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The Journal of Dental Panacea

Journal homepage: https://www.jdentalpanacea.org/

Original Research Article

Oral health knowledge attitude and practice among university students

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Abstract

Background: Oral diseases are highly prevalent in India, and assessing the knowledge, attitude, and practices of university students is essential for promoting better oral health.
Aim and Objective: To assess and analyze oral health-related knowledge, attitude, and practices among university students.
Materials and Methods: A questionnaire was distributed to 364 students of Panjab University, Chandigarh. The responses were collected anonymously and subjected to statistical analysis to assess the oral health knowledge, attitude, and practices of the university students.
Results: The students understood the importance of visiting the dentist for oral check-ups but were not frequent with their oral health care routine i.e., brushing twice daily/flossing. Most of the students reported visiting the dentist only during pain and majority were unaware of the causative agents of oral cancer.
Conclusion: While the oral health knowledge attitude and practice among university students was fair the goal of enhancing oral health awareness and ensuring the implementation of oral health promotion programs is possible by organized intervention leading to correct knowledge as well as a positive attitude.

Keywords: Statistical Analysis, Flossing, Oral Cancer, Oral Health Promotion Programs.

Received: 11-09-2025; **Accepted:** 15-10-2025; **Available Online**: 28-10-2025

1. Introduction

Oral diseases encompass a range of diseases and conditions that include dental caries, periodontal (gum) disease, tooth loss, oral cancer, oro-dental trauma, noma and birth defects such as cleft lip and palate. Oral diseases disproportionately affect the most vulnerable and disadvantaged populations. People of low socioeconomic status carry a higher burden of oral diseases and this association remains across the life course, from early childhood to older age, and regardless of the country's overall income level.[1]

1.1. Cause of the problem

Plaque: Dental plaque, or dental biofilm, is a sticky yellow film of bacteria that attaches to tooth surfaces and is often visible around the gum line. It reappears quickly after cleaning, which is why regular brushing is important. A high-sugar diet encourages plaque formation, as sugar (fermentable carbohydrates) is converted into acid, causing tooth breakdown and decay.[2] If plaque remains on subgingival (under the gum) surfaces, it increases the risk of tooth decay and irritates the gums, making them red, swollen, and prone to bleeding during brushing or flossing. These are signs of gingivitis, indicating poor gum health.[3]

Calculus: The longer plaque remains, it hardens into calculus requiring professional removal; if untreated, it causes inflammation, bone loss, and loose teeth.[4]

1.2. Prevention

Tooth Brushing: Regular tooth brushing is the primary way to prevent plaque-associated diseases such as gingivitis, periodontitis, and caries, with dental professionals recommending brushing for at least two minutes twice daily. Studies show that brushing for two minutes removes significantly more plaque than brushing for only 30–60 seconds. When cleaning teeth, it is necessary to use fluoride-containing toothpaste or alternatives like nano-

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https://doi:10.18231/j.jdp.13324.1760685445

hydroxyapatite, as they help remineralize weakened enamel and prevent dental caries. Population studies have shown that regular tooth brushing is associated with reduced risk of cardiovascular disease[5] and better blood pressure profile.[6]

Flossing: Since 40% of tooth surfaces are interdental, brushing alone cannot remove all plaque, making flossing essential to clean between teeth and below the gum line.
Interdental Brushes: Interdental brushes, available in color-coded sizes, are as effective as floss in removing plaque and reducing gum irritation, and are especially recommended for people with orthodontics.
Tongue Cleaner: Tongue cleaners help remove bacteria and debris from the tongue that cause foul breath.
Oral Irrigation: Oral irrigators use water or air pressure to clean between teeth, reduce plaque, prevent gingivitis, and are especially beneficial for implants.
Mouthwash: Mouthwash is a liquid solution often containing antiseptic or fluoride that helps fight plaque, gingivitis, bad breath, tooth decay, and cavities while improving overall dental health.[7]

2. Oral Health and Systemic Diseases

Oral Health may influence a number of illnesses and ailments, including:

Endocarditis: Bacteria in dental plaque can cause gingivitis with red, swollen, bleeding gums, and germs may enter the bloodstream, leading to endocarditis where bacteria adhere to heart valves and lining.[8]
Cardiovascular Disease: Poor oral health allows bacteria from periodontal disease to enter the bloodstream, causing atherosclerosis, which leads to heart disease, hypertension, strokes, and risk of heart attack.[9]
Respiratory Infections: Teeth and gums can harbor germs that travel to the lungs, increasing risk of infections, worsening asthma, COPD, and airway inflammation through gum disease–related inflammation.[10]
Pregnancy Complications: Oral infections in pregnant women, linked to gingivitis and periodontitis, increase the risk of complications, premature delivery, low birth weight, and major health problems for mother and infant.
Cancer: Snuffing and chewing tobacco can cause cancers of the lips, gums, cheeks, esophagus, and pancreas, often starting as leukoplakia or erythroplakia,[11] while poor dental health increases the risk of liver cancer by up to 75%.[12]

3. Statistics of Dental Health in India

In India, dental cavities affect 60–80% of children and 85–90% of adults. Only 51% of Indians use toothpaste and a toothbrush to clean their teeth. 28% of people brush their teeth twice a day as recommended.[13] Therefore, having access to information about dental health and effective oral health management may prevent many issues and improve India's overall dental health.

4. Materials and Methods

Study was conducted at Panjab University, Chandigarh Sector 15 and Sector 25. One time cross- sectional study was conducted from February 2023 to May 2023. The inclusion criteria were the students of Panjab University, Chandigarh. Multiple options were provided in the questionnaire formulated by Dr Hala Zakaria.[14] The Statistical Package for Social Sciences SPSS-26 was used to enter the data after each question's answers were numerically coded. Descriptive statistics, including frequencies and percentages, as well as the Chi-square test, were applied to analyze the data. The significance level for each test was set at 0.05. Behavior towards oral hygiene was assessed based on participant's practice and attitude toward oral health.

4.1. Inclusion criteria

Students of Panjab University Chandigarh

4.2. Exclusion criteria

1. Incomplete questionnaires.
2. Students not willing to take part in the study.

5. Results

Data was collected from 364 participants, 211(58%) were females and remaining 153 (42%) were male. The age group of the participants were classified into 18-20 (17.9%), 21-23 (47.2%), 24-26 (23.6%), 27-29 (8.4%), 30-32 (1.9%).

5.1. Student's behavior and attitude towards oral hygiene

Figure 1 presents the answers to the question about the participant's reason for their last visit to the dentist. It was observed that 150 (41.2%) last visited the dentist for check-up, 82 (22.5%) during pain, 56 (15.4%) to have teeth cleaned, 51(14%) for extraction,[25] (6.9%) for implants & veneering.

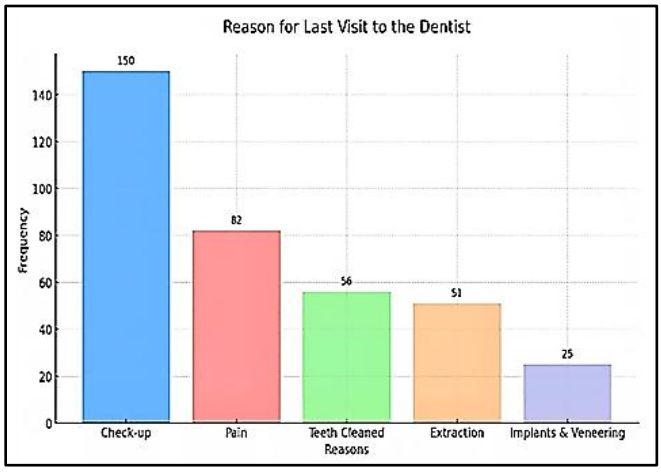

Figure 1: Reason for last visit to the dentist.

Figure 2 As we can see in the figure below out of 364 total participants 42.3% (154) brushed their teeth once a day, 38.2% (139) brushed their teeth two times a day, 13.7% (50) brushed their teeth three times a day, 4.9% (18) brushed their

teeth once every other day and 0.8% (3) claimed that they do not brush.

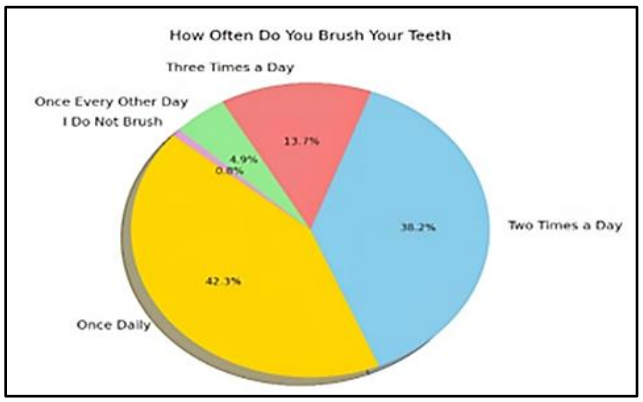

Figure 2: How often students brushed their teeth.

Figure 3 Indicates the distribution of participants on the basis of the tools they use to brush their teeth. 50.3% (180) used toothbrush to clean their teeth, 24.2% (88) used chewing stick (Meswak), 25% (91) used both tools, 0.5% (2) used none.

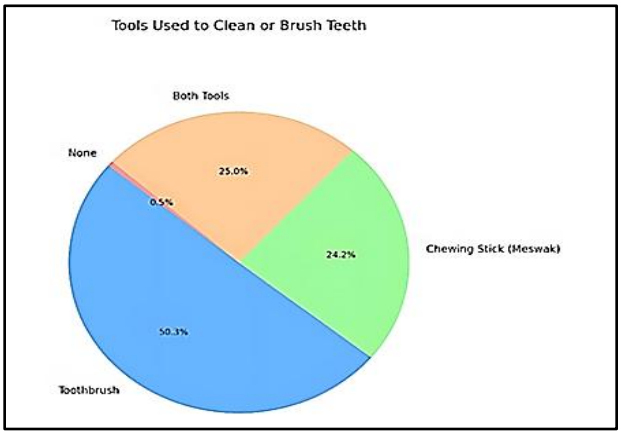

Figure 3: Tools used to clean or brush teeth.

5.2. Student's knowledge about dental health

Figure 4 364 total participants are there out of which, 21.4% (78) think meaning of dental plaque is discoloration of teeth (yellow, brown teeth), 26.6% (97) think it means soft deposits on teeth, 28.8% (105) think it means white patches on teeth, 23.1% (84) didn't know the meaning of dental plaque.

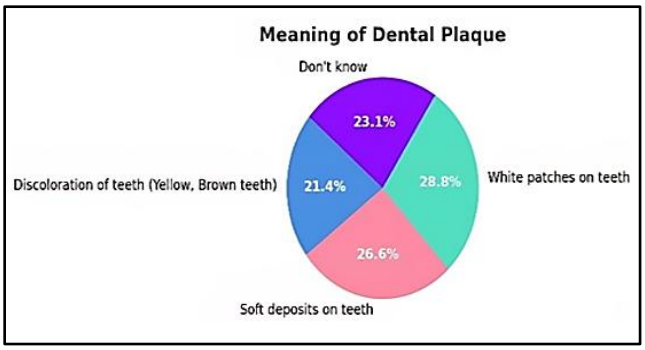

Figure 4: Meaning of dental plaque

Table 1 We find out about the respondent's knowledge about the impact of consuming soda and sweet food 63 (17.3%) think it leads to decaying of teeth, 32 (8.8%) think it leads to calcium deficiency, 67 (18.4%) think it leads to bleeding gum, 100 (27.5%) think it leads to tooth loss, 73 (20.1%) think all of the above-mentioned options are correct, 29 (8%) don't know what consuming excess sweet food will lead to.

Table 1: Students knowledge regarding effects of consuming a lot of sweet food on oral health

Consuming lot of sweet and food	Frequency	Percentage
Can lead to decaying of teeth	63	17.3
Calcium deficiency	32	8.8
Leads to bleeding gum	67	18.4
Tooth loss	100	27.5
All of the above	73	20.1
I don't know	29	8.0
Total	364	100

Figure 5 Presents the answer to participant's knowledge about what causes oral cancer. 40 (11%) think calcium deficiency causes oral cancer, 192 (52.7%) think it is caused by tobacco chewing, smoking and pipe smoking, 63 (17.3%) think it is caused by vitamin c deficiency, 69 (19%) had no knowledge of the reasons of oral cancer.

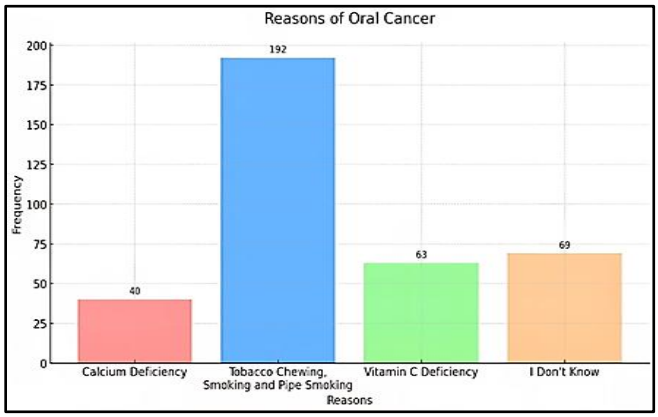

Figure 5: Reasons of oral cancer.

6. Discussion

The present research offers a thorough review of oral health knowledge, attitude and practices among university students, which can aid in the creation and assessment of oral health promotion programs in students enrolled at higher educational institutes. This study found that a fair percentage of students brushed their teeth once daily (42.3%) as compared to twice daily (38.2%). According to research, cleaning your teeth thoroughly just once a day is enough to keep your mouth healthy and avoid periodontal and caries problems. However, most people are unable to remove

plaque completely. As a result, most dentists recommend cleaning teeth twice a day to promote plaque management.[15] The frequency of students brushing twice a day is quite less. According to the most recent global oral health assessment, just 45 percent of Indians clean their teeth twice daily. This is much lower than the 78-83 percent recorded by China, Colombia, Italy, and Japan. Indians, on the whole, have a sweet tooth. Patients reported the highest frequency of sugary food intake (32%).[16] This wide variation when compared to present study can be attributed to varied social and economic conditions within India. Other suggested oral hygiene procedures, such as dental floss (1.6%) and mouthwashes (30.5%), were found to be infrequently used. The findings could be attributed to the population's lack of oral health education, the cost of such aids, socio-economic status, familial influences or traditional/religious beliefs.

According to the findings of this study (33.8%) participants aware of effects of fluoride on teeth were. Around (17.3%) of the participants believed consuming sweet food can lead to decaying of teeth and (27.5%) participants think it leads to tooth loss. In India Dental caries is a major cause of pain, discomfort, and absenteeism from school and, in some cases, office work.

Tooth loss and accompanying difficulties are also caused by gingival and periodontal disorders. According to the draft National Oral Health Policy 2018, the incidence and recurrence of oral disorders in India is a hidden epidemic.[17] A fair number of participants (52.7%) think the reason of oral cancer is tobacco chewing, smoking and pipe smoking. Initiatives should be taken to raise student awareness of the negative effects of smoking and tobacco chewing, as India is one of the nations with the highest tobacco consumption, which is a primary cause of oral cancer, the situation has only become worse in recent years. With 75,000 to 80,000 new cases each year, India has the highest number of oral cancers in the world. Because they are marketed to teens and children, all varieties of chewing tobacco supplied in tiny pouches across the country pose a severe health risk.[17] The majority of the students had a good attitude regarding oral health and were aware of the proper oral health practices, however they lacked understanding about dental health. Dental health education should be included into educational programs. The oral health education programs and other educational activities should be arranged in such a way that they awaken the student's attention. The goal should be to keep that level of acceptance throughout the student's life.

7. Conclusion

This study provides background data to get insight into the state of oral health knowledge, attitude and practices among university students. The purpose of this survey was to emphasize the need of oral health education for university students, with the goal of enhancing oral health awareness and ensuring the ongoing implementation of oral health promotion programs. University students would be the appropriate target group to receive the organized intervention leading to correct knowledge as well as a positive attitude, which is essential to bring about a change in their oral health behavior.

However, the efficacy of such education would be restricted if health programs are unable to directly change attitudes and take into account the targeted population's various socioeconomic & environmental characteristics.

8. Source of Funding

None.

9. Conflict of Interest

The authors declare no conflict of interest regarding this paper.

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Cite this article: Dhaliwal AK, Bal IS, Prashar S. Oral health knowledge attitude and practice among university students. *J Dent Panacea*. 2025;7(3):145-149.