Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/w1vh6c86

COMPARING ORAL HEALTH HABITS AND DENTAL FLOSS USE AMONG MEDICAL AND DENTAL STUDENTS IN A PUBLIC UNIVERSITY IN PAKISTAN

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ABSTRACT

Objectives: This study aimed to compare oral health habits, knowledge, and the frequency of dental floss use among undergraduate medical and dental students at a public university in Pakistan.

Materials and Methods: A cross-sectional survey was carried out in Karachi Medical and Dental College for a period of three months on 200 medical and 200 dental students. Data were collected by administering a structured close-ended questionnaire self-completed by the respondents containing questions on oral hygiene practices and knowledge. Descriptive statistics were computed using Statistic Package for Social Sciences (SPSS) version 17; a p-value of < 0.05 was used as the level of significance.

Results: The dental students brushed twice daily more often (76%) than the medical students (52%) and remained consistent in using dental floss (65% vs 28%). Medical students had a lower percentage of knowledge (68%) about the relationship between oral health and systemic diseases as compared to dental students (90%). Dental students also had significantly more frequent preventive dental visits than the general student population (70% vs. 40%).

Conclusion: The findings also show that dental education brings changes in oral hygiene practices. Education of preventive oral healthcare should be incorporated in medical curricula for the better health behaviors of future health care professionals.

Keywords: Oral health, dental floss, medical students, dental students, preventive care, oral hygiene practices

INTRODUCTION

Dental health is an important component of general health and is vital to one's life. It comprises the diseases, conditions, and disorders management and their diagnosing and avoiding measures. However, there are some differences in oral care between groups, which also include medical and dental students, who should have much better knowledge and care about their oral hygiene in comparison with other people. This study focuses on another part of the world regarding the differences in the knowledge and habits in oral hygiene, including dental flossing frequency among dental and medical students, which is an important area of study to understand the probable role of education concerning preventive behaviors or practices (1).

Both medical and dental education are part of the healthcare field, but the students are taught in somewhat different areas of health. Dental students, for instance, are taught general health, most importantly oral health, preventive dentistry, and overall oral health promotion, including the importance of interdental cleaning using dental floss (2). In contrast, medical students themselves have more extensive medical training with relatively limited exposure and focus on oral health and thus may likewise have limited knowledge and understanding of oral hygiene (3). Knowledge of these differences will facilitate the detection of educational deficits and ensure the delivery of a comprehensive oral health message to future healthcare workers.

Several previous investigations have analyzed oral health-related behaviors among undergraduate students and suggested the necessity of their advancements in several ways. Shah et al. (2022) carried out a study exploring oral health practices assessing medical and dental students studying at the public sector University of Health Sciences in Pakistan. The result highlighted the gaps where it showed the disparities in oral health practices and the dental flossing frequencies several dental students were seen to practice better preventive measures in (1). However, this difference brings regard to the question of the educational curriculum and its effects on the oral health behavior of the students.

It is factual that beliefs, practices, perceptions, and past experiences that the students acquire in class or outside class become influential factors affecting their knowledge, attitude, and perceived behavior toward oral health (4). Shah et al. (2022) discussed a study that compared the practicing behavior of students of a public health sector university in Karachi, Pakistan, and found that dental students used dental floss more than medical students due to training in dentistry and preventive strategies (2). This underscores the need for specific educational campaigns designed that will lead to improvement in health consciousness amongst all students within the health care system.

Habib et al. (2023) examined knowledge, attitudes and practices of oral hygiene among medical, dental and allied health sciences students in Lahore; the findings revealed that dental students had better ever dental checks, flosses etc. (5). The findings of this study indicate disparities of oral relationship care amongst healthcare students and imply necessity of a multiprofessional campaign on oral health awareness. The study also found that other than minor oral diseases, medical students reported that they had learned about other health-related issues that overshadowed the importance of oral health, suggesting that there might be a gap in their learning (3).

Oral hygiene practices, such as brushing and flossing, are the cornerstones for slowing the development of oral diseases, including caries and periodontal infections. However, the frequency and the effectiveness of these practices differ greatly. Jehan et al. (2024) retrospected oral health behavior among medical and dental students in Peshawar, where the comparably higher ratio of medical students demonstrated lesser usage of interdental cleaning devices even though they were more informed than the latter lot about all benefits of flossing (4). This underscores the likelihood that curriculum design makes a difference in students' oral health behaviors.

Najati et al. (2024) surveyed students at Al-Sham Private University about their exposure to dental floss and discovered that, despite significant knowledge of interdental cleaning among patients, few employed dental floss (5). This implies that the knowledge held by these parties may not always lead to the right behavior. These factors include, for example, convenience, perceived importance, and accessibility to dental hygiene-related tools, which are very important in shaping the kind of oral health that people adopt. Ali et al. (2021) built upon this observation in a survey of Bahria University

students, where self-reports of oral hygiene practices showed a gap between medical and dental students and their knowledge (6).

Ahsin and Ahsin (2021) employed a comparative cross-sectional study with Foundation University dental students for the first and final year regarding their oral hygiene habits. They also concluded that although levels of knowledge had boosted from the first year to the last year, the usage of dental floss was still ineffective with certain students (7). Therefore, this finding prompts one to wonder whether current education approaches foster sufficient habits regarding appropriate oral hygiene when one grows up. Additionally, Alam et al. (2022) assessed the correlation between oral hygiene habits and diet and physical activity habits with a specific focus on the need for combined oral health and general health education (8).

Abdulsalam et al. (2021) explored the awareness of oral health among science and non-science students and found that science students, including dental students, had a favorable attitude toward preventive measures in comparison to non-science students. However, there was also a focus on self-initiation and interest in oral hygiene (9). Shahid et al. (2024) assessed the knowledge of oral health of the future generations of healthcare providers and underscored the need for education, which will provide practical learning regarding the effectiveness of preventive measures implemented on a daily basis (10). From these outcomes, it may be valuable to consider including functional dental training as part of the medical education curriculum for students and for later patients.

It is crucial to note that appropriate knowledge of oral hygiene does not only belong to the academic environment. The study by Zafar et al. (2024) focuses on the current level of oral health behavior in primary school students in Mardan, stressing the durable difference between early education and behavior toward oral health (11). Husser et al. (2021) also evaluated the oral health behavior of the students with the help of the Hiroshima University- Dental Behavioural Inventory and the authors concluded that constant education and reminders are essential for early and lifelong healthy behavior (12). Hyder et al. (2023) also pointed to the aspect of choice in favor of using certain oral hygiene instruments, noting that students should be encouraged to find the most convenient ways compatible with their lifestyle (13).

The practices of oral health education also need to be understood with reference to global influences. The study conducted by Ehsan et al. (2023) addressed oral health behavior among health professions students at Kabul University and compared and contrasted regional variations in oral health (14). Bashir (2021) highlighted preventive dentistry targeting dental students; the author supported the application approach that involves both theoretical and practical teaching so that students develop the right habits concerning oral health (15). The main objective of the present study is to determine the differences in oral hygiene practices and dental floss utilization between medical and dental students in a public university in Pakistan. This study aims at enhancing the understanding of the effect of education on oral health behavior and implementing better oral health among future healthcare personnel.

Objective: The aim of the present research was to evaluate oral health behavior, perception and the practice of dental flossing among undergraduate medical and dental students in a public university, Punjab, Pakistan. The goal here is to assess the influence of these educations with the goal of establishing the best practices taken in concerning oral hygiene.

MATERIALS AND METHODS

Study Design: The present study is a cross-sectional comparative study designed to compare oral health practices and dental floss consumption in undergraduate medical and dental students.

Study setting: The study was carried out at Karachi Medical and Dental College, Karachi, Pakistan.
Duration of the study: The research was conducted for three months, from January to March of the year 2024.

Inclusion Criteria
The study participants included full time undergraduate students, studying in medical and dental faculties of Karachi Medical and Dental College who gave their informed consent. The participant had to be between the ages of 18 and 25 years.

Exclusion Criteria
Those participants who were studying under part-time programs; subjects with factors that would have an impact on their oral hygiene practices such as certain medical conditions affecting teeth; and any student who has prior knowledge of dentistry, having undergone a formal dental training, were also deemed unfit for the study.

Methods
The quantitative data was collected through the use of a structured and self-completed questionnaire that was administered to the participants who were drawn from the medical and dental faculties. The questionnaire consisted of details about the respondents' demography and oral hygiene practices, including brushing and flossing, perceived knowledge about the use of interdental cleaners, and, specifically, dental floss. The questionnaire used was adopted from other standard questionnaires on oral health behavior used in previous studies (1, 2) to enhance the validity and comparability of the results. All the participants were first explained the aim and setting of the study, and consent to participate was sought. The questionnaire was administered inside the class, and the completed questionnaires were collected at the same time to improve response rates. The data were made anonymous and coded to maintain confidentiality. The data was analyzed with the help of SPSS software, and cross-sectional data was reduced to descriptive statistics to report demographic information on the participants and their oral health practices. After selecting the participants, the researcher conducted a comparative analysis of oral health habits and floss use among medical and dental students, and the significance level was 0.05.

RESULTS
The sample comprised 200 students from the Medical faculty and 200 students from the Dental faculty and a total sample size amounted to 400 students. The findings of this study showed that there is a significant contrast in oral process and in the utilization of dental floss between the two teams. It was observed that a majority of the dental students had better brushing behavior as well as interdental cleaning than the medical students.
The study found that the frequency of brushing teeth twice daily was significantly higher among the dental students (76 %) than the medical students (52 %), as shown in Table 1. In addition, the habit of using fluoridated toothpaste was found to be more common among dental students, 82% of whom used it regularly as opposed to 60% of the medical students interviewed. Such disparity will explain the role of specialized dental education in improving correct oral hygiene management.

Table 1: Frequency of Brushing and Use of Fluoridated Toothpaste

Oral Hygiene Practice	Medical Students (%)	Dental Students (%)
Brushing twice daily	52	76
Use of fluoridated toothpaste	60	82

The findings regarding the use of floss for teeth clearance found that while using floss, 28% of the medical students used it frequently, unlike 65% of the dental students. The findings also showed that the Dental students were more aware of the advantages and executing role of Interdental cleaning for Periodontal health. Finally, the number of times participants reported the use of floss is significantly different between the two groups ($P < 0.05$), pointing to the role of the curriculum that focuses on preventive care of the teeth.

Besides flossing behaviors, the participants were also questioned on their general knowledge of oral hygiene practices. Both dental and medical students had a good perception of the risks involved in poor oral hygiene; 90% of dental students perceived the link between general health and oral health as compared to 68% of medical students (table 2). Hence, the findings indicate that dental education serves its objective of creating an understanding of the needs of mouth health and general health among dentists in dental practice.

Table 2: Knowledge of Oral Health Risks

Knowledge Aspect	Medical Students (%)	Dental Students (%)
Oral health and systemic disease link	68	90
Awareness of periodontal disease prevention	55	87

The study also showed that there was a difference in the reported dental visit frequency. As for the patterns of professional dental checkups, 70% of dental students claimed to visit the dentist for regular checkups at least once a year, while only 40% of medical students could also do the same. This difference gives a picture of the fact that dental students are more preventive, possibly by virtue of their training and education.

Table 3: Frequency of Dental Visits for Preventive Checkups

Dental Visit Frequency	Medical Students (%)	Dental Students (%)
Annual preventive dental visit	40	70

In conclusion, the survey of Medical and dental students shows poor practice and knowledge about oral health behaviour. Dental students brush, floss, and visit the dentist more frequently than non-students because they have more knowledge about oral hygiene. From these results, it can be concluded that detailed oral health education may be necessary to incorporate into medical curriculums to enhance the preventive qualities of future physicians.

DISCUSSION

This study also reveals that there is a low level of oral health awareness, poor use of dental floss, and differences between Medical and Dental students in a university in Pakistan. All these differences demonstrate how specialized education influences preventive measures for oral hygiene. While studying, dental students got more profound knowledge in the sphere of oral health. Therefore, they showed better results in the field, including more frequent tooth brushing and dental floss usage, as well as regular preventive dental checkups. However, medical students were found to comply with these habits to a lesser extent, and this suggests that improvement in oral health could be promoted through medical school programs.

Perhaps the most shocking was the case of the frequency of brushing teeth. The findings showed that 76 percent of the dental students brushed their teeth twice a day, while only 52 percent of the medical students did the same. This accords with the study by Shah et al. (2022), in which the authors noted that the education that dental students receive on prevention forms the basis of their practices with regard to oral hygiene (1). The general program studied by dental students involves detailed information about the causative factors of oral diseases, the importance of brushing, and actual contact with dental care, which offers to develop good habits. On the other hand, the result of our study, which shows that medical students brush their teeth less frequently, might be due to the absence of emphasis on this behavior in medical school. This calls for change and reformation of the curriculum in both medical and dental training, where there is a need to introduce oral health education to enhance awareness and prevention.

Another important aspect that showed a significant difference was the consumption of dental floss. Floss use was significantly more frequently reported among dental students (65%) compared to

medical students (28%). This finding is similar to previous findings elaborated by Jehan et al. in 2024, where they noted that, commonly, dental students tend to employ interdental cleaning devices more frequently following an understanding of the effectiveness of flossing (4). A high percentage of dental students employ dental floss, which indicates the significance of specialized education concerning dental hygienist practices. From this study, it is therefore clear that dental flossing is very strategic in periodontal health. Therefore, there is a big revelation on the result of insufficient education on preventive dental care among medical professional prospects. By incorporating a flossing tutorial into a medical school curriculum, oral health habits may increase, and periodontal diseases may be decreased not only among the students but also among the population affected by students in the future.

The study also revealed a significant difference in the level of knowledge regarding the link between oral health and systemic diseases. Among dental students, 90% were aware of this relation, while among medical students, it was only 68%. This finding supports the study conducted by Abdulsalam et al. (2021), where knowledge obtained through science education that dental students possess improves the understanding of intra and extra-oral systemic connections (9). Undergraduate students learn how oral health affects systemic diseases, including cardiovascular disease or diabetes. Nonetheless, the relatively lower awareness among medical student representatives of future physicians is a cause for worry. This means there is a missed opportunity to lecture the medical students on the expanded public health perspective of oral health. It may be argued that closing this gap in education might positively influence the relations between medical and dental workers and, thus, positively affect patient outcomes.

Another treatment that revealed differences was the preventive dental visits. Dental students also claimed to undergo annual preventive dental checkups more often (70%) than medical students (40%). This divergence mirrors what in dental education operates under a practical orientation toward prohibiting diseases from developing in the first place. According to Ali et al. (2021), various dental students see the need for regular dental visits since they understand the need to check and maintain the health of the mouth (6). Meanwhile, the medical students themselves also may not consider these visits due to neglect or non-perceived value. Other possible interventions to promote preventive dental visits among medical students include awareness campaigns or oral health assessment in medical teaching.

However, research reveals that increased knowledge and awareness among dental students do not always correlate with the given practice patterns. For instance, Ahsin and Ahsin (2021) noted that even final-year dental students' compliance levels remained low; they failed to demonstrate what they had learned most of the time (7). This demonstrates how difficult the process of changing behavior is because people need to know better practices, have the motivation to change, have physical access to better hygiene tools, and live in the right conditions. Likewise, Najati and colleagues are concerned that despite the high perceived importance of flossing, its use was not regular, indicating that convenience and habit are the key factors that explain this behavior in the future (5).

Consequently, the findings of this study are of significant significance for public health and education. The greater disparity that was noticed in the usage of oral hygiene products and regularity of dental checkups between medical and dental students indicates a need to extend oral health promotion as a schooling subject to the sphere of medical sciences. They are often young and receive very little education about oral health, regardless of their medical knowledge after completing medical school. This could prevent them from being well-equipped to educate their patients on measures to take to avoid dental-related diseases. Probably, the introduction of detailed oral health modules into the medical curricula may enhance awareness and the practice of healthy oral habits in medical students. Moreover, the findings underscore the importance of the interaction between medicine and dentistry to enhance the unity of the body and mind approach towards people's health. Oral health is not defined in a vacuum, but rather, it is an integral part of health in general. By incorporating a broader perspective on health education, universities will produce graduates in health professions equipped

to work as health promoters in addition to healers. Further, awareness programs should be organized under the framework of public health education with regard to children's teeth-brushing habits.

CONCLUSION

The findings of this study indicate a large gap in oral health practices, attitudes, and behaviors, as well as flossing practices, between medical and dental students studying in a public university located in Pakistan. Comparing the two groups, the dental students reported better oral hygiene practices, a greater extent to which they recognized the connection between oral health and systematic diseases, and the number of preventive dental visits probably due to their training. On the other hand, the medical students displayed poor practices in these areas, suggesting a loophole in the medical school curriculum that lacks sessions on educating students on oral health. These findings suggest the usefulness of the inclusion of a detailed, comprehensive oral health education as a part of the training of would-be healthcare professionals who have the potential to model appropriate behaviors for their communities. As a result, developing an increased amount of medical students' oral health knowledge might improve their patient counseling, leading to healthier outcomes in general. Lastly, teamwork and changes in education and the healthcare profession must be made to close this gap and promote a synergy of oral and overall health.

REFERENCES

1- Shah, H., Ahmed, S., Talha, S., Ayaz, S., Saeed, T.B. and Irshad, M., 2022. Oral Health Related Habits, Knowledge, and Frequency of Dental Floss Use among Undergraduate Medical and Dental Students in a Public Health Sector University in Pakistan: A Comparative Study. Pakistan Journal of Medical & Health Sciences, 16(10), pp.274-274.

2- Shah, H., Ahmed, S., Talha, S., Irshad, M., Fatima, A. and Nisar, N., 2022. THE ORAL HEALTH-RELATED HABITS, KNOWLEDGE, AND FREQUENCY OF USE OF DENTAL FLOSS AMONG UNDERGRADUATE DENTAL STUDENTS OF A PUBLIC HEALTH SECTOR UNIVERSITY IN KARACHI, PAKISTAN. Journal of Medical Sciences, 30(04), pp.260-264.

3- Habib, A., Hafeez, M.A., Habib, N., Noor, M., Javed, F. and Anjum, O., 2023. Comparison of Oral Hygiene Practices between Dental, Medical and Allied Health Sciences Undergraduate Students of Lahore. Pakistan Journal of Medical & Health Sciences, 17(03), pp.124-124.

4- Jehan, O.H., Khan, F., Jehan, A.M. and Yousaf, M., 2024. Assessment of oral health behavior, knowledge, and practice among medical and dental undergraduate students of Peshawar Medical and Dental College, Pakistan. Biomedica, 40(1), pp.26-31.

5- Najati, G., ALTOMA, M.M.T. and ZAIFALLAH, J.N., 2024. Study of the prevalence of dental floss use among dental students at Al-Sham Private University.

6- Ali, R., Khalid, N., Jawed, S., Masood, N. and Syed, F., 2021. Self-disclosed oral hygiene habits from students of Bahria University Medical and Dental College, Karachi campus. Journal of University Medical & Dental College, 12(4), pp.283-289.

7- Ahsin, E., & Ahsin, S. (2021). Oral hygiene practices of first and final year dental students at foundation university: a comparative study. Pakistan Armed Forces Medical Journal, 71(1), 275-80.

8- Alam, B.F., Abbasi, N., Hussain, T., Khan, M.A., Chaudhary, M.A.G. and Ijaz, F., 2022. Relationship of BMI with the diet, physical activity and oral hygiene practices amongst the dental students. BMC Oral Health, 22(1), p.311.

9- Abdulsalam, M.A., Alsewaiq, N.A., Hamza, S.A., Syed, A.U.Y., Ahmed, M.A. and Jouhar, R., 2021. Self-reported Oral Health Knowledge, DMFT status and Oral Hygiene Practices among Science and Non-science University students. Pakistan J Med Heal Sci, 15(6), pp.1152-7.

10- Shahid, S., Malik, A., Javed, E., Ayesha, M., Fahad, M., Mughal, M., Qamar, A., Qamar, M., Bajwa, A., Khan, R. and Iqbal, M.Z., 2024. Evaluation of knowledge, attitude and practices of oral health and hygiene among the future health care providers. Medical Science, 28, p.e109ms3424.

11- Zafar, H., Akbar, M.S., Mehmood, M.S. and Ahmad, M., 2024. Oral hygiene knowledge, practices, attitude, and awareness among primary school students in a rural area of mardan, pakistan. Afghanistan Journal of Basic Medical Science, 1(2), pp.53-64.
12- Yusuf, A.U., Iqbal, S.S., Hussian, M., Butt, F. and Adnan, S.T.A., 2021. Assessment of oral health behaviour & self practice among hazrat bari sarkar medical & dental students using the hiroshima university-dental behavioural inventory (HU-DBI). Annals Of Abbasi Shaheed Hospital And Karachi Medical & Dental College, 26(2), pp.57-64.
13- Hyder, T., Butt, A.S., Quraeshi, S., Anwar, A. and Rahman, S., 2023. Assessment of Oral Hygiene Practices and the Factors Influencing Selection of Tooth and Interdental-Cleaning Devises: A Cross Sectional Survey of Pakistani Adults. Pakistan Journal of Medical & Health Sciences, 17(01), pp.352-352.
14- Ehsan, H., Ahmadzai, N., Orfani, Z., Rezayee, B.M., Wally, M. and Daftani, S., 2023. Oral health knowledge, attitude, and behavior among health professions' students at Kabul University of medical sciences. Clinical, Cosmetic and Investigational Dentistry, pp.349-358.
15- Bashir, T. F. (2021). Knowledge, Attitude and Practices Regarding Preventive Dentistry among Dental Undergraduate Students. EC Dental Science, 20, 03-11.