

# Awareness Regarding Usage of Interdental Aids and their Role in Oral Hygiene among Medical Undergraduates in District Sheikhpura, Pakistan-A Questionnaire-Based Study

FARHAN RIAZ<sup>1</sup>, AFIFA EHSAN<sup>2</sup>, NAILA UMER<sup>3</sup>, EJAZ HUSSAIN SAHU<sup>4</sup>, ALI RAZA<sup>5</sup>, MUHAMMAD BEHZAD SALAHUDDIN<sup>6</sup>

<sup>1</sup>Associate Professor, Department of Community Dentistry, Faryal Dental College, Lahore, Pakistan.

<sup>2</sup>Associate Professor/HOD, Department of Oral Biology, Faryal Dental College, Lahore, Pakistan

<sup>3</sup>Assistant Professor, Department of Oral Pathology, Faryal Dental College, Lahore, Pakistan

<sup>4</sup>Professor, Department of Community Dentistry, Multan Medical & Dental College, Lahore, Pakistan

<sup>5</sup>University Of Health Sciences, Lahore, Pakistan.

<sup>6</sup>Associate Professor, Department of Oral Pathology, Avicenna Dental College, Lahore, Pakistan

Correspondence to: Dr. Afifa Ehsan, Email: [afiffaehsan@gmail.com](mailto:afiffaehsan@gmail.com), Cell: 00923004668379

## ABSTRACT

**Aim:** The contemplations and actions of medical undergraduates concerning their oral well-being mirror their perception of the significance of interdental cleaning aids in the maintenance of oral hygiene. The current study aimed to evaluate understanding and discernment of the practice of interdental aids as well as their role in the maintenance of oral hygiene among medical undergraduates in the district of Sheikhpura, Pakistan.

**Methods:** A questionnaire-based cross-sectional analysis was performed from June 2021 to December 2021 at Amna Inayat Medical College in the district of Sheikhpura, Pakistan on a total of 220 medical undergraduates who were enrolled by convenient sampling method. Data were assembled using a standardized questionnaire that was circulated amongst students of 1<sup>st</sup> Year MBBS to Final Year MBBS. Associations between awareness regarding interdental cleaning and oral hygiene practice among both genders and all the years of study were assessed through the Pearson Chi-Square test.

**Results:** The study comprised 123 females and 97 males with an average age range of 18 - 25 years. Most of the students i.e. 47.3% knew that the interproximal tooth surface is the most difficult to clean and cannot be effectively cleansed with a toothbrush only. Significant differences were seen in gender regarding the cleaning of teeth ( $P \leq 0.001$ ), the challenging surface of the tooth to clean ( $P \leq 0.01$ ), reasons for bad breath ( $P \leq 0.003$ ), knowledge of gum disease ( $P \leq 0.000$ ) and information regarding interdental cleaning ( $P \leq 0.000$ ).

**Practical Implication:** Imparting knowledge regarding the maintenance of oral hygiene is crucial due to the connection between the oral cavity and the rest of the body. In a developing country like Pakistan, awareness, and understanding of oral hygiene is not up to the mark even in the medical population. Hence, improvement in oral hygiene can be brought about by creating public awareness regarding interdental aids in addition to brushing alone.

**Conclusions:** Outcomes of the existing research propose that the overall understanding and awareness amongst medical undergraduates related to interdental aids was satisfactory. Established on these conclusions, additional communal-focused oral health promotions are requisite to piloting the degree of the dwelling of medical undergraduates.

**Keywords:** Awareness, Dental, Dentist, Interdental area, Gingivitis, Knowledge, Medical Undergraduates, Oral Health, Periodontitis, Plaque.

## INTRODUCTION

Oral well-being is a fundamental portion of the health of an individual that is associated with the health of oral tissues which not only helps an individual in their day-to-day routine but also makes a contribution to general comfort.<sup>1</sup> Health of the periodontal tissues and dental caries are common problems of the oral cavity which disturb the oral well-being condition of a human being.<sup>2</sup> Infection of gingival and periodontal tissues occurs when the equilibrium between localized septicity as well as the inflammatory reaction of the host tissues is disturbed. The principal reason behind the development of infection of gingival and periodontal tissues is the plaque which is due to a lack of self-cleaning of the teeth.<sup>3-5</sup> Cleaning of the teeth is the utmost efficient way of bacterial plaque elimination mechanically leaving the tooth surfaces free of any plaque. Proper abilities of tooth cleansing ought to consist of the entire teeth sides including the interdental spaces as they are related to the progress of diseases of the periodontium and dental caries.<sup>6-8</sup>

The greater part of the population uses a nonprofessional way of bacterial plaque control. Cleansing with interdental utilities is essential as toothbrushes might leave the interdental regions partially wiped of microorganisms.<sup>7,9</sup> Dental floss, interdental wood sticks, and interdental brushes are the frequently consumed interdental utilities. The shape of the interproximal tooth exterior as well as patient dynamics influences the usage of these utilities for upholding good oral cleanliness.<sup>10</sup> Modern research has revealed that plaque growth and gingivitis can be diminished by the interdental maintenance of teeth with the use of suitable utilities.<sup>9-10</sup> Generally individuals cleanse every tooth surface without the interdental regions because the job is tiresome and needs

thoroughness and proper manual skills, so many people tend to ignore these significant areas.<sup>11</sup> This is common in our surroundings since there is a shortage of knowledge on interdental maintenance. This turns out to be even further significant from a precautionary part considering that there is less mindfulness of simple oral cleanliness procedures with an extraordinary occurrence of diseases of the periodontium.<sup>12-14</sup>

Several studies have revealed the oral well-being of dental undergraduates, but insufficient attentiveness has been specified to the knowledge and exercise of interdental aids amongst medical undergraduates. The thoughts, as well as actions of medical undergraduates concerning their oral well-being, mimic their perception of the significance of interdental cleaning aids. Consequently, the purpose of the present research is to evaluate the acquaintance as well as the practice of inter-dental aids and their role in the maintenance of oral hygiene of medical undergraduates in the district of Sheikhpura, Pakistan.

## PATIENTS AND METHODS

This cross-sectional analysis was conducted from June 2021 to December 2021 at Amna Inayat Medical College in the district of Sheikhpura, Pakistan on a total of 220 medical undergraduates who were enrolled after obtaining written informed consent. The sample of the study was calculated through the WHO sample size calculator. Partakers were educated concerning the rationale of the investigation and informed permission was sought beforehand. Data was collected using a standardized questionnaire that was circulated amongst students of 1<sup>st</sup> Year MBBS to Final Year MBBS. Ethical endorsement of the research was attained from the

institutional review board (IRB) / ethical committee before the commencement of the study vide letter No.FDC/ERC/2021/21.

Statistical analysis was completed employing SPSS statistical Package version 20. Nominal data were documented as frequencies and percentages and numerical data were recorded as mean and standard deviation. The Chi-square test was expended to detect the relationship between awareness regarding interdental cleaning and oral hygiene practice among both genders and all the years of study. p-value ≤ 0.05 was regarded as significant for all analyses maintaining the confidence level at 95%.

### RESULTS

In the current study, overall 220 students responded to the questionnaire. Among them, 123 were females while 97 were males with a mean age range of 18 - 25 years (Figure-1). Most of the students were from 4<sup>th</sup>-year MBBS followed by 2<sup>nd</sup>-year, 3<sup>rd</sup>-year, 5<sup>th</sup>-year and 1<sup>st</sup>-year as shown in Figure-2.

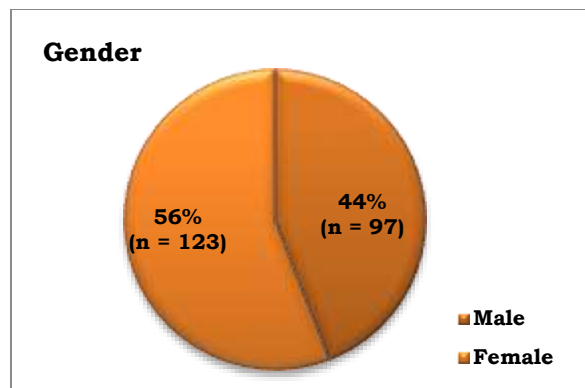


Figure-1: Frequency Distribution Of Study Population As Gender

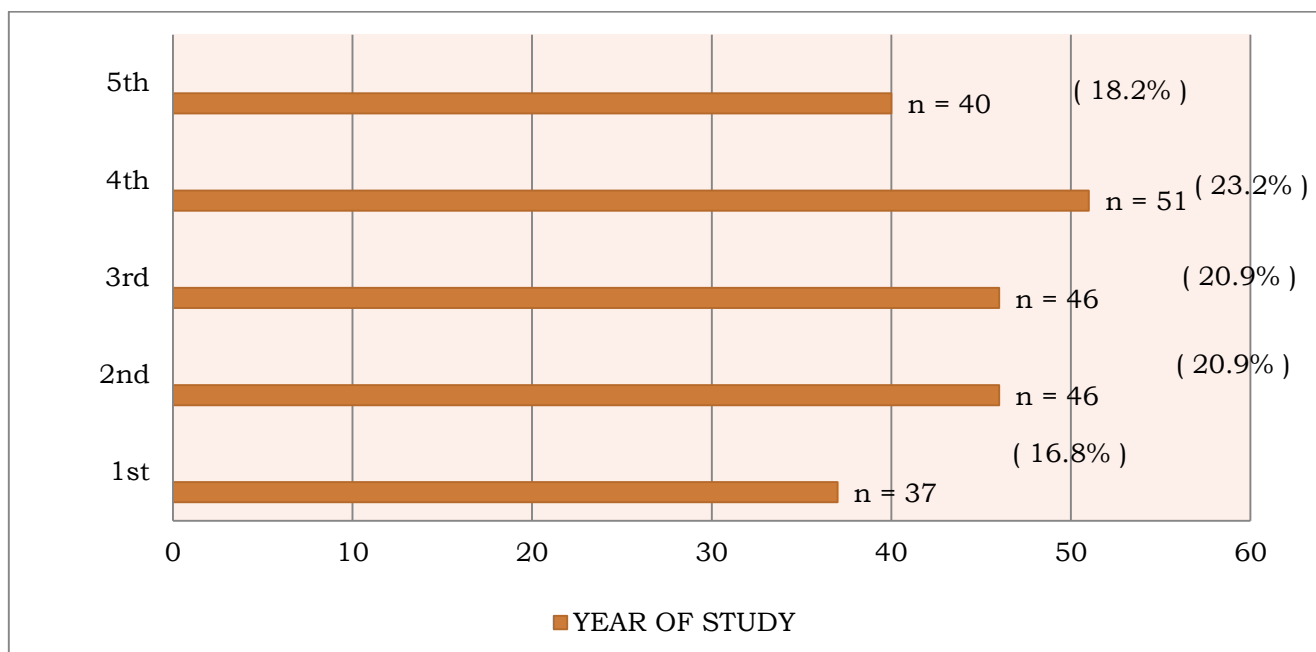


Figure-2: Frequency Distribution Of Study Population as Year of Study

Table 1: Frequency Distribution Of Oral Hygiene Practice & Knowledge About Interdental Cleaning

Oral hygiene practice & knowledge about interdental cleaning	Frequency					
	• How do you clean your teeth?	Toothbrush + toothpaste 139 (63.2%)	Salt 15 (6.8%)	Powder 8 (3.6%)	Miswak 58 (26.4%)	
• Which surface of the tooth is difficult to clean?	Occlusal 76 (34.5%)	Lingual 33 (15%)	Buccal 7 (3.2%)	Interproximal 104 (47.3%)		
• Can brushing effectively clean interproximal areas of the tooth?	Yes 116 (52.7%)	No 72 (32.7%)		Don't know 32 (14.5%)		
• What is your way to clean the interproximal area?	Toothpick 103 (46.8%)	Dental Floss 55 (25%)	Pin 9 (4.1%)	Thread 16 (7.3%)	Toothbrush 37 (16.8%)	
• Do you think food remnant is one of the reasons for bad breath?	Yes 149 (67.7%)	No 43 (19.5%)		Don't know 28 (12.7%)		
• Does the accumulation of food in between teeth lead to gum disease or gingivitis?	Yes 113 (51.4%)	No 61 (27.7%)		Don't know 46 (20.9%)		
• How do you get information about interdental cleaning?	Dentist 128 (58.2%)	Physician 27 (12.3%)	Books /Magazine 10 (4.5%)	Media 8 (3.6%)	Others 47 (21.4%)	

Table 2: Association Of Oral Hygiene Practice & Knowledge Regarding Interdental Aids Among Gender

GENDER	How do you clean your teeth?					p-value
	Toothbrush + toothpaste	Salt	Powder	Miswak		
Male	62	9	8	18		0.001*
Female	77	6	0	40		
GENDER	Which surface of the tooth is difficult to clean?					p-value
	Occlusal	Lingual	Buccal	Interproximal		
Male	34	11	07	45		0.01*
Female	42	22	00	59		
GENDER	Do you think food remnant is one of the reasons for bad breath?					p-value
	Yes	No	Don't Know			
Male	79	08	10			0.003*
Female	70	35	18			
GENDER	Does the accumulation of food in between teeth lead to gum disease or gingivitis?					p-value
	Yes	No	Don't Know			
Male	64	19	14			0.000*
Female	49	42	32			
GENDER	How do you get information about interdental cleaning?					p-value
	Dentist	Physician	Books/Magazine	Media	Others	
Male	74	14	01	02	06	0.000*
Female	54	13	09	06	41	

\*P is significant at the 0.05 level

Table-I reveals knowledge about interdental aids in addition to oral hygiene practices amongst medical undergraduates. The mode of tooth cleaning among 63% of students was toothbrush and toothpaste followed by miswak in 26.4%. Most of the students (47.3%) knew that the interproximal tooth surface is the most difficult to clean and cannot be effectively cleaned with a toothbrush only. The majority of students were of the view that leftover food remnants between the teeth were the main cause of bad breath and gum disease, respectively.

Toothpicks (46.8%) followed by dental floss (25%) were the common interdental aids used by the respondents to clean the interproximal area. A majority of students (51.4%) also knew the fact that the accumulation of food between teeth could lead to gingival and periodontal problems and maximum information regarding this was provided to them by their dental practitioners (58.2%).

Awareness regarding interdental cleaning and oral hygiene practice among both genders and all the years of study was evaluated. No significant relation was found between the years of the study year and the knowledge variables. When evaluated among different genders, a significant correlation was found among certain variables as shown in Table-II while the rest were found to be insignificant.

## DISCUSSION

Maintainance of oral hygiene is an integral part of daily life necessitating awareness regarding it. Information regarding oral hygiene maintenance is fundamental in promoting self-prevention as one of the leading causes of gingivitis and periodontitis is plaque.<sup>15-16</sup> It has been reported that flossing in addition to tooth brushing is imperative in controlling the amount of dental plaque.<sup>15</sup> Therefore, the present study was planned to raise awareness regarding the usage of interdental aids in conjunction with tooth brushing among the medical students of district Sheikhpura. It was observed in the present study that 63% of students used toothbrushes and toothpaste while 47.3% knew that the interproximal tooth surface is the most difficult to clean and cannot be effectively cleaned with a toothbrush alone whereas, in a study carried out in Saudi Arabia, 42% participants were of the view that the lingual surface of the teeth is the most difficult one to be cleaned.<sup>17</sup> In contrast, in a comparable study piloted in India it was observed that 86% of the research participants had the idea that the interdental surface was the utmost challenging one to be cleaned.<sup>18</sup>

These findings reflect that it is a general perception that toothbrushes and toothpaste are effective for cleaning the interdental areas unaccompanied. It was further seen in the present study that a significant association was present regarding

the awareness of interdental cleaning and oral hygiene practice among both genders while in a study by Vandana et al., it was observed that girls were more concerned about the maintenance of oral hygiene in comparison to boys.<sup>15</sup> The most frequently used interdental aid in the present study was seen to be toothpicks in 46.8% of medical students followed by the usage of dental floss in 25% to clean the interdental area while in a study in India, it was observed that 2% of the participants used dental floss regularly while 18% were seen to use it occasionally.<sup>18</sup> The usage of interdental aids in medical students showed that most of them were aware of their usage for cleaning interproximal surfaces.<sup>19-20</sup>

## CONCLUSION AND RECOMMENDATIONS

This study presents an outline regarding awareness of the usage of interdental aids among medical students for the maintenance of oral hygiene. Additional oral health campaigns and surveys need to be carried out to upraise the level of oral hygiene which will help in the prevention of systemic diseases associated with poor oral hygiene. Refining awareness of the general public regarding their periodontal health by employing interdental aids accompanied by brushing is indispensable for public well-being in a developing country like Pakistan.

**Limitations:** The utmost important limitation of the current study was the method of sampling owing to source boundaries, impeding the overview of study results. Additionally, reviews of specific study factors were description focused and may perhaps have suffered confines in reminiscence.

**Conflict of interest:** None.

**Grant Support & Financial Disclosures:** None

## REFERENCES

1. Carneiro L, Kabulwa M, Makyao M, Mrosso G, Choum R. Oral health knowledge and practices of secondary school students, tanga, Tanzania. *Int J Dent* 2011. 2011 806258.
2. Vaish S, Ahuja S, Dodwad V. A comparative evaluation of oral hygiene practices and periodontal status among dental and paramedical students: An epidemiological survey. *Journal of Indian Dental Association*. 2010;4:343-346.
3. Westfelt E. Rationale of mechanical plaque control. *J Clin Periodontol* 1996;23:263-7
4. Negrato CA, Tarzia O, Jovanovic L, Chinellato LE. Periodontal disease and diabetes mellitus. *J Appl Oral Sci* 2013;21:1-12.
5. Ehsan A, Riaz F, Raza A, Sahu EH, Rathore E, Abdullah U. Knowledge and Awareness of Oral Health in Type 2 Diabetes Mellitus Patients Visiting A THQ Hospital in Punjab, Pakistan. *Pakistan Journal of Medical & Health Sciences*. 2022 Jun 1;16(05):227-.
6. Kocher T, Sawaf H, Warncke M, Welk A. Resolution of interdental inflammation with 2 different modes of plaque control. *J Clin Periodontol* 2000;27:883-8

7. Claydon NC. Current concepts in toothbrushing and interdental cleaning. *Periodontol* 2000 2008;48:10-22.
8. Wahid A, Chaudhry S, Ehsan A, Butt S, Khan AA. Bidirectional relationship between chronic kidney disease & periodontal disease. *Pakistan journal of medical sciences*. 2013 Jan;29(1):211.
9. Berchier CE, Slot DE, Haps S, Van der Weijden GA. The efficacy of dental floss in addition to a toothbrush on plaque and parameters of gingival inflammation: A systematic review. *Int J Dent Hyg* 2008;6:265-79.
10. Crocombe LA, Brennan DS, Slade GD, Loc DO. Is self interdental cleaning associated with dental plaque levels, dental calculus, gingivitis and periodontal disease? *J Periodontal Res* 2012;47:188-97
11. Wolff A, Staehle HJ. Improving the mechanical properties of multiuse dental floss holders. *Int J Dent Hyg* 2014;12:245-50.
12. Taiwo JO, Jeboda SO, Motayo TO, Obiechina AE. Periodontal health of the elderly people in South East local government area in Ibadan, Nigeria. *Afr J Med Med Sci* 2004;33:285-91
13. Umoh A, Azodo C. Association between periodontal status, Oral hygiene status and tooth wear among adult male population in Benin City, Nigeria. *Ann Med Health Sci Res* 2013;3:149-54
14. Adeyemi BF, Kolude BM, Lawal AO. The knowledge and experience of personal and professional oral care among secondary school students in Ibadan. *Odontostomatol Trop* 2012;35:5-11.
15. Vandana KL, Mahajan N, Savitha B. Knowledge, attitude, and practices of interdental aids among medical professionals in Davangere district, Karnataka. *Journal of the International Clinical Dental Research Organization*. 2015 Jan 1;7(1):39.
16. Riaz F, Ehsan A, Raza A, Abdullah U, Mehdi MM, Sahu EH. Impact of Demographic Factors on Oral Health Knowledge and Attitude of patients with Type II Diabetes mellitus Visiting A THQ Hospital in Punjab, Pakistan. *Pakistan Journal of Medical & Health Sciences*. 2022 Dec 3;16(10):247-.
17. Gufran K, Alanazi KM, Alanazi AK, Alqwiri AS, Alsubaie FM, Alotaibi NM. Self-reported knowledge and practice of interdental aids among people of Riyadh, Saudi Arabia—A cross-sectional study. *Journal of Pharmacy & Bioallied Sciences*. 2021 Jun;13(Suppl 1):S280.
18. Mahtani AA, Lakshmanan R. Awareness of Interdental Aids and thier Regular Use in Daily Oral Hygeine-A Questionnaire based Study. *Journal of Pharmaceutical Sciences and Research*. 2017 Feb 1;9(2):202.
19. Habib A, Hafeez MA, Habib N, Noor M, Javed F, Anjum O. Comparison of Oral Hygiene Practices between Dental, Medical and Allied Health Sciences Undergraduate Students of Lahore. *Pakistan Journal of Medical & Health Sciences*. 2023 Mar 29;17(03):124-.
20. Hyder T, Butt AS, Quraeshi S, Anwar A, Rahman S. 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*. 2023 Feb 26;17(01):352-.