

Knowledge, Awareness, and Practice about Dental Floss among Students in a Dental College in Nepal

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Abstract

Background: Dental floss is an oral hygiene aid which is recently being used and promoted among the dentists. Dentist should have adequate knowledge and training to prescribe and demonstrate use of dental floss. They also should be able to educate patients regarding the same.

Materials and Methods: A descriptive cross-sectional study done in the dental college in Terai region of Nepal. This questionnaire-based survey was conducted among the undergraduate BDS students of the dental college. The questionnaire consisted of three sections of section 1 containing 3 demographic questions, section 2 consisted of 10 questions, and section 3 consisted of 7 questions. The students were given 15 min to tick mark the answers. Data collected were tabulated and statistically analysis was done.

Results: Among 160 students, 137 (85.6%) participated in the study. All of them had heard of dental floss. Most of them, that is, 100 (72.99%) knew that it is a thread to clean teeth. Seventy-three (53.28%) said that dental floss removes plaques, 64 (46.72%) said that they do not know if it removes calculus, 73 (53.29%) said that they do not know if it's used to polish teeth. Fifty-six (40.15%) said that it should be used daily, 68 (49.64%) said that that it should be used regularly by everyone, 101 (73.73%) said that they do not know if it can be used to detect caries/calculus and 109 (79.57%) said that they do not know if it can injure interdental gingiva. Most of them, that is, 121 (88.32%) did not used dental floss, those using it said that they, that is, 13 (9.48%) used it irregularly/sometimes, those who did not used it, most of them, that is, 92 (67.15%) said that they do not know how to use it. Most of them, that is, 102 (74.45%) were not seeing patients so not yet prescribing it. Those prescribing it were mostly, that is, 9 (6.56%) prescribing it for patients with crown and bridge/proximal restorations and periodontal diseases, and 12 (8.75%) said that they gave demo to use it but sometimes only. Those who did not prescribed 116 were mostly, that is, 102 (74.45 %) students not seeing patients yet and all of them would prescribe if taught to do so.

Conclusion: We concluded that there is severe lack of knowledge regarding dental floss among the undergraduate students and they require proper education and training to use dental floss.

Key words: Dental devices, Dentists, Home care, Oral hygiene, Students

INTRODUCTION

Oral hygiene is must to maintain proper oral health. Oral hygiene methods have developed since the origin of oral hygiene aids such as toothpaste and toothbrushes.

Moreover, oral hygiene aids are supplemented by dental floss and mouthwashes, adding an advantage in protecting oral tissues.^[1] Dental floss is used to remove plaque from the interproximal areas of teeth. They are also indicated for use after fixed denture placement.^[2] Using floss decreases plaque accumulation and thus prevents inflammation of gingiva, thus preventing periodontitis as well as caries in interproximal areas. Thus, proper use of dental floss along with other oral hygiene aids is going to keep overall healthy oral cavity. This will decrease the total burden and expenses on treatment of oral diseases.^[3]

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For a dental floss to be effective, it has to be properly used by individuals, for which adequate knowledge about dental floss is required. This can be done by dentist, educational videos, pamphlets, advertisements, etc.^[4,5] The majority of patients visits dentist for their oral health care and maintenance. Thus, dentist plays an important role in helping and guiding patients regarding proper oral hygiene methods including the importance and use of floss. To be an effective educator about the dental floss, the dental students should have adequate knowledge about dental floss.^[5] There was no such study found in our literature search so we planned to conduct a study to find out the awareness, knowledge, and practice about dental floss among the dental students in a dental hospital in Nepal.

MATERIALS AND METHODS

This cross-sectional survey was conducted in M. B Kedia Dental College, Birgunj, Nepal, among the undergraduate students of BDS in October 2018. Out of a total of 160 students, 137 was selected as the final sample. Undergraduate BDS students among the 40 of 1st year, 31 of 2nd year, 31 of 3rd year, 35 of 4th year students. The students were given a questionnaire form consisting of 15 questions. Time given was 15 min to complete the questionnaire. The questionnaire was divided into three sections. Section 1 of the questionnaire consisted of demographic data (age, gender, and year of BDS) and consent for the participation in the study. Section 2 consisted of 10 questions regarding knowledge and awareness about dental floss. Section 3 consisted of 8 questions about their practice of dental floss. All the questions had multiples options with only one best answer to be selected by students depending on their knowledge, awareness, and practices of dental floss. In section 2, eight questions were of true and false types and 1 with multiple choice and yes/no types each. In section 3, four questions were of multiple-choice answers and four of yes/no types. There was no marking for right or wrong answers. Collected data were tabulated in Microsoft Excel and statistical analysis was done.

RESULTS

There were total of 137 students out of the 160 total BDS undergraduate students who participated in the study after their consent. Hence, there was around 85.6% of participation. In section 1, demographic details were asked, age, gender, and year of BDS. Students were in the age range of 18 years–25 years with a mean age of 22.33. There were 102 female students and 35 male students. The total sample size of 137 undergraduate BDS students among the total of 160 students (40 in each year) participated in the study included 38 of 1st year, 33 of 2nd year, 31 of 3rd year, and 35 of 4th year students. For section 2 [Table 1], 10 questions

were there. For asking have they heard of dental floss, all (100%) of them said yes. For, what is dental floss? 9 (6.56%) said that it's a wire to clean teeth, 12 (8.75%) said a wire to polish teeth, 100 (72.99%) said a thread to clean teeth, and 16 (11.67%) said a thread to polish teeth. For, dental floss removes plaques, 73 (53.28%) said true, 15 (10.94%) said false, and 26 (18.97%) said that they do not know. For dental floss removes calculus, 34 (24.82%) said true, 39 (28.47%) said false, and 64 (46.72%) said do not know. For, dental floss is used for polishing of teeth, 45 (32.85%) said true, 19 (13.87%) said false, and 73 (53.29%). For, dental floss massages the gingiva, 44 (32.12%) said true, 37 (27.01%) said false, and 56 (40.88%) said do not know. For, dental floss should be used daily, 47 (34.31%) said true and 31 (22.63%) said false and 55 (40.15%) said do not know. For, dental floss should be used by everyone regularly, 44 (32.12%) said true, 28 (20.44%) said false, and 68 (49.64%) said do not know. For, dental floss helps in detecting proximal caries/calculus, 19 (13.87%) said true, 17 (12.41%) said false, and 101 (73.73%) said do not know. For, dental floss can injure the interdental gingiva, 17 (12.41%) said true, 11 (8.03%) said false, and 109 (79.57%) said do not know [Table 1].

In section 3, 7 questions were asked. For, do you use dental floss, 18 (13.13%) said yes and 121 (88.32%) said no. Those who said yes, were asked how many times a week, for which 13 (9.48%) said irregularly/sometimes, 2 (1.45%) said more than twice a week, but not everyday and none of them said everyday. Those who said No were asked why, for which 92 (67.15 %) said don't know how to use, 17 (12.40%) said time consuming, 20 (14.59%) said expensive. For, do you prescribe dental floss, 21 (15.32%) said yes, 14 (10.21%) said no and 102 (74.45%) said not applicable as they don't yet see patients. For those who said yes, they were asked for which conditions, for which 4 (2.91 %) said in all patients, 3 (3.73%) said in patients with crown and bridge or proximal restorations, 5 (3.73%) said patients with periodontal diseases and 9 (6.56 %) said in both the above conditions. Those saying yes were also asked if they give demo for using dental floss for which 3 (2.18%) replied 'yes, always', 12 (8.75%) replied 'yes, sometimes' and 6 (4.37%) replied No. For those who said no, they were asked why, for which 14 (10.21%) replied don't know when to prescribe and 102 (74.45%) replied others or don't see patients yet. Those who said no because they don't know when to prescribe were asked if they would be taught to prescribe then would they prescribe, for which all of them i.e 116 said, yes [Table 2].

DISCUSSION

Dental floss is defined as a thread used to remove plaque from the interdental areas of teeth.^[1] It should be used once

Table 1: Questions and responses for section 2 (knowledge and awareness) of the questionnaire

| Section 2: Questions and options | BDS 1 st year | | BDS 2 nd year | | BDS 3 rd year | | BDS 4 th year | | Total | |
|---|--------------------------|-------|--------------------------|-------|--------------------------|-------|--------------------------|-------|-------|-------|
| | n | % | n | % | n | % | n | % | n | % |
| Have you heard of dental floss | | | | | | | | | | |
| Yes | 38 | 100 | 33 | 100 | 31 | 100 | 35 | 100 | 137 | 100 |
| No | 0 | | 0 | | 0 | | 0 | | 0 | 0 |
| If yes, What is dental floss? | | | | | | | | | | |
| A wire to clean teeth | 3 | 7.89 | 4 | 12.12 | 2 | 6.45 | 0 | 0 | 9 | 6.56 |
| A wire to polish teeth | 6 | 15.78 | 5 | 15.15 | 1 | 3.22 | 0 | 0 | 12 | 8.75 |
| A thread to clean teeth | 25 | 65.78 | 16 | 48.48 | 24 | 77.41 | 35 | 100 | 100 | 72.99 |
| A thread to polish teeth | 4 | 10.52 | 8 | 24.24 | 4 | 12.90 | 0 | 0 | 16 | 11.67 |
| None | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dental floss removes plaques | | | | | | | | | | |
| True | 7 | 18.42 | 9 | 27.27 | 24 | 77.41 | 33 | 94.28 | 73 | 53.28 |
| False | 5 | 13.15 | 3 | 9.09 | 5 | 16.12 | 2 | 5.71 | 15 | 10.94 |
| Do not know | 26 | 68.42 | 21 | 63.63 | 2 | 6.45 | 0 | 0 | 26 | 18.97 |
| Dental floss removes calculus | | | | | | | | | | |
| True | 8 | 21.05 | 10 | 30.30 | 9 | 29.03 | 7 | 0.20 | 34 | 24.82 |
| False | 3 | 7.89 | 3 | 9.09 | 8 | 25.80 | 25 | 71.42 | 39 | 28.47 |
| Do not know | 27 | 71.05 | 20 | 60.60 | 14 | 45.16 | 3 | 8.57 | 64 | 46.72 |
| Dental floss is used for polishing of teeth | | | | | | | | | | |
| True | 9 | 23.68 | 10 | 30.30 | 7 | 22.58 | 19 | 54.28 | 45 | 32.85 |
| False | 6 | 15.78 | 3 | 9.09 | 5 | 16.12 | 5 | 14.28 | 19 | 13.87 |
| Do not know | 23 | 60.52 | 20 | 60.60 | 19 | 29.03 | 11 | 31.42 | 73 | 53.29 |
| Dental floss massages the gingiva? | | | | | | | | | | |
| True | 10 | 26.31 | 9 | 27.27 | 8 | 25.80 | 17 | 48.57 | 44 | 32.12 |
| False | 12 | 31.57 | 5 | 15.15 | 5 | 16.12 | 15 | 42.85 | 37 | 27.01 |
| Do not know | 16 | 42.10 | 19 | 57.57 | 18 | 58.06 | 3 | 8.57 | 56 | 40.88 |
| Dental floss should be used daily? | | | | | | | | | | |
| True | 8 | 21.05 | 5 | 15.15 | 12 | 38.70 | 22 | 62.85 | 47 | 34.31 |
| False | 6 | 15.78 | 7 | 21.21 | 11 | 35.48 | 7 | 0.20 | 31 | 22.63 |
| Do not know | 24 | 63.15 | 21 | 63.63 | 8 | 25.80 | 2 | 5.71 | 55 | 40.15 |
| Dental floss should be used by everyone regularly? | | | | | | | | | | |
| True | 7 | 18.42 | 5 | 15.15 | 11 | 35.48 | 21 | 0.60 | 44 | 32.12 |
| False | 6 | 15.78 | 7 | 21.21 | 9 | 29.03 | 6 | 17.14 | 28 | 20.44 |
| Do not know | 25 | 65.78 | 24 | 72.72 | 11 | 35.48 | 8 | 22.85 | 68 | 49.64 |
| Dental floss helps in detecting proximal caries/calculus? | | | | | | | | | | |
| True | 3 | 7.89 | 3 | 9.09 | 5 | 16.12 | 8 | 22.85 | 19 | 13.87 |
| False | 4 | 10.52 | 3 | 9.09 | 5 | 16.12 | 5 | 14.28 | 17 | 12.41 |
| Do not know | 31 | 81.57 | 27 | 81.81 | 21 | 67.74 | 22 | 62.85 | 101 | 73.73 |
| Dental floss can injure the interdental gingiva? | | | | | | | | | | |
| True | 2 | 5.26 | 1 | 3.03 | 4 | 12.90 | 10 | 28.57 | 17 | 12.41 |
| False | 4 | 10.52 | 2 | 6.06 | 2 | 6.45 | 3 | 8.57 | 11 | 8.03 |
| Do not know | 32 | 84.21 | 30 | 90.90 | 25 | 80.64 | 22 | 62.85 | 109 | 79.57 |

daily after brushing early in the morning or before retiring to bed. It has different types, waxed, non-waxed, with or without holder, medicated, or non-medicated. Apart from the traditional use of cleaning teeth, it can be also used to tie up the endodontic files to prevent aspiration. It is also used to detect proximal caries as well as to removal food lodged between the teeth. If not used properly, it can cause trauma to the gingiva. Use of dental floss is slowly gaining popularity among the Asian population, but it is not yet widely being used by everyone. Most of the disadvantage being the time consuming and relatively expensive as well. The dentist and dental health workers are responsible for educating to the patients about it and teaching the method and steps to use it. Before teaching and educating others, they themselves should be aware and adequately trained

to give demonstration to the patients. Our study was conducted to assess the level of knowledge among the dental students regarding the use of dental floss.

Our study revealed that all of the students had heard of dental floss and around 72.99% knew what is dental floss, whereas only 56% of students knew about dental floss in study conducted by Bennadi *et al.* in 2013.^[6] Only 18% of our students used dental floss but none of them were using it regularly, similarly, 2% used dental floss regularly in study conducted by Bennadi *et al.* in 2013,^[6] but in contrast to the significantly high percentage, that is, 64.3% of dental interns used dental floss in a study done by Pandey^[7] in 2020 in Nepal, also 19% used dental floss in a study done by Ahmad *et al.* in 2017^[8] in Pakistan and 36.7% of dental

Table 2: Questions and responses for section 3 (practice) of the questionnaire

| Section 3: Questions and options | BDS 1 st year | | BDS 2 nd Year | | BDS 3 rd year | | BDS 4 th year | | Total | |
|--|--------------------------|-------|--------------------------|-------|--------------------------|-------|--------------------------|-------|----------|-------|
| | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % |
| Do you use dental floss? | | | | | | | | | | |
| Yes | 2 | 5.26 | 3 | 9.67 | 5 | 16.12 | 8 | 22.85 | 18 | 13.13 |
| No | 36 | 94.73 | 30 | 90.90 | 28 | 90.32 | 27 | 77.14 | 121 | 88.32 |
| If yes, how many times a week | | | | | | | | | | |
| 7 days/everyday | 0 | 0 | 0 | | 0 | | 0 | | 0 | |
| Twice a week | 0 | 0 | 1 | 3.03 | 1 | 3.22 | 1 | 2.85 | 3 | 2.18 |
| More than twice a week , but not everyday | 0 | 0 | 0 | | 1 | 3.22 | 1 | 2.85 | 2 | 1.45 |
| Irregularly/sometimes | 2 | 5.26 | 2 | 6.06 | 3 | 9.67 | 6 | 17.14 | 13 | 9.48 |
| If no, why? | | | | | | | | | | |
| Do not know how to use | 30 | 78.94 | 26 | 78.78 | 24 | 77.41 | 12 | 34.28 | 92 | 67.15 |
| Time consuming | 2 | 5.26 | 2 | 6.06 | 1 | 3.22 | 12 | 34.28 | 17 | 12.40 |
| Expensive | 4 | 10.52 | 2 | 6.06 | 3 | 9.67 | 11 | 31.42 | 20 | 14.59 |
| Do you prescribe dental floss? | | | | | | | | | | |
| Yes | 0 | 0 | 0 | | 0 | | 21 | 60 | 21 | 15.32 |
| No | 0 | 0 | 0 | | 0 | | 14 | 40 | 14 | 10.21 |
| Not applicable/do not see patients | 38 | 100 | 33 | 100 | 31 | 100 | 0 | 0 | 102 | 74.45 |
| If yes, in what conditions? | | | | | | | | | | |
| All patients | N/A | | N/A | | N/A | | 4 | 11.42 | 4 | 2.91 |
| Patients with crown and bridge/proximal restorations | N/A | | N/A | | N/A | | 3 | 8.57 | 3 | 3.73 |
| Patients with periodontal diseases | N/A | | N/A | | N/A | | 5 | 14.28 | 5 | 3.73 |
| Option B and C both | N/A | | N/A | | N/A | | 9 | 25.71 | 9 | 6.56 |
| If yes, do you teach/demo for using dental floss? | | | | | | | | | | |
| Yes, always | N/A | | N/A | | N/A | | 3 | 14.28 | 3 | 2.18 |
| Yes, sometimes | N/A | | N/A | | N/A | | 12 | 57.14 | 12 | 8.75 |
| No | N/A | | N/A | | N/A | | 6 | 28.57 | 6 | 4.37 |
| If no, why? | | | | | | | | | | |
| Do not know when to prescribe | 0 | 0 | 0 | | 0 | | 14 | 40 | 14 | 10.21 |
| Others/do not see patients | 38 | 100 | 33 | 100 | 31 | 100 | 0 | 0 | 102 | 74.45 |
| If no, would you prescribe if taught about it? | | | | | | | | | | |
| Yes | 38 | 100 | 33 | 100 | 31 | 100 | 14 | 40 | 116 | 84.67 |
| No | 0 | 0 | 0 | | 0 | | 0 | | 0 | |

students used dental floss in a study done by Ramananda in 2019^[9] in India.

Most of our students in the 1st and 2nd year BDS did not had adequate knowledge about dental floss, their knowledge slightly increased during their 3rd year and mostly during the 4th year when they started prescribing the dental floss in the indicated patients. Our curriculum seems to teach them somewhat about dental floss but it did not appeared adequate to be enough to train them to be eligible and confident to demonstrated same to the patients. There is severe lack of knowledge among the students regarding the use and function of dental floss. One of the major barriers for the use of dental floss by students was inadequate knowledge to use it followed by lack of time and expensive.

Our study had a limitation that it included the questions that were not included in any other previous studies or the studies till date so we could not compare our results with others. Furthermore, our study only included the BDS students, excluding the interns that too of only a single dental college in Terai region of Nepal. We would suggest for a nationwide survey study of similar study to get a true representation of the country's dental students.

CONCLUSION

We would conclude that there is severe lack of knowledge, awareness, and practice among the dental students regarding use of dental floss, so we need to improvise our curriculum to train our dental graduates better to prepare them to guide patients regarding the use of dental floss.

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