



Original Article

# Attitude and Knowledge Regarding Flossing Technique among Dental Students

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## Abstract

**Background and Objective:** Periodontal lesions are predominantly found in interdental locations, so toothbrushing also is not enough to control gingival and periodontal disease. Flossing is the only way to remove interproximal plaque biofilm that can accumulate between our teeth. The aim of the study is to evaluate the attitude and knowledge about dental flossing among undergraduate dental students. **Materials and Methods:** A structured questionnaire was used to evaluate attitude and knowledge regarding dental flossing technique among dental students. A sample of 60 students were evaluated and their response was recorded, tabulated, and analyzed. **Results:** Around 70.7% of dental students show a positive response toward attitude and knowledge regarding dental flossing technique among dental students. **Conclusion:** Cleaning the teeth with dental flossing along toothbrush will reduce the prevalence of periodontal disease. Therefore, the flossing technique needs to be emphasized during their education and the importance of educating the patients and monitoring their efficiency throughout the treatment and maintenance visits.

**Keywords:** Cross-sectional survey, dental students, flossing, gingiva

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## INTRODUCTION

Oral hygiene is an essential factor that is needed for the overall well-being of a person. Therefore, the maintenance of oral hygiene is important. If it is not maintained, then it will lead to periodontal disease. For example, in susceptible patients, gingivitis may develop into periodontitis, a much more serious infection that may cause tooth loss.<sup>[1]</sup> The prevalence of periodontal disease increased with age. The prevalence was 57%, 67.7%, 89.6%, and 79.9% in the age groups 12, 15, 35–44, and 65–74 years, respectively.

Prevention of periodontal disease is achieved by microbial plaque control and it has to be performed by patients. Elements of biofilm control include mechanical cleaning and chemical adjuncts. Mechanical cleaning includes toothbrushing. It reduces the bacterial count on the tooth surface. Usually, plaque biofilm formation begins on the interproximal surfaces where the toothbrushes are not able to reach.<sup>[2]</sup> Therefore, interdental aids such as interdental brush or dental floss are used along with toothbrush to enhance the effectiveness of plaque control.<sup>[3]</sup>

The dental floss must contact the proximal surface from line angle to line angle to clean effectively. It must also clean the entire proximal surface, including accessible subgingival areas, not just be slipped apical into the contact area.<sup>[4]</sup> Hence, it is important to assess the importance of knowledge and attitude regarding dental flossing among dental students.

## MATERIALS AND METHODS

### Study type:

This was a cross-sectional study.

### Study area:

The study was conducted at Indira Gandhi Institute of Dental Sciences (IGIDS), Pondicherry.

### Study population:

The study population were undergraduate dental students.

### Inclusion criteria:

Inclusion criteria were undergraduate dental students (2<sup>nd</sup>, 3<sup>rd</sup>, and final-year students) and interns in IGIDS, Pondicherry.

### Exclusion criteria:

Exclusion criteria were 1<sup>st</sup> year and postgraduate students.

### Ethical Clearance:

Before start of the study, ethical clearance was obtained from the Institutional Ethics Committee, IGIDS, SBV University.

- Online informed consent was obtained from the study participants
- The anonymity of the participants was maintained.

**Scheduling:**

Data were collected in the month of July and August of 2020.

**Study sample:**

A total of 60 undergraduate dental students participated in the survey.

**Survey Instrument:**

A validated questionnaire form was prepared using Google Forms and it was distributed among undergraduate dental students and interns.

**Sampling method:**

Convenience sampling was used.

**Survey methodology:**

The questionnaire was designed to collect data on the students' knowledge and attitude regarding dental flossing. It consists of 17 close-ended questions, which is divided into two parts: the first part consists of four questions regarding demographic information of the participant (name, age, gender, and year of studying) and the second part consists of 13 questions to evaluate the knowledge and attitude regarding dental flossing. Only fully filled Google Forms were included in the study.

**Statistical Analysis:**

The data was analysed in SPSS software version 23.0. Descriptive analysis with frequency and percentages was used to analyse the results.

**RESULTS**

Thirty-five participants picked preferred toothpicks over dental flossing. A total of 53 participants felt dental flossing is good for dental hygiene. Thirty-five respondents felt that dental flossing consumes more time. Twenty-eight participants reported that dentists recommended the use of dental floss. Thirty-four participants were aware that dental floss massages the interdental areas. Forty-eight participants reported that dental flossing causes gaps between the teeth [Table 1].

**DISCUSSION**

Dental floss will remove the plaque biofilm in interproximal areas. In the present study, only 60% of dental students floss their teeth and around 40% of dental students do not floss due to various reasons (lack of awareness about dental flossing, some feel flossing requires more time). In the present study, in spite of 88.3% of students thinking that flossing is important, only 41.7% of students started flossing after joining the dental school. This indicates that the knowledge about the benefit and techniques of flossing is not enough to promote them to flossing on a daily basis.<sup>[5]</sup> In the present study, for around 46.7% of students, dental floss was recommended by dentists to play a major role in the maintenance of oral hygiene, and they know more knowledge on dental flossing. The professional flossing techniques will have high effectiveness in reducing interproximal caries risk. Around 58.3% of dental students do not prefer toothpick over dental floss as it might get hard to reach interproximal places and toothpicks are more prone to damage soft tissues than dental floss.

In the present study, around 8.3% of the population feel pain while flossing, the reason for this is, if we do it too hard, then it may damage the tissues between the teeth and causes pain.<sup>[6,7]</sup> Moreover, it is normal to feel some

discomfort when we first start. Around 65% of dental students believe that non flossing can cause both dental caries and periodontal disease. If flossing is not done, there will be more chance for plaque biofilm adhesion on the interproximal areas further, which will lead to interproximal caries formation. Flossing has the capability to remove the subgingival plaque (2–3.5 mm below the interdental papilla); therefore, if it is not done, it will lead to both dental caries and periodontal diseases.<sup>[8]</sup>

Cleaning the teeth with a toothbrush is not enough because the toothbrush will not completely remove the plaque biofilm. Toothbrushes will not reach the interproximal areas. In the study, around 88% of dental students believe that if dental floss is used with a toothbrush every day, it will lead to reducing the prevalence of periodontal disease. Less than five percent of the population told flossing is harmful as it can cause harmful bacteria to be released into our bloodstream which can lead to infection. Around 58.3% of the population believe that dental floss is effective for Type 1 embrasure patients, because in Type 1, the embrasure is filled completely by interdental papilla.<sup>[9,10]</sup>

## CONCLUSION

Cleaning the teeth with dental flossing along toothbrush will reduce the prevalence of periodontal disease.<sup>[10]</sup> In this study, only a limited number of students do flossing on a daily basis due to various reasons, and also, some of the dental students face some hurdles during dental flossing, this may be due to a lack of knowledge about flossing technique. Therefore, the flossing technique needs to be emphasized during their education and the importance of educating the patients and monitoring their efficiency throughout the treatment and maintenance visits.

### **Financial support and sponsorship:**

Nil.

### **Conflicts of interest:**

There are no conflicts of interest.

Table 1: Questionnaire and its responses		
Questions	Options	Respondents (total=60)
Do you floss your teeth?	A. Yes	36
	B. No	24
Do you start flossing after joining dental college?	A. Yes	25
	B. No	22
	C. I do not floss	13
Do you prefer toothpick over floss?	A. Yes	25
	B. No	35
How important do you think dental flossing is good for dental hygiene?	A. Important	53
	B. Not important and harmful	1
	C. Does not make any difference	6
What are the hurdles you face for flossing?	A. Requires more time	35
	B. Painful	5
	C. No idea	20
Who did recommend the dental floss to you?	A. Dentist	28
	B. Parents/friends	8
	C. No one	24
	D. Other	0
What disease can be caused by nonflossing?	A. Dental caries	7
	B. Periodontal disease	14
	C. Both	39
Should dental floss be customarily used with toothbrushing every day?	A. Yes	32
	B. No	16
	C. Don't know	12
Does dental floss massage the interdental areas?	A. Yes	34
	B. No	12
	C. Don't know	14
Do you think using of dental floss is harmful to the teeth and gingiva?	A. Yes	2
	B. No	37
	C. May be	21
Do you think dental floss will polish the tooth surface?	A. Yes	23
	B. No	22
	C. May be	15
Can dental flossing cause gaps between the teeth?	A. Yes	48
	B. No	12
For which type of gingival embrasure dental floss is effective?	A. Type 1	35
	B. Type 2	18
	C. Type 3	7

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