Research Article

JRAD Journal of Research and Advancement in Dentistry

J Res Adv Dent 2020;10:4:193-204.

A Survey about Awareness and Knowledge of Periodontal Health Among the Students of Engineering Colleges in Vadodara City

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ABSTRACT

Background: Knowledge of oral health and periodontal disease is considered to be an essential prerequisite for health-related behaviour. Budding engineers belong to the strata of society considered to have better knowledge and awareness than the general population, but an assessment of actual status demands a proper channelled study. Aim of the study is to evaluate and assess the awareness and knowledge of periodontal health among the students of engineering colleges.

Materials and Methods: Group sample size included were 280. The proposed study was conducted at different engineering colleges. The engineering students were informed about the purpose of the study, and they participated in the self-administered questionnaire-based survey of 20 questions. The collected data was entered at the end of the study in the master chart prepared in Microsoft Excel 2010 on the computer. Statistical analysis was conducted.

Results: In general, 50 to 59 % are aware of oral hygiene habits, 53 to 61% students think poor oral hygiene as a cause of bad breath, bleeding gums, loose teeth and other periodontal problem. It shows that oral health awareness & knowledge are fair in students of engineering college in Vadodara city.

Conclusion: Standards of oral health awareness & knowledge are fair & as dentists; we have to keep reinforcing the importance of correcting all aspects along with the importance of regular checkups.

Keywords: Periodontal disease awareness, periodontal health, Oral Health, Oral hygiene practices.

INTRODUCTION

Health is a universal human need for all strata of society. General health cannot be maintained without good oral health. The mouth is regarded as the gateway to the body and acts as a mirror that reflects the status of general health.[1] Oral health plays an important role to maintain the overall health.[2] There is evidence that oral health depends on social, biological, and environmental factors.[3] Steptoe *et al.* defined health behaviour as "the activities undertaken by people in order to protect, promote or maintain health and to prevent disease."[4] The broad categories of factors influencing health behaviour at an individual as well as community-level include knowledge, beliefs, values, attitudes, skills, finance, materials, time and the influence of family members, friends, co-workers, opinion leaders, and even health workers themselves. [5] Oral health behaviour reflects individual perception on oral health.

Received: June. 15, 2020**: Accepted**: Aug. 23, 2020
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pISSN 2278-0076
eISSN 2321-9270

Numerous studies have found oral health behaviour to vary from among people of different countries and communities.[6] Current disparities in oral health are also attributed to, socio-economic status, profession, and even levels of education.[7,8]

Periodontal disease, including gingivitis and periodontitis, is considered to be one of the most common diseases among population and, if left untreated, can lead to tooth loss.[9] The main cause of the periodontal disease is bacterial plaque although many other factors such as hormonal changes, diabetes, poor nutrition, smoking and stress may affect the initiation and progression of gingival and periodontal diseases.[10] The development of the common periodontal diseases depends mainly on human behaviour, and the control of these diseases is greatly supported by the fact that the etiological factors are well documented.[11] Recent literature study reveals a strong relationship between the effects of chronic oral inflammation and general health. Periodontal diseases have been linked to systemic diseases, and similarly, systemic diseases can also have an impact on oral health. There is a bidirectional relationship that exists between the two.[12] Knowledge of oral health is considered to be an essential prerequisite for health-related behaviour.[13] Budding health professionals and engineers belong to the strata of society considered to have better knowledge and awareness than the general population, but an assessment of actual status demands a proper channelled study.

This survey was therefore initiated with a prime focus to determine the periodontal health awareness levels among the engineering students in Vadodara city.

AIMS AND OBJECTIVES

The aim of this study was attaining information about the level of awareness of periodontal health and disease in the engineering students who are considered to be more informed and educated than the normal population. The objectives were to evaluate and assess the awareness of periodontal health among the students of engineering colleges. And to assess the knowledge of periodontal health among the students of engineering colleges

Selection Criteria

Inclusion Criteria was the engineering students who were willing to Participate Voluntarily by giving their Consent in the Informed Consent Form in the survey of Vadodara city were included. Exclusion Criteria was the engineering students who were not willing to participate in the study and not providing their Written Informed Consent.

MATERIALS AND METHODS

Place of the study was Vadodara City. Prior permission was obtained from the Dean of AMC Dental College, Head of Department of Periodontology, PG teacher in the Department of Periodontology, Ethical Committee and engineering students.

Sample Description

This study included only engineering students in Vadodara city. The sample size formula for single proportion was $n = \frac{\left(z_{\frac{\alpha}{2}}\right)^2 pq}{L^2}$; If the level of significance = 10 %, proportion (p) = 50% and absolute margin of error (L) =5 %. The required sample size was 271. Stratified random sampling technique was used to select the participants who meet the inclusion criteria. Data was collected & compiled into excel sheet and analysis was done using appropriate statistical software. Descriptive and inferential statistical analysis was carried in the present study.

Methodology

This survey was approved by the ethics committee of AMC DENTAL COLLEGE. Prior to the start of the study, the purpose was explained to the participants. An informed consent was signed by the participants.

Procedure

The proposed study was conducted in different engineering colleges of Vadodara city. The participants were informed about the purpose

of the study. The informed consent form was signed by each participant who wishes to participate in this study. Each participant who signed the informed consent form completely filled questionnaire form was examined by an investigator.

Method for collecting data

The proposed study was conducted at different engineering colleges. The study was conducted within two months. . The engineering students were informed about the purpose of the study, and they participated in the self-administered questionnaire-based survey of 20 questions. The informed consent form was signed by engineering students. The questionnaire stating the instructions, rationale and purpose of the survey was distributed by hand. Each questionnaire took a few minutes to complete. The principal investigator had collected the questionnaire. The collected data was entered at the end of the study in the master chart prepared in Microsoft Excel 2010 on the computer. Statistical analysis was conducted.

PROFORMA

PERSONAL INFORMATION

- Student's Name:_____
- Year of Degree Course you are in: _____
- Age : _____

QUESTIONS

1) Do you brush your teeth daily ?
(a) Yes
(b) No
2) How often do you brush your teeth ?
(a) Once daily regularly
(b) Twice daily regularly
(c) Once irregularly
(d) Twice irregularly
3) How often should you change your tooth brush ?
(a) 6 months
(b) 3 months
(c) 1 year
(d) Till bristle gets fray
4) Which type of brushing technique do you think is better for good oral health?
(a) Horizontal stroke
(b) Vertical stroke
(c) Roll stroke
(d) Not aware
5) Do you use dental floss?
(a) Sometimes
(b) Yes I use dental floss
(c) No I do not use dental floss
(d) No I am not aware of it
6) How often do you use mouthwash ?
(a) Never
(b) Once in a week
(c) Once in a day for two week
(d) As prescribed by dentist
7) What is the commonest cause of bad breath ?
(a) Smoking
(b) Poor oral hygiene
(c) Lung disease
(d) Onion/garlic food product
8) Do we get rid of bad breath by using mouthwashes ?
(a) Yes
(b) No
(c) Maybe
(d) Don't know
9) What is the commonest cause of bleeding gums ?
(a) Vitamin C deficiency
(b) Poor oral hygiene
(c) Injury to the gums
(d) Not aware

10) Do you think coffee/ tea causes staining of teeth ?
(a) Yes
(b) No
(c) Maybe
(d) Not aware
11) Have you seen any kind of deposit on your teeth ?
(a) Soft
(b) Hard
(c) Maybe
(d) Don't know
12) Do you think sensitivity to hot or cold food can be treated ?

(a) Yes
(b) No
(c) May be
(d) Not aware

13) Do you have gum problem ?
(a) Red gum
(b) Gum swelling
(c) Gum ulceration
(d) Gum recession
(e) Food impaction
(f) Tooth movement

14) What is the cause of receding gums ?
(a) Improper tooth brushing
(b) Nail biting habit
(c) Injury
(d) Diabetes

15) What do you think is the commonest cause for loose teeth ?
(a) Old age
(b) Diabetes
(c) Poor oral hygiene
(d) Accident/injury

16) Is there any correlation between gum disease and systemic disease ?
(a) Yes
(b) No
(c) Maybe
(d) Don't know

17) Frequency of using tobacco products ?
(a) Once a day
(b) Twice a day
(c) More than twice a day
(d) Never

18) Frequency of smoking habit ?
(a) Never
(b) Once a day
(c) Twice a day
(d) More than twice a day

19) What is the main measure to prevent gum disease ?
(a) Regular visit to dentist
(b) Use tooth brush and dental floss
(c) Good nourishment
(d) Don't know

20) How often do you visit your dentist for cleaning your teeth ?
(a) In 3 months
(b) In 6 months
(c) Once in a year
(d) Never visit

A statistical method to be used

Data was collected & compiled into an excel sheet, and analysis was done by using appropriate statistical software. Descriptive and inferential statistical analysis was carried in the present study.

RESULTS

Out of 280 participants, 56.07% (157) were male, and 43.92% (123) were female. The mean age of the students was 21.5 years with a minimum age of 18 years and maximum age of 25 years. Although brushing was the commonly used method of cleaning, it was found that the 100% of subjects were brushing their teeth daily (CHART 1). Out of which 65% were brushing once daily regularly, 26% twice daily regularly, 7% twice irregularly, 2% once irregularly. (CHART 2)

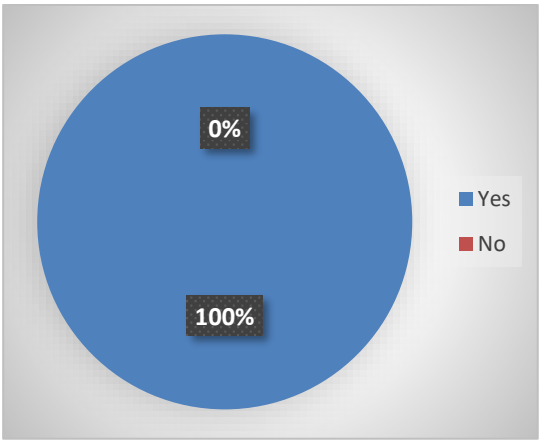

Chart 1: Do you brush your teeth daily ?

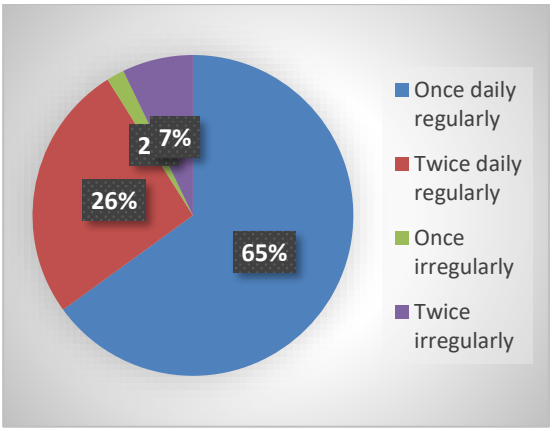

Chart 2: How often do you brush your teeth ?

Only 20% of students knew the exact time at which they should change their toothbrush. 20% of students were changing their toothbrush in 3 months, 25% in 6 months, 22% in 1 year, 33% till bristle gets free. (CHART 3)

Only 11% of students knew the correct method of tooth brushing technique. 11% of students brush with the vertical stroke technique, 46% with horizontal scrub technique, 18% with roll technique and 25% were not aware of the correct method of brushing. (CHART 4)

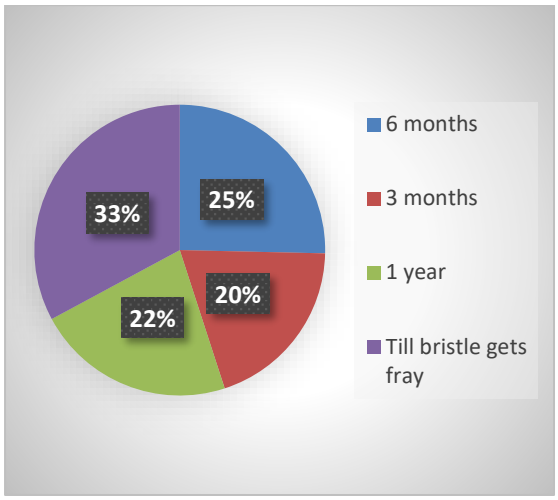

Chart 3: How often should you change your tooth brush ?

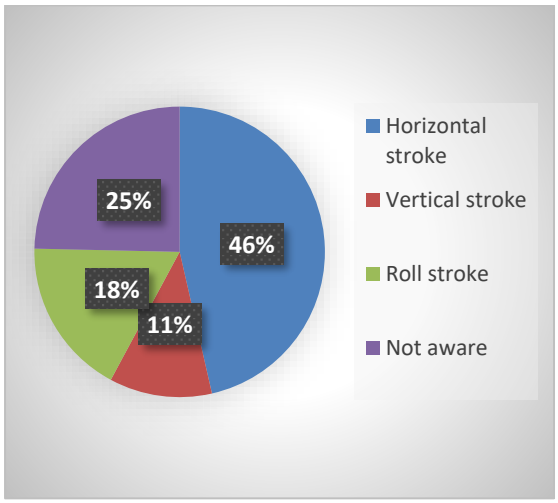

Chart 4: Which type of brushing technique do you think is better for good oral health ?

45 % of students were aware of the use of dental floss. 32% of students were using dental floss regularly, 13% were sometimes used, 26% were not using dental floss, 29% were not aware of the use of dental floss. (CHART 5) 49% of students were aware of the use of mouthwash. Out of which 16% used mouthwash once in a day for two weeks, 17% used once in a week, 16% use as prescribed by the dentist and 51% were unaware of the use of mouthwash. (CHART 6)

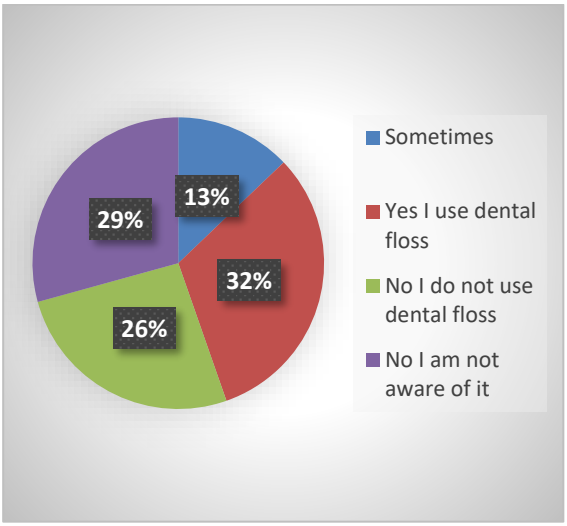

Chart 5: Do you use dental floss ?

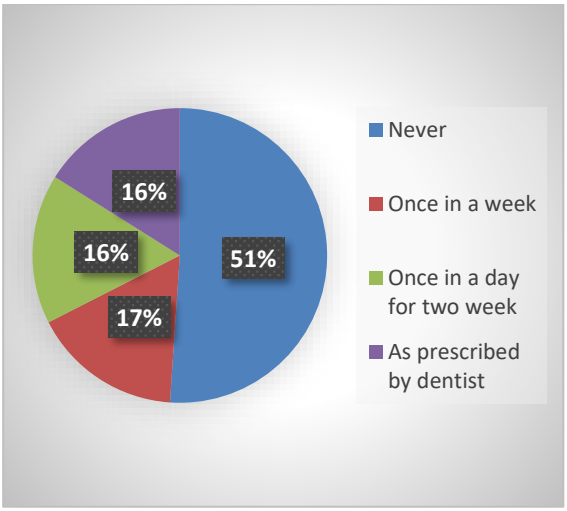

Chart 6: How often do you use mouthwash?

84% of students were aware of the deposits on their teeth, 50% are aware that they have soft deposits on their teeth, 14% are aware that they have hard deposits on their teeth, 20% thinks maybe they have any kind of deposits on their teeth, 16% don't know about any kind of deposits on their teeth.(CHART 7) 100% of students were aware that they have some sort of gum problems. 43 % were having gum bleeding,

26% were having red gums, 10% were having gum swelling, 21% were having problem of food impaction. (CHART 8)

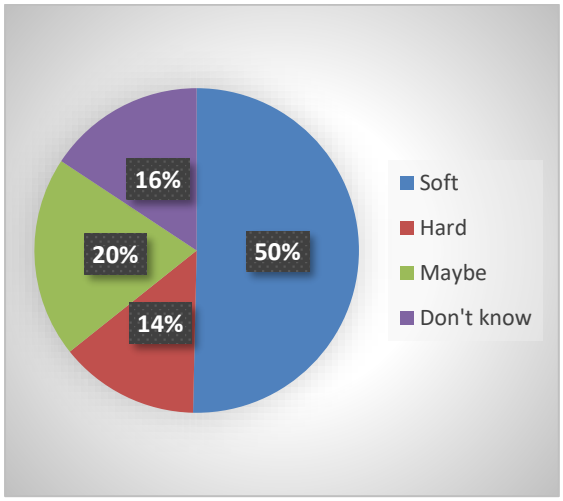

Chart 7: Have you seen any kind of deposit on your teeth?

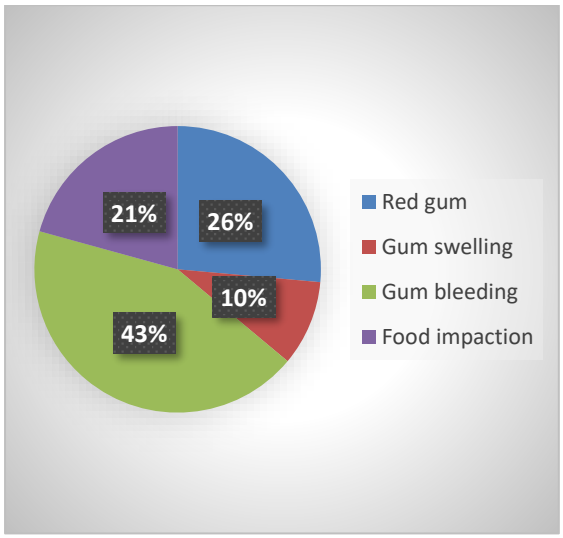

Chart 8: Do you have a gum problem?

86% of students were aware of the effects of tobacco on gums. So 86% of students never used any tobacco products, 3% were chewing tobacco for more than twice daily, 6% were using twice a day, 5% were using once a day. (CHART 9) 89% of students were aware of the effects of smoking on gums. So 89 % students never used smoking products, 4% smoked more than twice a day, 3% smoked twice a day, 4% smoked once a day.(CHART 10)

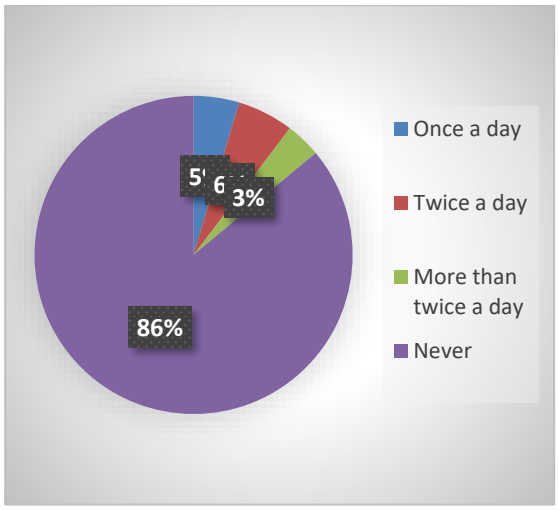

Chart 9: Frequency of using tobacco products?

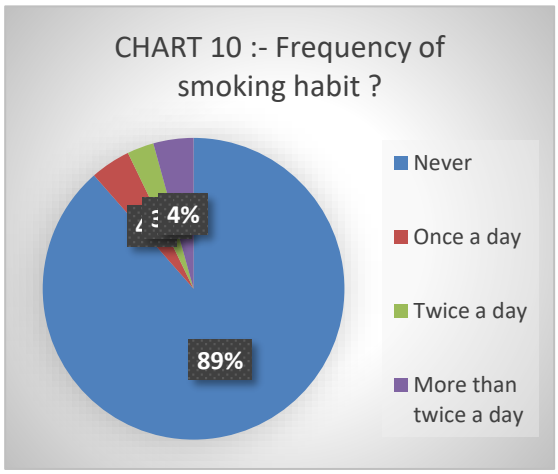

Chart 10: Frequency of smoking habit?

61% were having knowledge that poor oral hygiene is the commonest cause of bad breath. 17% thinks that smoking is the cause of bad breath, 18% thinks onion/garlic food product as cause of bad breath, 4% think lung disease as cause of bad breath. (CHART 11) About 76% were having knowledge that we can get rid of bad breath by using mouthwashes, 15% thinks maybe it can get rid of by using mouthwashes, 4% thinks we cannot get rid of bad breath by using mouthwashes, 5% don't know about it. (CHART 12)

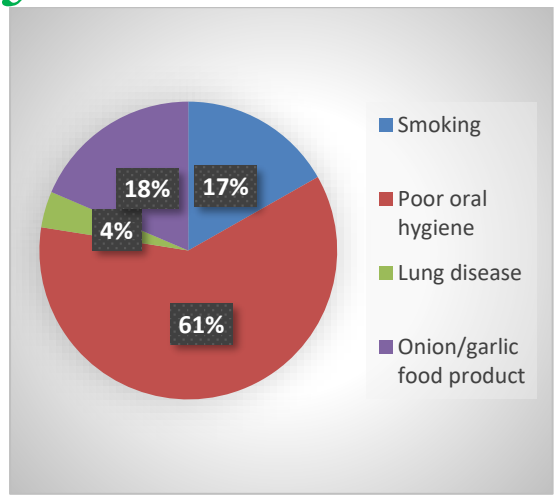

Chart 11: What is the commonest cause of bad breath?

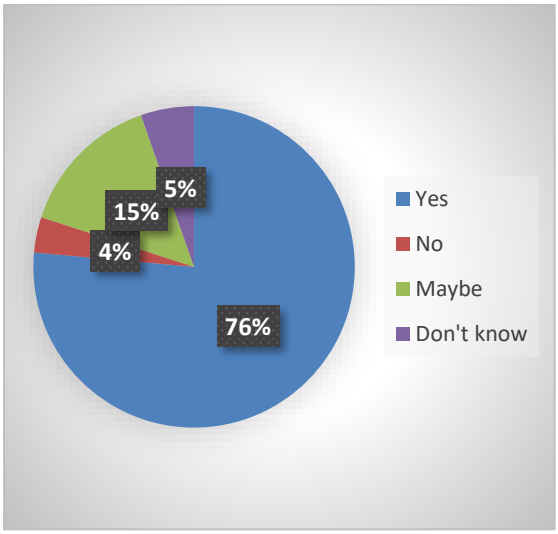

Chart 12: Do we get rid of bad breath by using mouthwashes?

About 60% of students have knowledge that poor oral hygiene is the common cause of bleeding gums. 17% of students think vitamin C deficiency as cause of bleeding gums, 7% of students thinks injury to gums as cause of bleeding gums, 16% students are not aware of the cause of bleeding gums. (CHART 13) 88% of students have knowledge that coffee/tea causes staining of teeth. 68% thinks coffee/tea causes staining of teeth, 20% thinks maybe it can cause staining of teeth, 3% thinks it does not cause staining of teeth, 9% are not aware of it. (CHART 14)

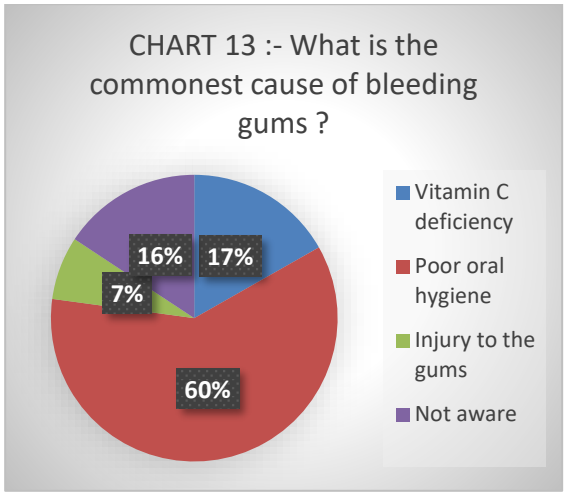

Chart 14: What is the commonest cause of bleeding gums?

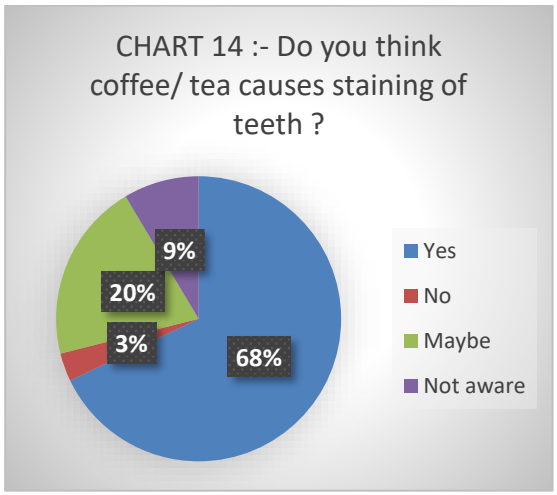

Chart 15: Do you think coffee/ tea causes staining of teeth?

85% of students have knowledge that sensitivity to hot or cold can be treated. 54% thinks that sensitivity to hot or cold can be treated, 31% thinks maybe it can be treated, 4% thinks it cannot be treated, 11% are not aware of it. (CHART 15) 73% have knowledge that improper tooth brushing is the cause of receding gums, 6% thinks nail-biting habit is the cause of receding gums, 16% thinks injury to gums is the cause of receding gums, 5% thinks diabetes is the cause of bleeding gums. (CHART 16)

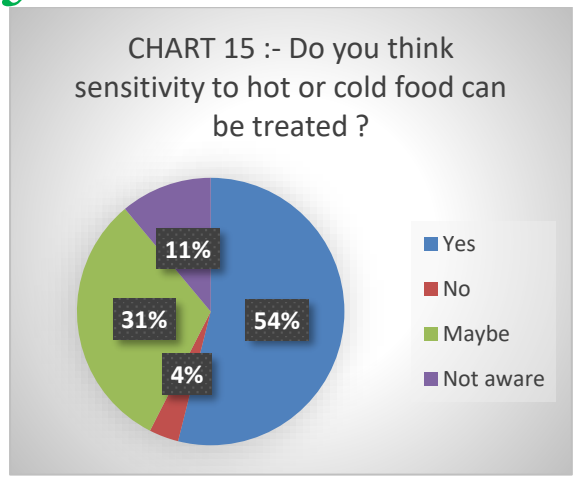

Chart 16: Do you think sensitivity to hot or cold food can be treated?

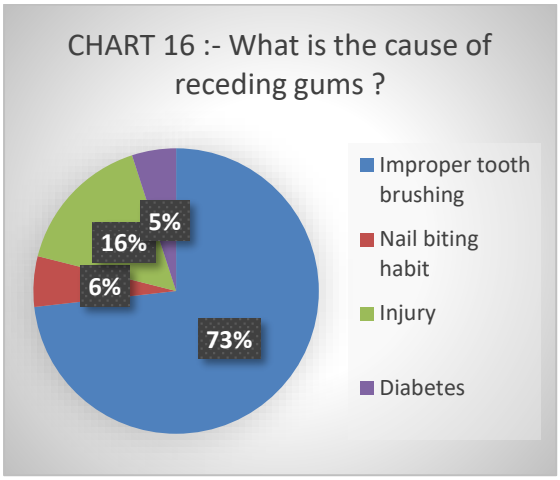

Chart 17: What is the cause of receding gums?

55% have knowledge that poor oral hygiene is the commonest cause of loose teeth, 30% thinks old age is the commonest cause of loose teeth, 7% thinks diabetes is the commonest cause of loose teeth, 8% thinks accident/injury is the commonest cause of loose teeth. (CHART 17) 50% have knowledge about the correlation between gum disease and systemic disease. 26% thinks there is a correlation between gum disease and systemic disease, 24% thinks maybe there is a correlation between gum disease and systemic disease, 36 % thinks there is no correlation between gum disease and systemic disease, 14% don't know about the correlation between gum disease and systemic disease. (CHART 18)

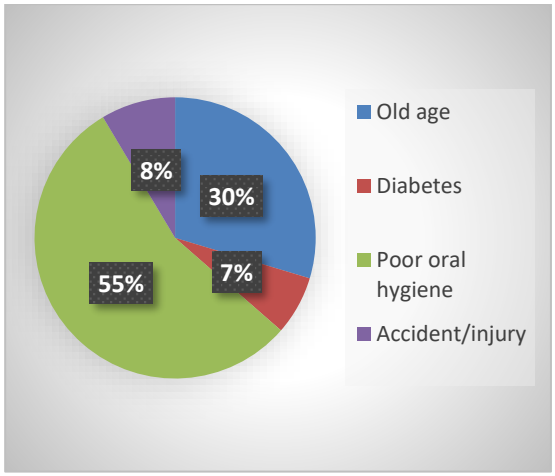

Chart 17: What do you think is the commonest cause for loose teeth?

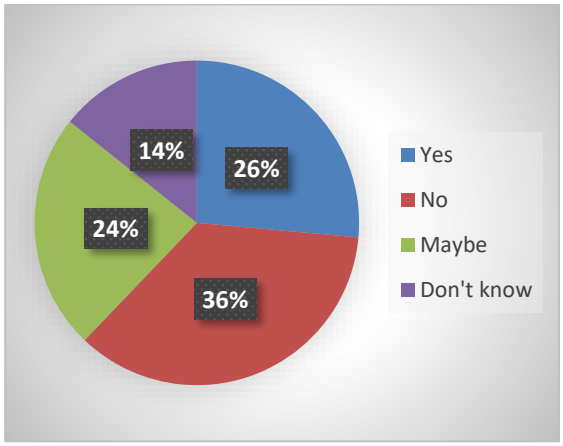

Chart 18: Is there any correlation between gum disease and systemic disease?

Only 36% have knowledge that regular visit to dentist is main measure to prevent gum disease, 26% thinks use of toothbrush and dental floss is main measure to prevent gum disease, 31% thinks good nourishment is main measure to prevent gum disease, 7% don't know about it.(CHART 19) Only 8% have knowledge that they should visit dentist in 6 months for cleaning of teeth, 15% thinks they should visit once in a year, 58% thinks they should visit dentist only when required, 15% thinks they should never visit dentist for cleaning of teeth.(CHART 20)

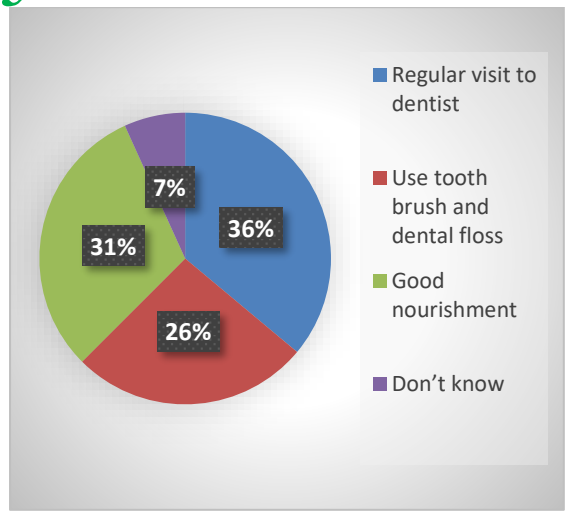

Chart 19: What is the main measure to prevent gum disease?

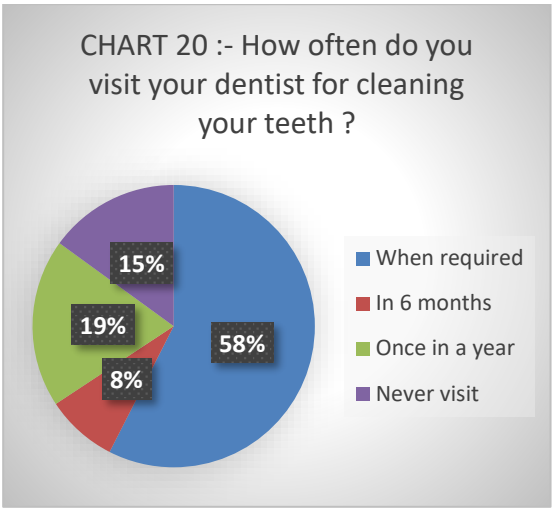

Chart 20: What is the main measure to prevent gum disease?

Table 1: Percentage of students having awareness about periodontal disease

QUESTIONS ABOUT AWARENESS OF PERIODONTAL DISEASES	PERCENTAGE
Students Brushing Teeth Daily	100%
Students Brushing Teeth Twice Daily	26%
Students Changing Tooth Brush In 3 Months	20%
Students Brushing In vertical Stroke Technique	11%
Students Using Dental Floss	32%
Students Using Mouthwash	49%
Students Who Have Seen Deposits On Their Teeth	84%
Students Having Gum Problem	100%
Students Not Using Tobacco Products	86%
Students Not Using Smoking Products	89%

Table 2: Percentage of students having knowledge about periodontal disease.

QUESTIONS ABOUT KNOWLEDGE OF PERIODONTAL DISEASES	PERCENTAGE
Students Thinking Poor Oral Hygiene As Common Cause Of Bad Breath	61%
Students who Think We Can Get Rid Of Bad Breath By Using Mouthwashes	76%
Students who Think Poor Oral Hygiene As Common Cause Of Bleeding Gums	60%
Students who Think Coffee/Tea Can Cause Staining Of Teeth	68%

Students Who Think Sensitivity To Hot/Cold Can Be Treated	54%
Students Thinking Improper Tooth Brushing As Cause Of Receding Gums	73%
Students Thinking Poor Oral Hygiene As Cause Of Loose Teeth	55%
Students Thinking That There Is Any Correlation Between Gum And Systemic Disease	50%
Students Who Think Regular Visit To Dentist As Main Measure To Prevent Gum Disease	36%
Students Who Think They Should Visit Dentist Every 6 Months	8%

Table 3: Overall percentage of students who are aware of periodontal health.

AWARENESS ABOUT PERIODONTAL DISEASE	PERCENTAGE
Aware	59.7
Not aware	40.3

Table 4: Overall percentage of students who have knowledge of periodontal health.

KNOWLEDGE ABOUT PERIODONTAL DISEASE	PERCENTAGE
Familiar	54.1
Not familiar	45.9

DISCUSSION

Most of the people are unaware of the relationship between oral hygiene and systemic diseases such as cardiovascular disease, diabetes etc. Oral hygiene has mostly remained an ignored and unrealized social problem. A significant amount of emphasis is now being given for prevention of diseases rather than the treatment aspect. So, proper knowledge of preventive oral health and proper oral hygiene practice becomes an important way of maintaining good dentition. In this survey, we studied the status of awareness and knowledge in that section of society which is considered to have better knowledge and awareness than the general population. This survey was therefore initiated with a prime focus to determine the oral health awareness and knowledge levels among the engineering students in Vadodara city. Although, brushing was the commonly used method of cleaning, the percentage of subjects brushing their teeth twice daily regularly were less which is similar to 67% of the Chinese urban adolescents in a study by Jiang et al. in 2005.[14] 62% of the Kuwaiti adults in a study by Al-Shammari et al. in 2007.[15]

The average percentage of students who changes their toothbrush in 3 months was 23% in engineering students seems to be less aware of the knowledge of changing toothbrush. It is noteworthy that 46% of all the students brushed their teeth using a horizontal method that might result in compromised tooth structure and gingival health which is significantly less than the study done by Zhu et al. in 2005[16] where 60% of the sample did the same.

Only 32% of the subjects were aware of dental floss. In contrast, Hamilton and Coulby in 1991 found that a high percentage (44%) of the sample in northeastern Ontario used dental floss.[17] The reason for this may be an educational program that is carried out in Canada, which lacks in our society. This emphasizes the urgent need for educating and motivating the public to use this efficient method for oral health care.

In contrast to this significantly higher percentage of engineering students (61%) were aware that poor oral hygiene is common cause of bad breath and 50% were aware that bad oral hygiene affects general health and the results obtained were less compared to the study conducted by Ali et al. in 2012 (81%) in Karachi.[18]

Very fewer students regularly visit their dentist for cleaning their teeth in 3 months through a comparatively higher number of students (17%) visited dentist over a period of 1 year, which was in par with the studies by Behbehani and Shah (49%),[19] Petersen et al. (37%),[20] and Al-Hussaini et al. (44%),[21] but was better than the study conducted by Johani (12.8%).[22]

The results of our survey surprisingly revealed that the well-educated students who are going to become the foundation of our modern society stand nowhere better than rest of the general population based on their educational knowledge whereas some results might be given intentionally by the students. But the level of awareness and knowledge about oral health and oral diseases in these students is not very encouraging.

Limitations

There is no other previous study of its kind for this region from which a comparison can be drawn.

CONCLUSION

Standards of oral health awareness are fair in Vadodara city, with a large proportion of the population being affected due to poor socio-economic conditions and many people have never even been to a dentist. The results obtained in our survey are an eye opener for the dental faculty not only in Vadodara region but also throughout the country. From the results of our survey, we conclude that the level of awareness in the engineering fields is not enough and presents a sorry picture. As dentists, we have to keep reinforcing the importance of correcting all aspects related with brushing and flossing along with the importance of regular checkups. The task of spreading this awareness needs to be extended beyond our clinic to general masses, including school children, working and nonworking population, and even the professional students

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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