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COMPARATIVE ANALYSIS OF KNOWLEDGE, ATTITUDE AND PRACTICES REGARDING TOOTH BRUSHING HABITS AMONG MEDICAL AND NON-MEDICAL STUDENTS OF UNIVERSITIES

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Abstract

Background: Maintaining a clean and disease-free mouth is known as oral hygiene. To avoid oral and dental disorders, it is essential to perform it on a regular basis. Since oral health is a source of information about overall health, general health cannot be achieved without it. Oral health practices, attitudes, and knowledge are interrelated. An important component of healthy behavior is a good mindset, which is supported by better oral hygiene routines. Early adoption of healthy oral hygiene practices is crucial for improved long-term oral wellness. Therefore, this study aims to assess the knowledge, attitude and practices of medical and non-medical students regarding tooth brushing habits.

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Material and Methods: A cross sectional study was conducted among 385 medical and non-medical students. It included 19 close-ended questions in questionaire split into 3 categories i.e., knowledge, attitude and practices on brushing habits.

Result: A statistically significant difference was observed between medical and non-medical students regarding toothbrush storage in the washroom ($p < 0.001$), hardness of bristles ($p < 0.001$), type of bristles ($p = 0.031$), tongue cleaning practices ($p = 0.045$), and toothbrush storage location ($p = 0.025$).

Conclusion: Medical students are more conscious of dental hygiene habits, attitudes, and knowledge than non-medical students.

INTRODUCTION

The oral cavity is thought to reflect an individual's overall health and is more concerning in the general public. Maintaining good dental health can help prevent a number of issues and support overall health. They must be knowledgeable about oral health care and comprehend its complexity in order to deliver optimal oral health. The general public is ignorant of the harmful circumstances brought on by poor toothbrush choices and tooth brushing practices, which can even have an impact on an individual's overall health (Shitole *et al.*, 2023). However, daily oral hygiene practices are frequently overlooked and not given priority in routine activities. A commonly disregarded of maintaining oral hygiene is the appropriate selection and use of oral care tools. Therefore, it is crucial to evaluate the awareness level among the general public. This assessment will facilitate the development of strategies to raise awareness and implement effective practices for toothbrush use and brushing techniques. These strategies aim to prevent dental issues by promoting the selection of toothbrushes with suitable bristles, understanding their purpose, knowing when to replace them, and applying this knowledge in daily life. Consequently, and there is need to provide comprehensive oral hygiene instructions to reinforce proper selection of toothbrush and encourage the adoption of effective tooth brushing habits (Rathod *et al.*, (2023).

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Everyone should know how to brush their teeth properly since improper brushing pressure can cause periodontal disease by irritating the gingiva and changing the bone surrounding the teeth. Therefore, using a toothbrush correctly is just as crucial to preserving oral hygiene (Rathod *et al.*, (2023). The simplest and most popular way to keep your mouth healthy is to brush your teeth. Dental plaques, food residues, and surface stains are all removed by cleaning your teeth. Strategies for toothbrush care and use include cleaning the toothbrush before and after use, replacing it every three to four months, and brushing your teeth twice a day for two to three minutes each time (Nazarianpirdosti *et al.*, (2021). In previous literature several comparative analyses on knowledge, attitude, and practices regarding tooth brushing habits between medical fields students have been done only but, in this study, comparative analysis between medical and non-medical students working particularly in Peshawar and extend that knowledge through our study.

MATERIALS AND METHODS

This cross-sectional study was conducted over a period of six months in Peshawar among undergraduate students from private universities. A total of 385 participants aged 18–60 years, including both males and females, were selected using a non-probability convenience sampling technique, with sample size calculated using the formula $n = z^2pq$. Data were collected using a structured, self-administered questionnaire comprising 19 items assessing knowledge, attitude, and practices related to tooth brushing habits. Participants were informed about the study objectives and provided both verbal and written consent prior to participation, with confidentiality strictly maintained. Ethical approval was obtained from the research committee of City University of Science and Information Technology. Data were analyzed using SPSS version 24, where descriptive statistics (frequencies and percentages) were used to summarize the data, and the Pearson Chi-square test was applied to assess associations between variables, with a p-value of ≤ 0.05 considered statistically significant.

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RESULT

This is a questionnaire-based study among the 385 subjects. In this study 69.9% were male participant and 30.1% were females. Among the people participated 51.2% were medical students and 48.8% were non-medical students.

When asked what the primary goal of brushing was, 25.7% of participants selected "clean, bright teeth," 27.8% selected "prevention of gum diseases/ tooth decay," 9.9% selected "prevention of oral ulcers," and 36.6% selected both options. 57.7% of respondents were aware of more recent innovations, such as sonic or electric toothbrushes, whereas 43.3% were not. When asked how they learned about the bristle type, 35.6% of the participants chose the one listed on the packaging, 48.3% consulted the dentist, and 16.1% consulted the store owner.

35.1% disagreed with the statement that toothbrush bristles can affect how well a toothbrush removes dental plaque, while 64.9% agreed. 30.9% of participants were unaware of the higher risk of microbial contamination when items are kept in the bathroom, compared to 69.1% who were aware of this fact. 63.9% of participants agreed that the toothbrush's form and Of the participants, 53.5% agreed that toothbrush bristle hardness affects mechanical tooth wear, whereas 46.5% disagreed. Of the participants, 49.1% agreed that cleaning teeth is vital for general health, 25.2% disagreed, and 25.7% were unsure.

The selection of toothbrushes varies depending on several aspects. The majority of them base their toothbrush choice on the brand name 33.8% of individuals consult a dentist for guidance. Advertisements impacted 29.9% of respondents, whereas 13.8% of respondents chose the toothbrush solely on price.

Depending on how long the user has been using 33.2% of consumers decide to replace their toothbrush, whereas 28.8% do so because the bristles are frayed, 25.5% do so because the new designs are available, and 12.7% do so because the handle broke.

Of the participants, 68.3% agreed that cleaning their teeth improves the freshness of their breath, 21% disagreed, and 10.6% were unsure.

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Of the participants, 57.4% agreed that poor brushing causes gum disease, 21.6 disagreed, and 21% were unaware.

The most popular toothbrushes were soft-bristled (54.8%), medium-bristled (27.5%), hard-bristled (10.4%), and extra-soft-bristled (7.3%). The highest percentage of people (57.9%) brushed twice a day, followed by once a day (41.6%) and three times a day (0.5%). Regarding the frequency of toothbrush changes, 53% of participants replaced their toothbrushes between 1-3 months, and 36.6% between 4-6 months, 2.6% when the toothbrush hair wore out, and 7.8% after 7-12 months.

In terms of time, the majority of participants brushed their teeth for 40.8% of 30 seconds to 1 minute, 40% for 1 to 3 minutes, 15.3% for 4 to 5 minutes, and 3.9% for more than 5 minutes. Of those asked if they washed their tongue, 61.3% did so, compared to 38.7% who did not. When it comes to toothbrush storage, 35.6% of them are kept outside the bathroom, 29.4% are kept inside, and 28.3% are kept in the closet. The remaining toothbrushes are kept either next to the sink or in a cabinet for example. 44.9% used the toothbrush cap after drying the toothbrush, whereas 55.1% used it right away after washing it.

Students whose knowledge is above 50% is considered good knowledge, while below 50% or 50% considered poor knowledge. Most students demonstrated poor knowledge regarding tooth brushing habits (55.6%) while (44.4%) were good knowledge.

Table 1: shows overall knowledge regarding tooth brushing habits

Knowledge	%
Good knowledge	44.4%
Poor knowledge	55.6%

Students whose attitude is above 50% is considered good attitude, while below 50% or 50% considered poor attitude. Most students demonstrated poor attitude regarding tooth brushing habits (81.3%) while (18.7%) were good attitude.

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Table 2: shows overall attitude regarding tooth brushing habits

Attitude	%
Good attitude	18.7%
Poor attitude	81.3%

Students whose practice is above 50% is considered good practice, while below 50% or 50% considered poor practice. Most students demonstrated poor practice regarding tooth brushing habits (59.2%) while (40.8%) were good attitude.

Table 3: shows overall practice regarding tooth brushing habits

Practice	%
Good practice	40.8%
Poor practice	59.2%

When both groups knowledge were compare 96 medical students were good knowledge while 101 were poor knowledge. 75 non-medical students were good knowledge while 113 were poor knowledge with p value of 0.081.

Table 4: shows comparison of knowledge of medical vs non-medical students

Knowledge	Medical	Non-medical	P value
Good knowledge	96	75	0.081
Poor knowledge	101	113	

When both groups attitude were compare 42 medical students were good attitude while 155 were poor attitude. 30 non-medical students were good attitude while 158 were poor attitude with p value of 0.177.

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Table 5: shows comparison of attitude of medical vs non-medical students

Attitude	Medical	Non-medical	P value
Good attitude	42	30	0.177
Poor attitude	155	158	

When both groups practice were compare 85 medical students were good practice while 112 were poor practice. 72 non-medical students were good practice while 116 were poor practice with p value of 0.333.

Table 6: shows comparison of practice of medical vs non-medical students

Practice	Medical	Non-medical	P value
Good practice	85	72	0.333
Poor practice	112	116	

DISCUSSION

We evaluated medical and non-medical students' knowledge, attitudes, and practices about tooth brushing habits in the current study. The results of this study show that medical and non-medical students had comparable and different knowledge, attitudes, and practices about cleaning their teeth. Both groups showed similar comprehension of tooth brushing practices in a number of areas, such as how often do you brush your teeth, what is the purpose of tooth brushing, and toothbrush selection is based on. The differences were found in areas like while brushing do you clean your tongue, where do you store your tooth brush, what kind of toothbrush bristles do you use. The fact that medical students were given more in-depth instruction in health sciences, particularly oral health, may have contributed to the results' favorability in some area.

Our results are in accordance with a study done by surekha et al. They assessed the knowledge, attitude and practice of toothbrush disinfection and maintenance among first-year dental students

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and have compared it with first-year medical and nursing students. The results were in favour of dental students. Dental participants were more aware of the toothbrush and oral hygiene as compared to medical and nursing students. It was seen that the awareness of dental participants towards brushing frequency and duration of brushing was more as compared to other participants. Their attitude toward toothbrush maintenance was also better as compared to other health professionals. This was because they had attended regular CDE programmes and seminars about toothbrush maintenance and oral hygiene and it is also included in their curriculum.

Numerous studies have demonstrated that environmental contact may contaminate toothbrushes, and the containers in which the toothbrush is kept have an impact on the bacteria's ability to survive. According to Dayoub *et al.*, toothbrushes exposed to polluted surfaces in closed containers had higher bacterial counts than those left out in the open. Mehta and Bachmann discovered that germs were more likely to survive when toothbrushes were stored with a cap. Glass discovered a direct correlation between the survival of germs on toothbrushes and an increase in environmental humidity. Glass also discovered that bacteria may live in the presence of wetness for more than twenty-four hours. They knew very little about using mouthwash that had been pre medicated before brushing and the relationship between efficient brushing. In their investigation, Mehta and Bachmann discovered that soaking the toothbrush in a solution of chlorohexidine gluconate for a whole night will lessen the microbial load and contamination on the toothbrush, which will aid in its long-term, efficient maintenance. Additionally, they proposed that for this purpose, chlorohexidine was considerably superior to Listerine solution discovered that substantial levels of pollution and biofilm persisted after toothbrushes were rinsed with tap water Azfar *et al.*

Numerous studies have revealed that dentistry students retain more information than medical students. This truth regarding medical students' lack of oral health education is likewise justified. According to a research, medical students lacked adequate understanding on plaque and other disease-control strategies, whereas dentistry students knew more. According to the present study,

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dentistry students clean their teeth more frequently and replace their brushes more frequently than medical students. Other research also support the current study's findings Yashfika *et al.* According to a study comparing medical and dental students' understanding of oral health, only 50% of medical students knew anything about periodontal disease, while nearly 70% of dental students knew about how it starts and affects the entire periodontium. Comparatively speaking to dental students, less medical students in the current study were aware of the effects of fluoride on teeth. There was no discernible difference between medical and dentistry students' practices in this study, and the findings are consistent with a study conducted in Mongolia Tseveenjay *et al.*

CONCLUSION

Despite the limitations of the study, there were statistically significant differences between medical and non-medical students' knowledge, attitudes, and practices regarding tooth brushing habits. The groups' varying levels of clinical experience, exposure to a variety of material, and academic comprehension may be the cause of this discrepancy.

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