:1. About half of students 280(50.5%) of students had habit of brushing teeth twice daily and rest of the students 274 (49.5%) had a habit of brushing teeth once daily.

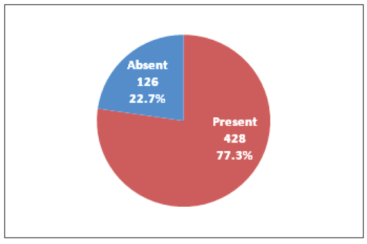

Figure:1 Prevalence of dental caries among undergraduate medical students

The dietary habits of the study population was given in the Table: 1. Majority of students 524(94.6%) were taking mixed diet and only 30 (5.4%) were vegetarians. Most of the students 470 (84.8%) had a habit of having sticky food weekly and 433 (78.2%) of students have frequency of having soft drinks once weekly. Out of 193 male students, 151 (78.2%) of them had dental caries and out of 361 female students more than half of them 277(76.7%) had dental caries. Out of 531 hostellers majority 408(76.8%) of them had dental caries and out of 23 students who were staying outside the hostel 20 (87%) of them had dental caries. There was no statistically significant difference between stay, gender and dental caries. Table: 2

Table: 1 Dietary habits of undergraduate medical students

Parameter	Classification	Total number	Percentage
Type of diet	Mixed diet	524	94.6%
	Vegetarian diet	30	5.4%
Habit of having food from outside	Yes	114	20.6%
	No	440	79.4%
Frequency of having sticky food	Once in a week	470	84.8%
	Rarely	84	15.2%
Frequency of having soft drinks	Once in a week	433	78.2%
	Rarely	121	21.8%
Frequency of having green leafy vegetables	Once in a week	53	9.6%
	Rarely	501	90.4%
Frequency of having fruits	Once in a week	521	83.6%
	Rarely	33	5.3%
Frequency of having Tea/Coffee	Every day	460	83.2%
	Once in 2 days	35	6.3%
	Once in a week	47	8.5%
	Rarely	12	2.2%

Table:2 Association between dental caries and gender, stay

Parameter	Classification	Dental caries		Total	Statistical test P value
		Present N- 428	Absent N- 126		
Gender	Male	151 (78.2%)	42 (21.8%)	193 (100%)	Chi square value- 0.163 P value- 0.68
	Female	277 (76.7%)	84 (23.3%)	361 (100%)	
Stay	Hostel	408 (76.8%)	123 (23.2%)	531 (100%)	Chi square value- 1.28 P value- 0.25
	Outside hostel	20 (87%)	3 (13%)	23 (100%)	

There was statistically significant difference obtained between dental caries and frequency of having sticky food and soft drinks. Out of total 428 students with dental caries, majority 379(88.6%) of them had frequency of having sticky food once weekly and out of 126 students who doesn't have dental caries only 91(72.2%) of them had weekly intake of sticky food and this difference was statistically significant. Out of total students with dental caries most of them 397 (92.8%) had intake of soft drinks once weekly. The association between dental caries and dietary habits are shown in Table: 3

Table:3 Association between dental caries and dietary habits

Dietary pattern	Classification	Dental caries		Total	Statistical test P value
		Present N- 428	Absent N- 126		
Sticky food	Once weekly	379 (88.6%)	91 (72.2%)	470	Chi square value- 20.17 P value- <0.001
	Rarely	49 (11.4%)	35 (27.8%)	84	
Soft drinks	Once weekly	397 (92.8%)	36 (28.6%)	433	Chi square value- 23.4 P value- <0.001
	Rarely	31 (7.2%)	90 (71.4%)	121	
Green leafy vegetables	Once in a week	40 (9.3%)	13 (10.3%)	53	Chi square value – 0.10 P value – 0.744
	Rarely	388 (90.7%)	113 (89.7%)	501	
Fruits	Once in a week	400 (93.5%)	121 (96%)	521	Chi square value -1.5 P value – 0.28
	Rarely	28 (6.5%)	5 (4%)	33	

Out of 114 students who take food from outside once in a week majority 98 (86%) of them had dental caries and out of 440 students who take regular college mess only 330 (75%) of them had dental caries and this difference was statistically significant. Chi square value – 6.195 p value 0.01.

There was a statistically significant association between frequency of brushing and dental caries. Those students who had habit of brushing twice daily had lesser prevalence of dental caries than those who brush once daily.Table : 4 shows the association between dentalcaries and frequency of brushing.

Table: 4 Association between dental caries and frequency of brushing.

Frequency of brushing	Dental caries		Total	Statistical significance P value
	Present	Absent		
Twice daily	200 (71.4%)	80 (28.6%)	280 (100%)	Chi square value -10.94 P value – 0.001
Once daily	288 (83.2%)	46 (16.8)	274 (100%)	
Total	428	126	554	

DISCUSSION

In this study the prevalence of dental caries among undergraduate medical students was 77.3% and another study done at Russia showed higher prevalence of 96% among medical students (11). A study done at New Delhi among adults showed a prevalence of 82.4% (12) another study done by N Ratnakumari from Kerala showed a prevalence of 68.5% among children aged 6 -12 years (13) . The prevalence of dental caries among children aged 12 year from Thiruvananthapuram district was 27% (14). Another study done at Bangalore showed a lower prevalence of 35.8% among school children. (15)

The present study showed that the prevalence of dental caries was higher among male gender (78.2%) than female gender (76.8%). Similar finding was obtained from another study done among adults from New Delhi. (12) Another study from Bangalore showed higher prevalence of dental caries among females of age group 12-15years.(15)

This study showed a statistically significant association between intakes of sticky food, soft drinks with dental caries. Another study done at Bangalore showed that the prevalence of dental caries was

higher among those students who take more sweets. (15) Another study done among adolescent school children from Chennai showed a statistically significant association between dental caries and intake of carbonated drinks. (16) Our study also showed an association between frequency of having food from outside and dental caries. Those students who take regular food from college mess has lesser prevalence of dental caries than those students who goes out once weekly for food. The similar result was obtained from study done at Chennai (16)

In our study only 50.5% of medical students had a habit of brushing teeth twice daily. All students are coming from APL family and almost half of students' parents had educational status upto higher secondarylevel. The reason why students are not having habit of brushing teeth twice daily is not known. Another study done at China among medical students showed that 89.6% of medical students brush teeth twice daily(17).

CONCLUSION

The present study showed a higher prevalence of dental caries among undergraduate medical students. The socio demographic variables like gender, parent's educational status and socio economic status had no association with dental caries. But the dietary habits like intake of weekly soft drinks, sticky food and weekly going out for food had a statistically significant association with dental caries. Only half of medical students had a habit of brushing teeth twice daily and the prevalence of dental caries was higher among those students who had a habit of once daily brushing.

RECOMMENDATION

The intake of soft drinks and sticky foods are higher among medical students. It has harmful effect not only to their oral cavity, but also a risk factor for other non-communicable diseases. In Kerala since we are facing a higher prevalence of non-communicable disease these habits in adolescents and young adults especially among medical students need to be tackled as early as possible. The behaviour change communication need to be started in all colleges about healthy eating habits, importance of brushing teeth twice daily and washing mouth after having snacks has to be improved.

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