

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

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ABSTRACT

Objectives: To assess the gap between knowledge of interdental cleaning aids and the usage of dental floss among undergraduate dental students.

Materials and Methods: A cross-sectional study was undertaken at the Jinnah Sindh Medical University, Sindh Institute of Oral Health Sciences, Karachi, Pakistan, between March to May 2022. Using select statistics electronic software, a sample size of 172 was estimated, however, we included 200 participants in the study considering an expected drop-out rate of 15%. A structured questionnaire was designed to collect data from undergraduate dental students. All data were entered and analyzed using SPSS version 26. Percentages and frequencies were calculated to assess the knowledge and implementation of that knowledge among undergraduate dental students. In Association between the year of study and the use of dental floss, a chi-square test was used. A p-value of < 0.05 was set as the cut-off for statistical significance.

Results: A total of 200 participants were included with 24.5% males and 75.5% females. There was a significant association of interdental cleaning aid awareness with gender ($p=0.007$). Only a small percentage of females knew that waterjets and rubber tips were interdental cleaning aids while the majority of the respondents irrespective of gender knew that dental floss is interdental cleaning aid. Dental floss usage was significantly higher in the female population than in males (18.37% vs. 50.33%; $p=0.019$).

Conclusion: Our study concluded that while the majority of undergraduate dental students had knowledge that dental floss should be a routine habit, they themselves were not practicing it. Moreover, about 30% of the study population claimed that they only brushed once a day only. The use of dental floss was significantly more frequent in female undergraduate dental students.

Keywords: interdental cleaning, dental floss, oral health hygiene, dental plaque

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INTRODUCTION

Dental flossing is a preventive measure that is the simplest and most effective method of plaque control.^{1,2} Nevertheless, despite being a cost-effective method to prevent dental plaque, it is a less commonly practiced procedure worldwide as evidenced by recent literature.³ Plaque accumulation, on a daily basis, becomes harder to

manage, and even brushing twice a day is not enough to remove it from the stubborn, difficult-to-reach interdental areas.^{4,5}

The importance of preventive procedures is better understood by the general population when oral health promoters and educators, such as undergraduate dental and medical students, have a clear understanding of these preventive procedures and the impact their regular practice can have. Evidence supports varying attitudes and awareness of oral health among preclinical and clinical undergraduate dental students.^{6,7} These varying attitudes and behaviors reflect the variances that come with education and the year-by-year development of knowledge and skills from the training experience. Therefore, our study aimed to assess the gap between knowledge of interdental cleaning aids such as dental floss and the

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usage of dental floss among under graduate students. Furthermore, it also evaluated self-reported general oral health habits of undergraduate dental students in the public-sector university of Karachi, Pakistan. Finally, we drew a comparison between knowledge and practice of flossing among undergraduate dental students.

METHODS AND MATERIALS

A cross-sectional study was undertaken at the Jinnah Sindh Medical University, Sindh Institute of Oral Health Sciences, Karachi, Pakistan, between March to May 2022, after approval from the Institutional review board of JSMU.

For the enrollment of participants, a non-probability convenience sampling technique was employed. For sample size estimation, select statistics electronic software was used. Knowledge regarding flossing was reported to be 87.14% among the undergraduates of medical and dental institutes. Keeping 87.14%,⁸ as the sample proportion, the margin of error as 5%, and a confidence level of 95%, a sample size of at least 172 was calculated. We included 200 participants in the study considering an expected drop-out rate of 15%.

All undergraduate dental students irrespective of gender, caste, creed, or socioeconomic status were eligible to participate in the study. All participants aged above 18 years were included. The entire teaching and non-teaching dental faculty were excluded from the study. Moreover, graduated students and house officers were also excluded.

A structured questionnaire was designed to collect data from the undergraduate dental students of Jinnah Sindh Medical University, Sindh Institute of Oral Health Sciences. The questionnaire consisted of close-ended questions and it was self-administered.

Periodontitis was defined as a severe gum infection (disease) that can lead to the loss of tooth attachment and other health complications. Soft tissues i.e. the gums are damaged and if not treated, the bone supporting the tooth structure is destroyed.¹

Interdental cleaning aids included all tools that help in removing plaque from the interdental spaces such as dental floss, interdental brushes, and toothpicks. Dental floss was defined as a thread-like cleaning aid that is used especially to remove plaque from the interdental spaces and the gum line.

The data on demographics age, gender, primary way of cleaning teeth, frequency of dental flossing, general oral health habits, assessment of knowledge of interdental cleaning aids, etc. were recorded.

All data were entered and analyzed using SPSS version 26. Percentages and frequencies were calculated to assess the knowledge and implementation of that

knowledge among undergraduate dental students. To assess the association between the year of study and the use of dental floss, a chi-square test was used. A p-value of < 0.05 was set as the cut-off for statistical significance.

RESULTS

Table 1 demonstrates the demographics of the study population. The majority of under graduate dental students who participated were aged between 21 and 23 years with a major female preponderance.

Table 2 demonstrates the association of oral health related habits with gender. Dental floss usage was significantly higher in the female population than males (18.37% vs. 50.33%; $p=0.019$).

There was a significant association of interdental cleaning aid awareness with gender ($p=0.007$).

Furthermore, females were more frequently using dental floss as compared to males as illustrated in Table 4 ($p=0.019$). The knowledge about issues due to not performing interdental cleaning was significantly higher in males ($p=0.038$). The knowledge about the benefits of using dental floss was significantly different with respect to gender ($p=0.009$). Overall, the majority knew floss helps removal of food particles from in between teeth however, only a minority acknowledged that it also helps prevent stains (table 3).

Approximately 40% of the participants used dental floss and out of these, at least 70% started using it out of their own choice. 23 (11.5%) flossed only once a week. The majority of the respondents did not have a specific time during which they did dental flossing. As under graduate dental students, only 52% claimed that dental flossing is extremely important. About 18% of the participants claimed that the biggest issue with flossing is that it is time-consuming (Table 4).

Table 5 also demonstrates the correlation between the frequency of dental floss usage and gender.

DISCUSSION

Oral hygiene still prevails to be the most neglected aspect of daily routine which highlights the significance of conducting this study. In our study population, the plaque was found to be one of the most common oral health issues. This finding is consistent with a result documented by Sreenivasan PK et al with a mean dental plaque score of 2.47 ± 0.55 . Their study showed the majority of the population assessed had dental plaques.⁹ Primary dental cleaning aid in our study, collided with the use of toothbrush and toothpaste. This finding is supported by the American Dental Association (ADA) that recommends the masses, regardless of gender, brush their teeth with fluoride-containing toothpaste.¹⁰ The frequency of tooth brushing was also found to be twice a day in the majority

Table 1: Demographics of the participants

Age	N (%)
18-20	58 (29%)
21-23	140 (70%)
24-26	2 (1%)
Gender	
Male	49 (24.5%)
female	151 (75.5%)
Year of BDS	
1	54 (27%)
2	49 (24.5%)
3	45 (22.5%)
4	52 (26%)

Table 2: Association of oral health related habits with Gender

Parameter	Male (49)	Female (151)	Total (200)	p-value
Primary cleaning				0.513
Toothbrush with toothpaste	49 (100%)	144 (95.4%)	193 (96.5%)	
Toothbrush with tooth powder	0 (0%)	4 (2.6%)	4 (2%)	
Miswak	0 (0%)	3 (1.98%)	3 (1.98%)	
Secondary method				0.019
Mouthwash	31 (63.3%)	43 (28.5%)	74 (37%)	
Dental floss	9 (18.37%)	76 (50.33%)	85 (42.5%)	
Toothpick	2 (4.08%)	11 (7.28%)	13 (6.5%)	
Interdental brushes	5 (10.2%)	14 (9.27%)	19 (9.5%)	
Others	2 (4.08%)	7 (4.64%)	9 (4.5%)	

Table 3: Association of knowledge and awareness regarding dental floss with gender.

Parameter	Male (49)	Female (151)	Total (200)	p-value
Interdental Cleaning aid awareness				0.007
All	13 (26.5%)	45 (29.8%)	58 (29%)	
Issues from not cleaning interdental				0.038
Plaque in Gum Line	15 (30.61%)	64 (42.4%)	79 (39.5%)	
Interdental Caries	16 (32.65%)	58 (38.41%)	74 (37%)	
Calculus	11 (22.45%)	25 (16.56%)	36 (18%)	
Bad Breath	7 (14.29%)	2 (1.32%)	9 (4.5%)	
Other	0 (0%)	2 (1.32%)	2 (1%)	
Role of dental floss				0.009
Remove food particles from teeth	27 (55.1%)	130 (86.1%)	157 (78.5%)	
Prevent Calculus Buildup	11 (22.45%)	12 (7.95%)	23 (11.5%)	
Prevent/Remove Stains	2 (4.08%)	2 (1.32%)	4 (2%)	
Not Sure	7 (14.29%)	2 (1.32%)	9 (4.5%)	
All of the above	2 (4.08%)	5 (3.31%)	7 (3.5%)	

Table 4: Association of frequency of use of dental floss with gender.

Parameter	Male (49)	Female (151)	Total (200)	p-value
Use dental floss				0.846
No	22 (44.9%)	64 (42.4%)	86 (43%)	
Yes	27 (55.1%)	87 (57.6%)	114 (57%)	
Why dental floss				0.203
Recommended by Doctor	5 (10.2%)	9 (5.96%)	14 (7%)	
Recommended by Friend/Relative	4 (8.16%)	2 (1.32%)	6 (3%)	
Encouraged by Curriculum	4 (8.16%)	32 (21.19%)	36 (18%)	
Personal Choice	36 (73.5%)	108 (71.5%)	144 (72%)	
Floss frequency				0.766
Once a day	13 (26.53%)	47 (31.13%)	60 (30%)	
Once a week	9 (18.37%)	14 (9.27%)	23 (11.5%)	
Twice a week	5 (10.2%)	22 (14.57%)	27 (13.5%)	
Never	18 (36.73%)	59 (39.07%)	77 (38.5%)	
Other	4 (8.16%)	9 (5.96%)	13 (6.5%)	

of the responses which is favored by the documented 34% of females by Alshahrani S et al. in their study as well.¹¹

The awareness of using dental floss was found to be more in the female gender than males and similar results were found to be documented by Alshahrani S et al in their study highlighting 64% of females.¹¹ Majority of the individuals reported that the normal frequency of dental flossing should correspond to the frequency of tooth brushing every day, which is a finding consistent with the findings of Madan C et al where 63.90% prescribed flossing routinely.¹²

We found that the majority knew it helps in the removal of food particles from between the teeth however, only a minority acknowledged that it also helps prevent stains. This finding of our study is supported by the results of Chandrapooja J. et al. where 69% were not aware of the benefits of dental floss.¹³ Moreover the knowledge about the benefits of using dental floss was significantly different with respect to gender ($p=0.009$), highlighting the female population to be more aware of the role of dental floss ($p<0.001$) which was also one of the conclusions made by Hamasha AA et al in their study where 67.2% of the females believed in the flossing efficiency as compared to only 48.6% males ($p<0.001$).¹⁴

The female majority used dental floss which is supported by the percentage documented by Fleming EB et al. of the United States where one-third of adults used dental floss in their daily dental hygiene practices.¹⁵ Personalized approach to oral care has always been the most widely adopted method of practicing oral hygiene,¹⁶ and our study highlights how the majority of the participants chose to make dental floss a part of their routine by their own personal choice.

CONCLUSION

Our study highlighted that while the majority believed dental floss should be a routine habit, they themselves were not found practicing it. Only 4% believed flossing to be not important whereas, 57% of the population practiced flossing. Moreover, about 30% of the study population claimed that they only brushed once a day only. The use of dental floss was significantly more frequent in female dental students.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Shah H: Concept, design, Writing
Ahmed S: Writing, review
Talha S: Statistical analysis, review
Irshad M: Data collection, writing
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Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.



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