

Knowledge, Attitude & Practices amongst Indian General Dentists regarding Dental Floss: A Questionnaire Study

Rohit Jagiasi¹, Prasad Nadig², Monali Shah³, Pankti Shah⁴

¹Post Graduate Student, Department of Periodontology, KM Shah Dental College & Hospital, Sumandeep Vidyapeeth;
Email: rohitj600[at]gmail.com

²Professor, Department of Periodontology, KM Shah Dental College & Hospital, Sumandeep Vidyapeeth;
Email: drprasadnadig[at]gmail.com

³Professor & Head of Department, Department of Periodontology, KM Shah Dental College & Hospital, Sumandeep Vidyapeeth
Email: smonali2011[at]gmail.com

⁴Post Graduate Student, Department of Periodontology, KM Shah Dental College & Hospital, Sumandeep Vidyapeeth;
Email: dr.pshah7695[at]gmail.com

Abstract: Daily removal of plaque from adjacent teeth is essential part of any oral hygiene routine to prevent or control tooth decay and disease. This study aims to assess the Knowledge, Attitude & Practice regarding the use of dental floss amongst Indian General Dentists. A total of 200 participants were included where, statistically significant results ($p < 0.05$) were seen on intergroup comparison between private practitioners, faculty and PG students assessed attitude regarding dental floss on basis of qualification. On intergroup comparison of Knowledge regarding dental floss based on years of practice among Indian General Dentists, results were statistically significant ($p < 0.05$). Statistically significant results were seen ($p < 0.05$) intergroup comparison of Attitude regarding dental floss based on years of practice among Indian General Dentists. Results of ($p < 0.05$) was statistically significant in participants with less than 5 years of practice prescribed floss routinely to patients was observed. Thus, need for improvement of knowledge, attitude & practices amongst dental students are imperative by encouraging them in their dental curriculum & provide them better training for use of interdental aids like dental floss.

Keywords: Attitude, dental floss, India, knowledge, practices

1. Introduction

Periodontal disease, with its high incidence in developing countries, is currently one of the most prevalent diseases affecting people's lives. Dental plaque and calculus have played an important role in gingivitis and periodontitis. Most people use toothbrushes as an oral aid, but many studies have shown that brushing alone is not effective at removing plaque from the teeth, so toothbrushes are recommended in addition to regular brushing.

Toothbrush is used for removal of food & plaque between the teeth, but sometime scan be difficult for toothbrushes to reach in narrow interdental spaces, in such spaces use of floss can be highly appreciated.

A 2011 Cochrane review was found using dental floss while brushing reduced gingivitis, in addition, fluoride floss increases the amount of fluoride in the interdental space up to 10 times compared to untreated cavities. The flossing group showed reduction in central plaque and a greater increase in fluoride than the toothpaste group. Since periodontal infection is one among the major open well being issues in India, there's an immediate need to recognize preventive strategies to diminish burden of malady. Dental specialists play an imperative part in recommending successful verbal hygiene aids for maintenance of great verbal wellbeing, but reports suggest that the dental floss isn't prompted routinely to each patient in dental practice.

There's a need to know the factors affecting the prescription of dental floss additionally to identify the barriers among dental practitioners in India.

2. Literature Survey

A Google Form consisting of two parts was be created, the first part of which was the permission required to participate in the survey and the second part was a question form. In this survey, there were 30 questions in total, 8 of which were knowledge and 7 of which were attitude, and these questions will be measured with a 5 - point Likert scale as "Strongly Agree", "Agree", "Disagree", "Disagree". evaluation chart. and "Disagree", our question will evaluate practices related to accidents.

3. Materials and Methods

Study Site & population

Ethical clearance for the study was obtained from the ethicsreview and research board& was carried out at Department of Periodontology, KM Shah Dental College & Hospital, Sumandeep Vidyapeeth, Vadodara. A questionnaire study of 200 dentists from different regions of India participated in this study, 91 of them (45.5%) are mostly dentists between the ages of 25 - 30. Males were 138 (69%) females and 62 (31%) participants' males.

Inclusion criteria: Dentists from Pan - India including private practitioners, faculty and PG students, and exclusion criteria: UG students 1 to 4, students who declined to participate in the survey, and Periodontists. All participants filled the informed consent form.

4. Results

A total of 200 participants from pan India including private practitioner, faculty, PG student submitted the completed questionnaire with a total of 30 close ended questions.

The intergroup comparison of Attitude regarding dental floss based on qualification among Indian General Dentists is given in **Table 1**. Statistically significant results (p<0.05) were seen on intergroup comparison between BDS, MDS and PG students in terms of whether toothpaste and toothbrush are enough to remove plaque and debris.30 (40.5%) of BDS participants disagreed that toothpaste and toothbrush were enough to remove plaque and debris whereas 16 (23.2%) MDS participants agreed to it.20 (29%) MDS participants neither agreed nor disagreed to the statement. Statistically significant results (p<0.05) were also seen among all 3 groups. Participants in all 3 groups agreed that routine dental flossing was necessary.

The results of intergroup comparison of Knowledge regarding dental floss based on years of practice among Indian General Dentists are given in **Table 2**.86 (91.5%) participants having less than 5 years of practice believe that dental floss aids in identifying the presence of subgingival calculus deposits, overhanging restorations, and interproximal carious lesions thus giving statistically significant results (p<0.05).73 (76.8%) participants having

less than 5 years of practice believe that dental floss reduce gingival inflammation thus giving statistically significant results (p<0.05).51 (54.8%) participants having less than 5 years of practice do not agree that modern toothbrushes with advanced bristle design remove interdental plaque similar to dental floss (p<0.05).

The results of intergroup comparison of Attitude regarding dental floss based on years of practice among Indian General Dentists are given in **Table No 3**.41 (43.2%) participants having less than 5 years of practice disagreed that toothbrush and toothpaste are enough to remove plaque and debris (p<0.05) hence showing statistically significant results. All 3 groups strongly agreed that Routine dental flossing is necessary (p<0.05).51 (53.7%) participants with less than 5 years of practice agreed and 40 (62.5%) participants with 5 - 10 years of practice strongly agreed that there was a lack of patient compliance in using dental floss (p<0.05).40 (42.6%) participants with less than 5 years of practice agreed that Dental floss is freely available (p<0.05). From these 31 (33.3 %) participants with less than 5 years of practice agree that Dental flossing is a time - consuming procedure (p<0.05).48 (50.5%) participants with less than 5 years of practice did not think that dental floss is expensive (p<0.05). Participants in all 3 groups strongly agreed that Dentists should create awareness and motivate people to use dental floss regularly (p<0.05).

The results of intergroup comparison of Practice regarding dental floss based on years of practice among Indian General Dentists are given in **Table 4**. The results show that 86 (90.5%) of participants with less than 5 years of practice prescribed floss routinely to patients (p<0.05).

Table 1: Intergroup comparison of Attitude regarding dental floss based on qualification among Indian General Dentists

		Qualification			p – value
		MDS	BDS	PG student	
Toothbrush and toothpaste are enough to remove plaque and debris	Strongly Disagree	4	4	3	0.014*
		5.8%	5.4%	5.3%	
	Disagree	21	30	19	
		30.4%	40.5%	33.3%	
	Neither Agree Neither Disagree	20	19	13	
		29.0%	25.7%	22.8%	
	Agree	8	7	10	
		11.6%	9.5%	17.5%	
Strongly agree	16	14	12		
	23.2%	18.9%	21.1%		
Neither Agree Neither Disagree	0.0%	2.7%	3.5%		
	69	72	55		
Agree	100.0%	97.3%	96.5%		
	0	0	0		
Agree	0.0%	0.0%	0.0%		
	Disagree	0	0	1	0.003*
0.0%		0.0%	1.8%		
Neither Agree Neither Disagree	3	1	4		
	4.3%	1.4%	7.0%		
Agree	17	22	18		
	24.6%	29.7%	31.6%		
Strongly agree	49	51	34		
	71.0%	68.9%	59.6%		

Table 2: Intergroup comparison of Knowledge regarding dental floss based on years of practice among Indian General Dentists

		Years of Practice			p - value
		< 5 years	5 - 10 years	> 10 years	
Does dental floss aid in identifying the presence of subgingival calculus deposits, overhanging restorations, and interproximal carious lesions?	No	7	0	3	0.038*
		7.4%	0.0%	7.3%	
	Don't know	1	4	0	
		1.1%	6.3%	0.0%	
	Yes	86	60	38	
		91.5%	93.8%	92.7%	
Does dental floss reduce gingival inflammation?	No	14	3	3	0.044*
		14.7%	4.7%	7.3%	
	Don't know	8	3	0	
		8.4%	4.7%	0.0%	
	Yes	73	58	38	
		76.8%	90.6%	92.7%	
Do modern toothbrushes with advanced bristle design remove interdental plaque similar to dental floss?	No	51	17	9	0.001*
		54.8%	27.0%	22.0%	
	Don't know	13	5	4	
		14.0%	7.9%	9.8%	
	Yes	29	41	28	
		31.2%	65.1%	68.3%	

Table 3: Intergroup comparison of Attitude regarding dental floss based on years of practice among Indian General Dentists

		Years of Practice			p - value
		< 5 years	5 - 10 years	> 10 years	
Toothbrush and toothpaste are enough to remove plaque and debris	Strongly Disagree	8	2	1	0.014*
		8.4%	3.1%	2.4%	
	Disagree	41	20	9	
		43.2%	31.3%	22.0%	
	Neither Agree Neither Disagree	22	13	17	
		23.2%	20.3%	41.5%	
Agree	12	10	3		
	12.6%	15.6%	7.3%		
Strongly agree	12	19	11		
	12.6%	29.7%	26.8%		
Routine dental flossing is necessary	Disagree	0	1	0	0.003*
		0.0%	1.6%	0.0%	
	Neither Agree Neither Disagree	3	4	1	
		3.2%	6.3%	2.4%	
Agree	40	12	5		
	42.1%	18.8%	12.2%		
Strongly agree	52	47	35		
	54.7%	73.4%	85.4%		
Lack of patient compliance in using dental floss	Strongly Disagree	1	0	0	0.002*
		1.1%	0.0%	0.0%	
	Disagree	1	0	1	
		1.1%	0.0%	2.4%	
	Neither Agree Neither Disagree	5	3	2	
		5.3%	4.7%	4.9%	
Agree	51	21	6		
	53.7%	32.8%	14.6%		
Strongly agree	37	40	32		
	38.9%	62.5%	78.0%		
Dental floss is freely available	Strongly Disagree	5	9	4	0.009*
		5.3%	14.1%	10.0%	
	Disagree	14	5	8	
		14.9%	7.8%	20.0%	
	Neither Agree Neither Disagree	11	18	7	
		11.7%	28.1%	17.5%	
Agree	40	13	8		
	42.6%	20.3%	20.0%		
Strongly agree	24	19	13		
	25.5%	29.7%	32.5%		
Dental flossing is a time - consuming procedure	Strongly Disagree	10	7	3	0.013*
		10.8%	10.9%	7.3%	
Disagree	22	13	11		

	Neither Agree Neither Disagree	23.7%	20.3%	26.8%				
		21	10	4				
		22.6%	15.6%	9.8%				
		Agree	31	14		8		
		33.3%	21.9%	19.5%				
	Strongly agree	9	20	15				
		9.7%	31.3%	36.6%				
		Dental floss is expensive	Strongly Disagree	12		12	8	0.009*
				12.6%		18.8%	19.5%	
		Disagree	48	20		9		
50.5%	31.3%		22.0%					
Neither Agree Neither Disagree	19	21	11					
	20.0%	32.8%	26.8%					
Agree	10	5	3					
	10.5%	7.8%	7.3%					
Strongly agree	6	6	10					
	6.3%	9.4%	24.4%					
Dentists should create awareness and motivate people to use dental floss regularly	Neither Agree Neither Disagree	1	0	0	0.039*			
		1.1%	0.0%	0.0%				
	Agree	38	14	8				
		40.0%	21.9%	19.5%				
	Strongly agree	56	50	33				
58.9%		78.1%	80.5%					

Table 4: Intergroup comparison of Practice regarding dental floss based on years of practice among Indian General Dentists

		Years of Practice			p - value
		< 5 years	5 - 10 years	> 10 years	
Pattern of floss prescription by dentists to their patients	Do not prescribe floss routinely	9	15	15	0.001*
		9.5%	23.4%	36.6%	
	Prescribe floss routinely to patients	86	49	26	
		90.5%	76.6%	63.4%	

5. Discussion

Most of the participants in this study were 25 - 30 years old. The number of women made up 69% of the total number, while the men made up 31% of the total number.

Of the respondents, 37% were BDS students, 34.5% were MDS students, and 28.5% were PG students. Our findings show that dentists know that brushing removes plaque, and dentists believe that brushing removes plaque. These results are supported by Madan C et al., Marchesan J. T et al.

In this study, 44% of the participants agreed that there is not enough interest in dentistry in undergraduate and graduate dentistry. Similar results were found in a study by Tahani B et al. Another study by Kumar Harish et al. showed that dental floss applications of dental students, like our research, are not sufficient. A later study by Nakamura F et al. showed that dental school teachers leave students with good thoughts and advice about accidents; this is as good as our findings, here.

5% agree that more emphasis should be placed on toothpaste teaching/education in the dentistry curriculum, while 69.5% agree that tooth brushing should be taught in school texts based on daily oral tradition.

A study by Muralidharan S et al. showed that brushing and flossing remove plaque better and reduce gingival bleeding, and these results are similar to the results obtained in our study, where 41% agreed that brushing with a toothbrush should brush the teeth to remove plaque and reduces gingival bleeding.

6. Conclusion

There is need for improvement of knowledge, attitude & practices amongst dental students by encouraging them in their dental curriculum & provide them better training for use of interdental aids like dental floss. It is clearly evident from above results & discussion that knowledge, attitude & practice significantly depends upon gender, qualification of participants & years of practice & last but not the least, it was observed that there is need for improvement of knowledge, attitude & practices amongst dental students by encouraging them in their dental curriculum & provide them better training for use of interdental aids like dental floss.

References

- [1] Jin LJ, Armitage GC, Klinge B, Lang NP, Tonetti M, Williams RC. Global oral health inequalities: task group—periodontal disease. *Advances in dental research*.2011 May; 23 (2): 221 - 6.) (Ref: Petersen PE, Ogawa H. Strengthening the prevention of periodontal disease: the WHO approach. *Journal of periodontology*.2005 Dec; 76 (12): 2187 - 93.)
- [2] Ng E, Lim LP. An Overview of different interdental cleaning aids and their effectiveness. *Dentistry journal*.2019 Jun; 7 (2): 56.)
- [3] Sambunjak D, Nickerson JW, Poklepovic T, Johnson TM, Imai P, Tugwell P, Worthington HV. Flossing for the management of periodontal diseases and dental caries in adults. *Cochrane Database of Systematic Reviews*.2011 (12).

- [4] Mazhari F, Boskabady M, Moeintaghavi A, Habibi A. The effect of toothbrushing and flossing sequence on interdental plaque reduction and fluoride retention: A randomized controlled clinical trial. *Journal of periodontology*.2018 Jul; 89 (7): 824 - 32.).
- [5] Särner B, Birkhed D, Andersson P, Lingström P. Recommendations by dental staff and use of toothpicks, dental floss and interdental brushes for approximal cleaning in an adult Swedish population. *Oral Health & Preventive Dentistry*.2010 Jan 1; 8 (2): 185.