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Original Article

Dental Care and Smoking Habits among Male Students of Engineering Faculty in Alkoms City

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Abstract

Oral health and dental care are essential components of overall health, encompassing the absence of conditions such as oral and facial pain, cancers of the mouth and throat, infections, ulcers, gum disease, tooth decay, and tooth loss. These conditions can significantly impair an individual's ability to bite, chew, smile, and speak. Cigarette smoking poses a major public health concern due to its contribution to the proliferation of pathogenic microbes, as well as its role in oral cancer, gingivitis, tooth discoloration, halitosis, and other adverse health outcome. This study aims to assess the prevalence of dental care practices, smoking habits, and dental caries among students of the College of Engineering at El-Mergib University, located in Al-Khums. A self-administered questionnaire was distributed to a total of 250 students. Data were analyzed using Microsoft Excel, version 2010. The questionnaire was designed to evaluate participants' self-perception of dental care, oral health, oral hygiene practices, dental caries, bleeding gums, and smoking habits. The findings indicated a slightly higher prevalence of dental caries and smoking among participants who reported good oral hygiene practices, such as regular tooth cleaning and dental visits. The study advocates for the development of preventive health and oral hygiene programs to improve overall oral health.

Keywords: *Dental Care, Smoking Habits, Dental Caries, Male Students.*

Introduction

One of the basic human rights is maintaining oral health, which is considered one of the elements of well-being [1]. Oral health is traditionally defined as the absence of all diseases in the mouth, which enables the mouth to perform its function and maintain its aesthetic appearance.[2]. The Fédération Dentaire International (FDI) defined oral health in 2016 more broadly. The FDI recognized oral health as a multifaceted concept, encompassing the ability to chewing, taste, swallow, smile, speak, and express facial expressions with confidence, all without pain, or disease affecting the all-mouth regions [3]. Oral health is closely linked to general health, with diseases of the oral cavity recognized as a major public health concern due to their high prevalence and significant social impact (WHO, 2003). Oral hygiene involves the careful mechanical cleaning of teeth to disrupt bacterial plaque, the primary cause of dental caries. This process ensures a clean enamel surface and helps prevent both dental caries and periodontal disease [4].

Epidemiological studies have identified dental caries as the most prevalent chronic disease worldwide, posing a substantial burden on healthcare services [5]. Tooth decay occurs when bacteria ferment carbohydrates and produce acid in the oral cavity, the presence of plaque on tooth surfaces and gum make this process exacerbated due to inadequate oral hygiene [6].

Bad oral health, usually associated with dental caries, gum disease, or smoking habits, can lead to tooth loss, making prosthodontic intervention necessary. By maintaining good oral hygiene practices and reducing harmful behaviors like smoking, the need for prosthodontic treatments may be minimized, thus preserving natural dentition and improving long-term oral health outcomes [7,8].

Fluoride has played a critical role in the prevention of dental caries, both at the individual and community levels. One of the most effective public health strategies for reducing caries is use of fluoride toothpastes [9].

Oral health promotion involves planned initiatives aimed at building healthy public policies, creating supportive environments, strengthening community action, developing personal

skills, and reorienting health services towards oral health goal. These are improving the health of children, families and all communities (WHO, 2003).
Despite being one of the most affordable forms of preventive healthcare, oral hygiene is often neglected, particularly in underprivileged rural communities [10]. Smoking is another significant health risk factor that negatively impacts both general and oral health. It reduces physical performance and quality of life [11]. One major oral health consequence of smoking is the development of dry mouth, a condition that reduces salivary flow, leading to increased plaque accumulation, tooth decay, and mouth sores [12]. Tobacco is associated with numerous oral health issues, including alterations in the periodontal tissue, oral mucosa, and all teeth [13]. The relationship between oral health is the World Health Organization's (WHO) 1946 definition of health as a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity. Preventive programs targeting oral health focus on educating individuals about proper oral hygiene, healthy eating, fluoride prophylaxis, regular check-ups, professional oral hygiene sessions, and secondary prevention strategies [14].

Methods

Study design

This study was conducted as a cross-sectional survey.

Study area and study population:

The study population consisted of students from the College of Engineering at the University of Elmergib, located in Al-Khums City. Libya

Study duration

The survey was conducted over two months, from July to August 2022.

Sample size

The sample size was calculated using the statistical formula proposed by Steven K. Thompson (2012)[15]:

$$n = \frac{\mathrm{N} \times \mathrm{p}(1 - \mathrm{p})}{[\mathrm{N} - 1(\mathrm{d2} \div \mathrm{z2}) + \mathrm{p}(1 - \mathrm{p})}$$

Where, n= sample size, Z = confidence level set at 1.96, N= population size, P= probability (50%), d= error proportion (0.05).
Based on the calculations, the required sample size was determined to be 250 students.

Data collection

The questionnaire was adapted from a previous study [16] and was initially created in English before being translated into Arabic. A total of 11 questions were designed to assess dental care, caries, and smoking habits among male engineering students in Al-Khums City. The questionnaire consisted of multiple-choice questions and yes/no questions, with respondents instructed to select only one answer per question.

Data analysis

Data analysis was performed using Microsoft Excel (version 2010). Descriptive statistics were applied to all variables, and results were expressed as frequencies and percentages.

Results

The total sample size for this study consisted of 250 students, aged between 18 and 25 years. The findings indicate that (93.20%) of the students reported brushing their teeth regularly (see Table 1). Specifically, (35.2%) of students brushed their teeth once daily, while (44.8%) brushed twice daily, and (13.2%) brushed three times daily, indicating a positive dental hygiene practice (see Figure 1). Furthermore, (37.6%) of the students employed the circular brushing technique, which is the recommended method for effective cleaning (see Figure 2). Only (26.8%) of the students reported using a soft toothbrush, which is endorsed by dental professionals (see Figure 3). The majority of the students (73%) visit the dentist, in which 49.6% were for pain and 23.6% for examination (Figure 4).
Approximately (57%) of students reported cleaning their tongues, and the use of mouthwash and dental floss was reported by (52.4%) and (47.6%) of students, respectively (see Table 1). The majority of students (73%) had visited a dentist, with (49.6%) of these visits being for pain-related issues and (23.6%) for routine examinations (Figure 4).

Table 1. Prevalence of dental care habits among the students

Dental care habits	Yes	No
Brushing teeth	233(93.20%)	17 (6.80%)
Using mouth wash	131(52.40%)	119(47.60%)
Using dental floss	87(34.80%)	163(65.20%)
Cleaning tongue	143(57.20%)	107(42.80%)
Visiting the dentist	183(73.20%)	67 (26.80%)

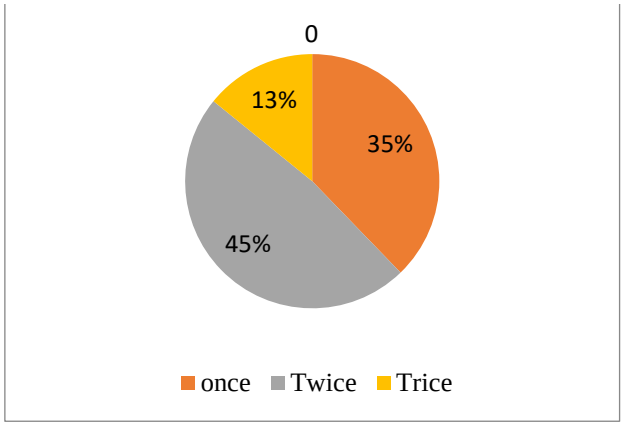

Figure 1. Times of brushing teeth per day

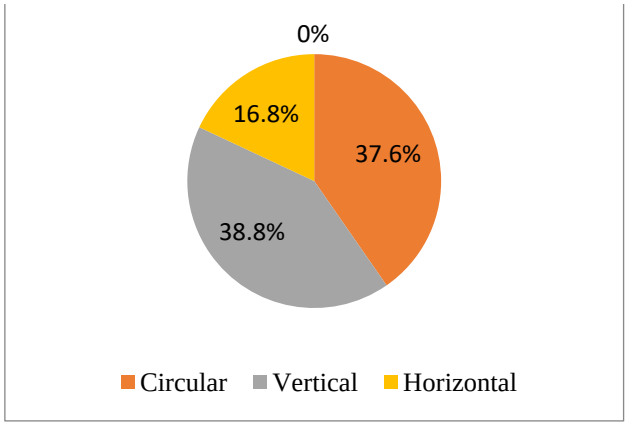

Figure 2. Technique of brushing

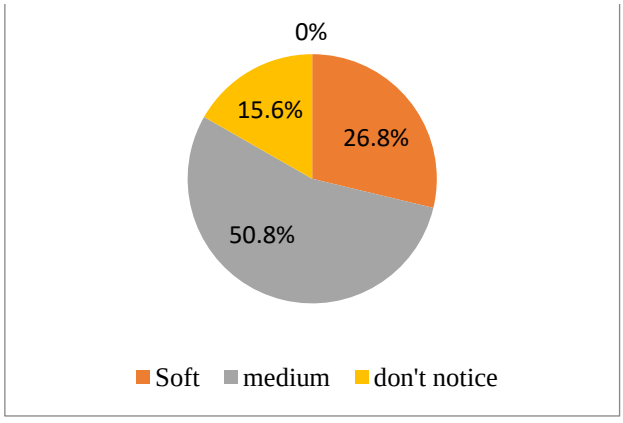

Figure 4. Reason of visiting the dentist

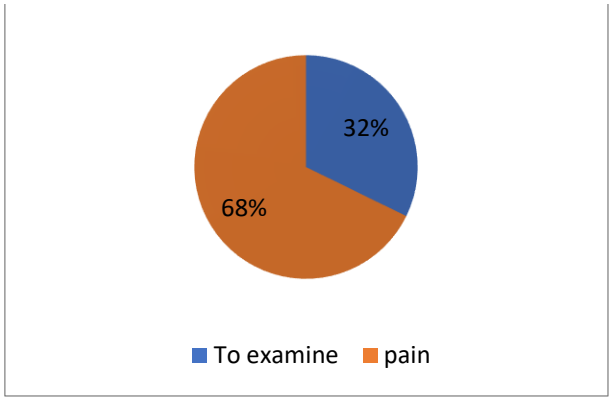

Figure 4. Reason of visiting the dentist

The prevalence of self-reported dental caries among the target population was (66%) while (55%) reported experiencing bleeding gums (Table 2). Additionally, smoking habits were prevalent among (52.4%) of the students (Table 3).

Table 2. Presence of oral problems

Presence of oral problems	Yes	No
Dental caries	165 (66%)	85 (34%)
Bleeding gum	138 (55.2%)	112(44.8%)

Table 3. Smoking habits

Smoking	Yes	No
	131(52.4%)	**119(47.6%)**

Discussion

Oral health is one of important thing for human, and dental caring plays a pivotal role in preventing diseases like dental caries and periodontal disease. Good daily brushing with use of toothpaste is one of the most effective strategies for maintaining oral structures [17]. Regular dental visits every 6 months and using the mouthwash are also can protects and increases the oral hygiene in the same time decreases of get oral diseases.

Cigarette smoking has health, economic and social effects [18]. In oral health, smoking increase the accumulation of plaque on teeth surfaces, which can accelerates occur and the development of dental caries, gingivitis, tooth decay, and finally tooth loss [19]. Additionally, one of the Side effects of smoking is the discoloration of teeth because of components such as tar and nicotine deposition [20].

In our study, conducted among male students of the Faculty of Engineering at Al-Mergib University in Al-Khums, the results reflected a relatively high prevalence of dental care practices. For example, 93% of the students reported regular tooth brushing, 57% cleaned their tongue, 52% used mouthwash, and 73% visited a dentist regularly. These findings align with, but in some cases exceed, the results of a study conducted among dental students at Saveetha University in India, where 100% of the students brushed their teeth, 23% cleaned their tongues, and 43% used mouthwash [21].

The prevalence of smoking among our study group was 52%, which is considerably higher than similar studies conducted in other regions. For instance, a study in Malaysia showed a smoking prevalence of 29% among university students [22], and also a study in Ethiopia showed a prevalence of 15.92% among secondary and university students [23]. Similarly, smoking prevalence in India among school and university students was found at 12.8% [24], while studies among Ethiopian students at Jijiga University and Hawassa University reported rates of 14.5% and 14.8%, respectively [25.26].

These comparisons highlight the higher smoking rates in our study population, which could be attributed to cultural, social, or environmental factors that warrant further investigation.

Regarding dental caries, our study revealed a high prevalence of 66% among the students. This is significantly higher than figures reported in other studies, such as a 25.6% prevalence among university students in India [17] and 22.4% among French university students [27]. These disparities could be linked to differences in oral hygiene practices, access to dental care, and dietary habits across different populations.

Conclusion

The findings of our study underscore the importance of promoting good oral hygiene practices and reducing smoking among university students to lower the risks of dental caries and other oral diseases. Further studies are needed to explore the underlying causes of the higher prevalence of smoking and dental caries in our study population, as well as to develop targeted interventions for improving oral health outcomes.

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Conflicts of Interest. I declare no conflicts of interest.

References

1. Jin L, Lamster I, Greenspan J, Pitts N, Scully C, Warnakulasuriya S. Global burden of oral diseases: Emerging concepts, management and interplay with Systemic Health. Oral Diseases. 2016 Jan 20;22(7):609–19. doi:10.1111/odi.12428
2. Nishat R, Ramachandra S, Behura SS, Kumar H. Digital cytopathology. Journal of Oral and Maxillofacial Pathology. 2017 Sep 30;21(1):99–106.
3. Glick M, Williams DM, Kleinman DV, Vujicic M, Watt RG, Weyant RJ. Reprint of: A new definition for oral health supported by FDI opens the door to a universal definition of oral health. Journal of Dentistry. 2017 Feb;57:1–3.
4. Petersen PE, Bourgeois D, Ogawa H, Estupinan S, Day N. The global burden of oral diseases and risks to oral health. Bulletin of the World Health Organization. September 2005; 83 (9): 661–9.
5. Van Der Weijden F, Slot DE. Oral hygiene in the prevention of periodontal diseases: the evidence. Periodontology 2000. 2011 Feb 1;55(1).
6. Worthington HV, MacDonald L, Pericic TP, Sambunjak D, Johnson TM, Imai P, Clarkson JE. Home use of interdental cleaning devices, in addition to toothbrushing, for preventing and controlling periodontal diseases and dental caries. Cochrane Database of Systematic Reviews. 2019(4).
7. Kassebaum NJ, Bernabé E, Dahiya M, Bhandari B, Murray CJ, Marcenes W. Global burden of severe tooth loss: a systematic review and meta-analysis. Journal of dental research. 2014 Jul;93(7_suppl):20S-8S.
8. Toumba, K. J., Twetman, S., Splieth, C., Parnell, C., Van Loveren, C., &Lygidakis, N. A. Guidelines on the use of fluoride for caries prevention in children: an updated EAPD policy document. European Archives of Paediatric Dentistry, 2019;20(6), 507-516
9. Okolo SN, Chukwu GA, Egbuonu I, Ezeogu FA, Onwuanaku C, Adeleke OA, Hassan A, Ngoe-Nesoah A. Oral hygiene and nutritional status of children aged 1–7 years in a rural community. Ghana medical journal. 2006 Mar;40(1):22.
10. Okolo SN, Chukwu GA, Egbuonu I, Ezeogu FA, Onwuanaku C, Adeleke OA, Hassan A, Ngoe-Nesoah A. Oral hygiene and nutritional status of children aged 1–7 years in a rural community. Ghana medical journal. 2006 Mar;40(1):22.
11. Dyasanoor S, Saddu SC. Association of xerostomia and assessment of salivary flow using modified schirmer test among smokers and healthy individuals: a preliminutesary study. J Clin Diagn Res. 2014;8:211–213.
12. Rad M, Kakoie S, Brojeni FN, Pourdamghan N. Effect of long-term smoking on whole-mouth salivary flow rate and oral health. Journal of dental research, dental clinics, dental prospects. 2010;4(4):110.
13. Asadi-Lari, Mohsen, Marcello Tamburini, and David Gray. "Patients' needs, satisfaction, and health related quality of life: towards a comprehensive model." Health and quality of life outcomes 2.1 (2004): 1-15.
14. Thompson SK. Sampling. John Wiley & Sons; 2012 Mar 13.
15. Aboalshamat K, Abdulrahman S, Alowadi J, Al-Mutairy N, Fairak M, Alraithi N, Alsolami A, Alshahrani A, Almansouri W. Endodontic treatment in pregnancy: knowledge, attitudes, and practices of dentists and interns in Jeddah, Saudi Arabia. The Open Dentistry Journal. 2020 May 21;14(1).
16. Ministry of Health, Saudi Arabia. Oral Health. 2019 .
17. U.S. Department of Health and Human Services. The Health Consequences of Smoking – 50 Years of Progress. 2014.

18. Ghirri H, Elsalhin A and Elshah M. (2018) Effects of Tobacco smoke on caries, and tooth loss among Elderlies in the west part of Libya Aljabal Journal for Applied Science and Humanities 9-24(2)
19. Karanjkar RR, Preshaw PM, Ellis JS, Holliday R. Effect of tobacco and nicotine in causing staining of dental hard tissues and dental materials: A systematic review and meta-analysis. Clinical and Experimental Dental Research. 2023 Feb;9(1):150-64.
20. Sri Sakthi, R. Oral Health Status and Dental Habits among University Students. Saveetha University, India, 2020.
21. Al-Ghaneem SG, Al-Nefisah OS. The prevalence of smoking among male students of Majmaah University, KSA. Journal of Taibah University Medical Sciences. 2016 Apr;11(2):175–8.
22. AnimutAlebel et al. Prevalence of Smoking Among Secondary and University Students in Ethiopia. 2019.
23. Sachdev R, Garg K, Chauhan S, Singh G, Mehrotra V. IOSR: Journal of Dental and Medical Sciences (IOSR-JDMS) Prevalence of Tobacco Use and Assessment Of Knowledge And Attitude Of School Children Towards Tobacco Consumption In And Around Kanpur City.
24. Tadele Kinati K. Smoking Prevalence Among Students of Jijiga University, Ethiopia. 2017.
25. Kassa A, Wakgari N, Taddesse F. Determinants of alcohol use and khat chewing among Hawassa University students, Ethiopia: a cross sectional study. African health sciences. 2016 Oct 18;16(3):822-30.
26. Romain Ceinos et al. Prevalence of Dental Caries in French University Students. 2017..