



## Comparison of Oral Health-Related Knowledge, Attitude and Behavior among Medical and Non-Medical Categories of Students of Lahore, Punjab-Pakistan

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### Abstract

**Aims and Objectives:** To assess, compare and analyze the oral health related knowledge, attitude and behaviors among medical and non-medical students.

**Material and Methods:** A cross-sectional, an epidemiological pilot study was conducted from June-August 2018. Different professions belonging to the non-medical and medical category were randomly selected. A total of 550 students were estimated for research but 246 non-medical and 254 medicals were respondent while 50 were non-respondent. Statistical analysis was done in SPSS 21.

**Results:** Oral hygiene education, frequency of replacing toothbrush, type of toothbrush, time of using toothbrush, mouth rinse, toothpaste choice, paste amount, effects of fluoride on teeth, water, clean from interdental spaces, use of floss, use of toothpick, use of mouthwash, regular dentist visit, method of tooth brushing, sugary products, gum bleed during brushing, awareness of gum problems, gum treatment, swollen gums were found significant. All have significant p-values < 0.05, by applying Chi-Square.

Fisher's exact test and Mann Whitney U test shows that the factors cleaning interdental spaces and use of floss were significant and have more knowledge among medical students. The present study observed that 38% students used dental floss as oral hygiene aid.

**Conclusion:** Oral health behaviors of students are better than their knowledge but still preventive behaviors can be improved by arranging dental/oral health awareness programs.

**Keywords:** Oral Health; Education; Knowledge; Attitude; Behavior

### Introduction

Health is a valuable asset not only for an individual but also for any country. Any nation can progress rapidly when its people are healthy and lead a productive life. Oral health is an important aspect and essential component of one's life [1,2].

Previous studies have shown that mass media, dental professionals and dental literature are the sources of oral health information. Health behavior as defined by Steptoe, *et al.* (1994) is 'the activities undertaken by people to protect, promote or maintain health and to prevent disease'. Health promotion is an uphill task in a developing country like Pakistan, where the geo-socio-political and economic factors offer measure and inadequate healthcare resources to its rapidly growing population. Moreover, the low literacy rates (58%) [3].

Lack of knowledge regarding oral hygiene has a bad impact on general health and the quality of life [3]. Better Oral health knowledge and attitude are linked to the healthier oral cavity [4]. Lack of knowledge is the major cause of dental diseases among students of different fields [5,6].

'Brushing behavior' showed that only 47.8% of the students brush their teeth twice, i.e. in the morning and after having food and 52.2% of the students brush their teeth only once daily (in the morning). The Fluoridated tooth paste was used by 63.2% of the students. The percentage of students visiting a dentist one or more times was 57.3%, whereas 42.7% of the students have never visited a dentist before.

Oral hygiene is compromised by ignorance of dental specialist care [7]. Tooth brushing (twice a day), take food items with less sugar content and regular use of fluoride toothpaste comprise of oral self-care and related instructions should propagate by dentist in order to get attention towards importance of oral-health [8]. In this way, students will not only improve their oral self-care habits but also influence their parents to take care of their teeth and oral health education level [9].

Therefore, this research aims at investigating the oral health-related knowledge among the medical students to gain positive and effective health education and prevention of dental diseases in patients. Similarly, non-medical students can better guide their coming generations about oral health. Moreover, such study will be the first on Oral Health related Knowledge, attitude and behaviors of Medical and non-Medical students in Pakistan.

## Materials and Methods

A descriptive cross-sectional, an epidemiological pilot survey was done from June-August 2018. Simple random sampling was performed. Where sample size was calculated by using the formula:

$$n = \frac{[(z^2 \cdot p \cdot q) + ME^2]}{ME^2}$$

Where margin of error 5%,  $Z^2$ = standard normal variant and  $p$  is taken as proportion of awareness on dental health.

Different professions belonging to the non-medical and medical category were randomly selected. A total of 550 students were included in the study for research where 246 non-medical and 254 were medical respondents while 50 were non-respondent.

This research was approved by the committee of Ethics with letter No: 25/18/OMFS/KEMU. A written consent was signed by all the students who were willing to participate in this research. A self-structured valid questionnaire was prepared in Urdu and English. This questionnaire was not previously used for another research. The questionnaire was given out to the participants and questionnaire was included 16 items designed to evaluate the oral health related knowledge, attitude and behavior of medical and non-medical student e.g. source of oral hygiene education, frequency of replacing tooth brush, types of toothbrush use, proper brushing timings, choice of toothpaste, amount of toothpaste on your brush, effects of fluoride on teeth, attitude towards clean of interdental spaces, use of floss or interdental brush, use of toothpick, use of mouthwash, regular dentist visit, proper brushing method, behavior towards gum bleeding, Awareness from gum problems and concern about treatment. All medical (related to dif-

ferent professions) and non-medical students of under graduation (intermediate to Bachelors) and Students who are willing to participate were included in this research. Students who are not willing to participate in the study, School going students and students with post-graduation were excluded.

Descriptive statistical analysis was done in SPSS 21. Mean percentage scores, standard deviation and frequency distribution were calculated for age, gender, The Mann-Whitney Test was applied to check the significance among groups and Chi-square test was used to check the significance of different variables and Fisher's exact test was applied to compare categorical variables among both groups.

## Results

Data was collected from different institutes of Lahore. In this study 200 (40%) were male students and 300(60%) were female students included.

In the present study the awareness about oral hygiene among people found using different sources like: 285 (57%) participants have awareness from their parents or family, 85(17%) from dentist, 30(6.0%) from advertisement/Boucher and 5 (1.0%) from institutes while 19.0% participants were unaware from this knowledge. The duration of replacing toothbrush was seen, mostly users 280 (56%) replaced their toothbrush within 3-month duration. 225(45%) participants were used to brush their teeth twice a day. Results indicate that 190 (38%) of participants were taking 1-2 minutes to clean their teeth which are considered accurate for brushing. Selection of toothpaste was also studied in this study which shows that 85 (17.0%) students selected their toothpaste according to its price, 90(18.0%) due to its taste, 125 (25.0%) according to advertisement, 140 (28.0%) use toothpaste available at home while 40(8.0%) have some other reasons.

Only 225(45%) people used correct amount of toothpaste (pea size). Only 170 (34%) students were aware from effects of fluoride on teeth. Proper brushing techniques were used by 345 (69%) candidates. For cleaning interdental spaces, 190 (38%) students were using dental floss routinely while 310 (62%) students were unaware of its use. According to analyze data, the 345 (69%) of students were using toothpick to clean their interdental spaces. Only 65 (13%) students were considered the professional dental care after every 6-months. 201 (40.2%) students were brushing their teeth properly. 168 (33.6%) students were aware from their gum problems but 332 (66.4%) students were not aware from their gum problems.

Gums bleeding were frequently indicated in almost 78 (15.6%) students and occasionally indicated in 202 (40.4%) students while 220 (44.0%) students had healthy gums. Only 140 (28.0%) students were found to be conscious about gums problems and received treatment for that while 360 (72.0%) students were shown ignorance about their gums problems.

These factors were significant in present study: oral hygiene education, frequency of replacing toothbrush, type of toothbrush, time of using toothbrush, mouth rinse, toothpaste choice, paste amount, effects of fluoride on teeth, water, clean from interdental spaces, use of floss, use of toothpick, use of mouthwash, regular dentist visit, method of tooth brushing, sugary products, gum bleed during brushing, awareness of gum problems, gum treatment,

swollen gums. All have significant p-values < 0.05, by applying Chi-Square.

From this data, it can be concluded that by using Mann-Whitney U Test the attitude of cleaning interdental spaces p-value = 0.02 and use of floss p-value = 0.03 are significant, with highest mean rank in medical students shows that medical students have more knowledge and attitude towards cleaning their teeth interdental spaces, (shown in Table 1).

Fisher’s exact test determines that the factors cleaning interdental spaces and use of floss were significant and have more knowledge among medical students (shown in Table 2).

Assessment and Comparison of Oral Health	Factors	Medical students (n= 254) with their Mean rank	Non-Medical students (n= 246) with their Mean rank
Knowledge	Oral hygiene education	253.45	247.45
	frequency of replacing toothbrush	247.00	254.12
	Type of toothbrush	244.61	256.59
	Brushing timings	248.75	252.31
	Choice of toothpaste	249.78	251.24
	Amount of toothpaste on your brush	256.44	244.36
	Effects of fluoride on teeth	249.38	251.66
Attitude	Clean from interdental spaces	262.43	238.49
	Use of floss/interdental brush	262.17	239.20
	Use of toothpick	247.80	253.28
	Use of mouthwash	251.29	249.73
	Regular dentist visit	254.82	246.04
	Method of tooth brushing	252.99	248.09
Behavior	Bleeding of gums during tooth brushing	249.94	251.04
	Awareness from gum problems	250.84	250.15
	Treatment of gum problems	250.62	250.38

**Table 1:** Assessment and comparison of mean rank of oral Health knowledge, attitude and behavior scores of the Medical and Non-Medical students. Mann-Whitney Test was applied.

	Medical Students (n = 254)	Non-Medical Students (n = 246)	Total (n = 500)	
<b>Clean from interdental spaces</b>				
Yes	187	158	345	0.023
No	67	88	155	
<b>Use of Floss to clean Interdental spaces</b>				
Yes	108	82	190	0.034
No	146	164	310	

**Table 2:** Assessment and comparison of oral Health knowledge, attitude and behavior scores of the Medical and Non-Medical students by mean percentage and Standard Deviation (Fisher’s Exact-test was applied).

## Discussion

This study presented a comprehensive overview of oral health related knowledge, attitude and behavior of medical and non-medical students in different institutions of Lahore-Pakistan. It was investigated that the level of oral health related knowledge, attitude and behavior was high among medical students because it is an important content in their professional education and knowledge is important to educate their patients and families as well.

In our study, results show that medical students have more knowledge about oral health behavior, attitude and knowledge with statistically significant results as compared to non-medical students. According to Sharda presented in 2010, knowledge ( $p \leq 0.001$ ), attitude ( $p \leq 0.001$ ) and behavior ( $p \leq 0.05$ ) of medical students were high rather than non-medical students. A study published in 2005 by Prasad and Doshi (2007) stated that oral health related knowledge, attitude and behavior is higher in medical students significantly (for knowledge  $p \leq 0.001$ , for attitude  $p \leq 0.001$  and for behavior  $p \leq 0.001$ ) [10,11].

Some more previous studies showed compatibility with our results, Lim [12], Schwarz [13], Fukai [14], Kawamura [15], Ostberg [16], Polychronopoulou [17], Al-Omari [18] and Pellizzeret [19].

The current study shows that percentage of students brushing teeth twice a day (45%) was very low as compared with study conducted by Sharda (2010) [3], Maatouk [20], Al-Mashhadani SS [21], and Al-Shammari [22].

The present study observed that 38% students used dental floss as oral hygiene aid and this percentage is much higher than previous one (22.7%) which is conducted by Sharda [3]. The current percentage is also higher than some other studies conducted by Al-Shammari [22] and Maatouk [20]. The present study demonstrates that only 1.0% students take oral health education from their relevant institute and these are the main sources of oral health education, but previous studies have shown that the sources of information were books, physician's office, /health clinics, dental professionals and newspapers [3].

In some studies, oral health knowledge was insufficient to influence the oral health behaviors of medical and non-medical students and these behaviors depend on the attitudes. However, this research has been very helpful in planning, preventive oral health education programs.

## Conclusion

Present research concluded that oral health related knowledge, attitude and behavior of medical students are better than non-medical students. Oral health knowledge is not gained from institutions/text books but learnt from social interactions. Parents and teachers should be responsible to teach their children about oral health. Oral health behaviors of students are better than their knowledge.

## Recommendations

We suggest that oral/dental health awareness among non-medical or medical students should be increased for which the oral health professionals working collectively need to support the development of a 'sound strategy'. Oral health education should be taught to the all students by arranging dental/oral health awareness programs and more studies should be conducted in other regions for comparison.

## Limitations

The limitations of present study include the non-availability of comparable study instruments and screening of the intraoral clinical status of the study participants was not done.

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## Disclaimer

None.

## Conflict of Interest

None

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