



ASSOCIATION BETWEEN SOFT DRINK CONSUMPTION AND DENTAL EROSION AWARENESS IN DENTAL AND NON-MEDICAL UNDERGRADUATES

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Article Received on 23/09/2019

Article Revised on 13/10/2019

Article Accepted on 03/11/2019

ABSTRACT

This study was planned to explore the difference between the level of awareness of the dental and non-medical undergraduates with regards to dental erosion due to the consumption of soft drinks. Data were collected from 100 participants, 50 were dental undergraduates and 50 were non-medical undergraduate according to the inclusion and exclusion criteria of the study based on the objectives of the study. Data were analyzed by applying chi-square. Results revealed the difference of awareness among both groups which was found by rating the dental erosion in incisors and molars of the participants as all the participants were soft drink consumers. More dental erosion was found in non-medical undergraduates as compared to the dental undergraduates. The results of this study are helpful for the dentists in planning awareness campaigns as it is targeting the population which needs awareness about dental health as a whole while changing their food selection.

KEYWORDS: Dental Erosion, soft drinks, non-medical undergraduates, dental undergraduates.

INTRODUCTION

Soft drinks consumption is very common in all age groups among every socioeconomic class, despite knowing the potential health problems due to its consumption. Sugars are acid producers and have the potentials of causing dental erosion which leads towards the creation of caries. People drinking soft drinks are found to be more prone to dental erosion as many studies reported the association between soft drink consumption and dental erosion.^[1] A study reported that the usage of Coca Cola regularly causes more dental erosion among other cold drinks.^[2] A comparative study reported the significant loss of enamel among the users of soft drinks as erosion was associated with the concentration of calcium and pH of the medium.^[3] Soft drinks with a high quantity of citrate have low pH values which were found inversely proportional to the calcium loss in teeth.^[4] Low calcium and low pH containing soft drinks also have an erosive effect on teeth.^[8]

Another study based on gender-wise comparison concluded that among males who take soft drinks on a weekly basis, the dental erosion was less as compared to those who take a soft drink daily. The same was the case with females which concluded that the dental erosion level was associated with the quantity and regularity of

usage of soft drinks as it causes deleterious effects on hard tissues of teeth.^[5,6] while exploring a comparison between different non-alcoholic drinks, sprite, orange and apple juices were found to have more erosive effects on teeth than Coco Cola light.^[7]

The above-mentioned literature is based on the level of dental erosion due to the consumption of soft drinks available in the market around the globe but no comparative study was cited between the undergraduate dental students and undergraduate non-medical students with regards to the awareness of soft drink consumption relationship with dental erosion. So a dire need was felt to fill this gap in the literature. Therefore it was hypothesized that there may be a relationship between soft drink consumption and dental erosion among undergraduate dental and non-medical students.

METHOD

Research design

This quantitative study was designed using a crosssectional research design as it was best fitted to achieve the objectives of this study.

Sampling

Convenient random sampling was used to collect data from the participants.

Sample size

Data was collected from the 100 participants in total which was further divided into two groups; one was of undergraduate dental students and the second was of undergraduate non-medical students. Each group has 50 participants each.

Inclusion criteria

Data was collected from the participants between the ages of 18 to 22 whereas the mean age was 20.04. Only dental and non-medical undergraduate students were the participants of interest.

Exclusion criteria

Students above 22 years of age were not included in the research. Undergraduate students studying MBBS and undergraduate students of other medical-related fields were not the participants of interest for this study.

Procedure

A questionnaire booklet was designed to collect data. This booklet contained a research information sheet, consent form, and questionnaires to record the responses of participants. Participants were invited via automated emails, generated with the help of the IT department of a private university and medical college of the same university. The email contained information about the research and invitation to have a free dental checkup.

100 undergraduate students approached from non-medical fields and almost 60 dental undergraduate students approached from the medical college. Data was

gathered from the 50 non-medical and 50 dental undergraduate students according to the inclusion and exclusion criteria of the study. A free dental check was provided to the rest of the participants to honor their interest in oral health.

After sharing the questionnaire booklets, the participants were asked to read the research information sheet which contained the purpose of the study. Then consent forms were get signed. The questionnaire contained dichotomous responses (yes or no) which were filled by the research team. After filling up the questionnaire booklet, each participant's teeth were observed by the dentist to record the presence and severity of dental erosion.

Data analysis

Data were analyzed by using chi-square analysis.

Ethical considerations

The consent form was signed by all the participants before responding to the questions of the research team with regards to soft drink consumption. Codes were allotted to all the questionnaire booklets to maintain the anonymity of participants. Confidentiality was maintained by keeping the data between the research team.

RESULT

The comparison of two groups of undergraduate students, i.e., Dental, and Non-medical was made to assess the difference in dental erosion status among undergraduates due to the awareness level with regards to the consumption of soft drinks. The statistical results were portrayed in the tabular form given below (Table 1).

Table 1: Comparison in frequencies between soft drink consumption and dental erosion in dental and non-medical undergraduate students.

	Dental Erosion in Incisors (%)		Dental Erosion in Molars (%)	
	Dental undergraduate students (n=50)	Non-medical undergraduate students (n=50)	Dental undergraduate students (n=50)	Non-medical undergraduate students (n=50)
No Erosion. ^[9]	40%	0%	44%	0%
Loss of surface enamel, dentine not involved. ^[9]	50%	8%	12%	6%
Erosion extending into dentine in at least one tooth. ^[9]	5%	64%	6%	70%
Severe dentine erosion in at least four anterior teeth and or pulp chamber visible ^[9]	0%	28%	0%	24%

Chi-square, for Dental erosion in Incisors= 68.91, $p>.000$, $df= 3$; for Dental erosion in Molars = 68.95, $P> .000$, $df=3$

The result of chi-square analysis revealed that there is a strong and significant association between soft drink consumption and dental erosion in both groups which were dental erosion in incisors ($\chi^2= 68.91$, $p>.000$) and dental erosion in molars ($\chi^2=68.95$, $p>.000$) with a large effect size of .83 for both groups.

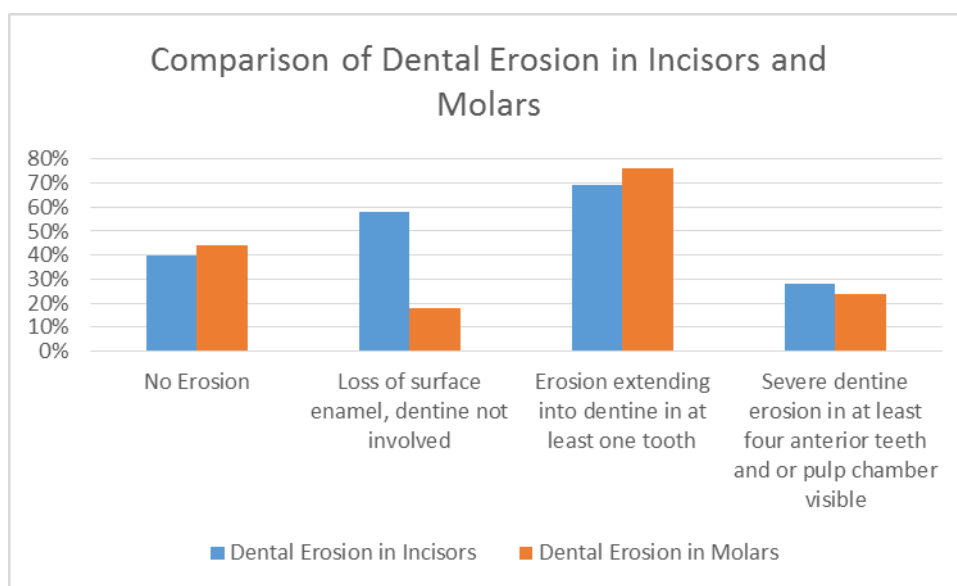
The results also revealed that the association between soft drink consumption and dental erosion in incisors in both groups of undergraduates was found to be significant. Moreover, it could be seen that 40% of the total sample of dental undergraduate students were reported as having no dental erosion, 50% dental

undergraduate students were having loss of surface enamel in which dentine loss was not involved, 5% dental undergraduate students were had erosion extending into dentine in at least one tooth and no participant was having severe dentine erosion in at least four anterior teeth and or pulp chamber visible whereas, among non-medical undergraduate students, 0% reported having no dental erosion, 8% students were having loss of surface enamel in which dentine loss was not involved, 64% dental undergraduate students were had erosion extending into dentine in at least one tooth and 28% participant was having severe dentine erosion in at least four anterior teeth and or pulp chamber visible. This showed that a lower degree of dental erosion was found among dental undergraduate students, as compared to non-medical undergraduate students.

It was found that the relationship between soft drink consumption and dental erosion in molars was highly significant in both groups. Furthermore, it was found that dental erosion was more in non-medical undergraduate students than in dental undergraduate students. While comparing the percentages of participants of both groups, it was found that there were 44% of dental

undergraduate students with no dental erosion in molars. For Loss of surface enamel, dentine not involved in molars, the percentages were 12% in dental students and 6% in non-medical students. Moreover, the percentage comparison for erosion extending into dentine in at least one tooth in molars among both dental and non-medical undergraduate students in percentage was 6% and 70% respectively which showed higher occurrence in non-medical students. Lastly, for severe dentine erosion in at least four anterior teeth and or pulp chamber visible, the compared percentages were 0% for dental undergraduate students and 24% for non-medical undergraduates.

The graph showed an overall comparison of dental erosion in incisors and molars in the undergraduate population. This graph revealed that more cases of loss of surface enamel were prevalent in incisors as compared to the molars. Furthermore, slight differences of dental erosion among incisors and molars were found in no erosion cases and erosion extending into dentine in at least one tooth, in which molars were found to be more exposed to dental erosion than incisors. But in severe dental erosion cases, incisors were found to have a higher level.



Graph 1: Comparison of Dental Erosion in Incisors and Molars.

DISCUSSION

The current study was aimed to study the association of dental erosion with soft drink consumption among dental undergraduates and non-medical undergraduates. A strong and significant associated between soft drink consumption and dental erosion in both groups were found with a large effect size.^[1,5,6] This means that among undergraduate students, dental students have more awareness of dental erosion due to soft drink consumption as compared to the non-medical undergraduates.

The association between soft drink consumption and dental erosion in incisors in both groups of

undergraduates was found to be significant which was found more in non-medical undergraduates as compared to the dental undergraduates. The relationship between soft drink consumption and dental erosion in molars was highly significant in both groups with the same comparative results. The overall comparison of dental erosion in incisors and molars in the undergraduate population revealed that more cases of loss of surface enamel were prevalent in incisors as compared to the molars. Furthermore, slight differences of dental erosion among incisors and molars were found in no erosion cases and erosion extending into dentine in at least one tooth, in which molars were found to be more exposed to

dental erosion than incisors. But in severe dental erosion cases, incisors were found to have a higher level.

CONCLUSION

More dental erosion was found in non-medical undergraduates as compared to the dental undergraduates. The results of this study are helpful for the dentists in planning awareness campaigns as it is targeting the population which needs awareness about dental health as a whole while changing their food selection.

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