# Knowledge, Attitude And Perceptions Of Interdental Aids Usage Amongst Dental Students And Professionals: A Questionnaire Based Survey

**Dr. Neetika Gupta *, Dr Sachit A. Arora **, Dr Shivjot Chhina ***, Dr Jyoti Chand *, Dr Subarbie Abrol***

*PG Student,**Professor and Principal,***Professor & Head, Department of Periodontics, I.T.S Dental College, Hospital &Research Centre, GreaterNoida,

**Abstract:** Background: Dentists play a very important role in the public's oral health improvement. Acquiring knowledge and attitudes related to dental health and prevention of oral diseases is very important during future dentist's training period. Aim of the study is to evaluate the KAP (knowledge, attitude and practice) among the dental students and professionals , towards the interdental aids. To check whether increasing dental education improve the Knowledge, Attitude and Practice of interdental aids among the dental students and professionals. Materials & Method: A cross-sectional study was carried out among the Dentists in Greater Noida . A self-constructed questionnaire including 16 multiple choice questions was presented to them. A total of 500 dentists (students and faculty) were selected. 5 groups were made. Group I: First and second year B.D.S. Group II: third and final year B.D.S. Group III: Interns B.D.S. Group IV: PG and Faculty (Department of Periodontics and PHD) . Group V: PG and Faculty of all other Dental departments. Results: The dental attitude became more positive and improved with each advancing year of education. Conclusion: The oral health attitude and behavior of the dental students improved with increasing level of dental education. Preventive courses providing apt information on proper techniques of plaque control must be included in the first and second year curriculum of the dental students. [Gupta N A Natl J Integr Res Med, 2020; 11(2):74-79]

**Key Words:** interdental cleaning, periodontal disease and dental floss

**Author for Correspondence**: Dr. Neetika Gupta, Final Year Post Graduate ,Department of Periodontics, I.T.S. Dental College, Hospital and Research Centre, Knowledge Park III, Greater Noida, Uttar Pradesh, India-201308 E-Mail: neetika06081992@gmail.com Mobile : +8076584712

**Introduction:** The bacterial plaque that forms on all hard and soft oral tissues is considered to be the principal etiological agent of dental caries and periodontal disease. The accumulation of plaque facilitated by poor oral health maintenance predisposes to gingivitis, leading to the onset of periodontal inflammation.[1] Plaque control is one of the key elements of the practice of dentistry. It is absolutely essential for attaining and preserving oral health through periodontal treatment.[2]It has been convincingly demonstrated that gingivitis is most frequent and most severe in the interproximal areas.[7]

Generally, these areas are inaccessible to the toothbrush. Available data have shown that gingivitis can be prevented buccally and lingually by the correct use of a toothbrush,[8] but the toothbrush alone has limited effect in the interdental spaces. With this shortcoming in view, several other materials have been devised to supplement the toothbrush. Dental floss, toothpicks, and single tufted brushes are some of the tools recommended for interdental cleaning.[9]

The use of interdental aids is important to sufficiently clean the interdental areas of the biofilm that forms from time to time and remove food trapped in between the teeth which can turn into plaque and then calculus in around 48 hours.[1] Thus every patient should be educated about daily plaque control and encouraged to adopt it. Dentists play a very important role in the public's oral health improvement. Acquiring knowledge and attitudes related to dental health and prevention of oral diseases is very important during future dentist's training period.[3] The main goals of universities is to broaden the knowledge of the people in a society, the enhancement of the plaque control attitudes, knowledge and practices (Figure -1) of its students is of high importance, as this will subsequently lead to a more oral health concerned society.[4]

The behavior of the oral health providers and their attitudes towards their own oral health reflects their understanding of the importance of the preventive dental procedures and improving the oral health of their patients.6The dental students themselves are expected to be a good example for oral health behavior.

Knowledge, attitude and practice constitute a triad of interactive factors (Figure-2) characterized by dynamism and unique independence. For each component of the triad, emphasis is laid on the value of ethical conduct in raising the application of the component in real life to a peak.[5] There are nine dental branches. But if we consider the knowledge about oral

health and interdental aids, Department of Periodontics and Department of Public Health Dentistry are the two specialty of dentistry that deals mainly with the prevention of oral disease and promotion of oral health.

**Figure -1 KAP Model**

**Adapted From - Lbrahim, G. Knowledge, Attitude And Practice The Three Pillars Of Excellence And Wisdom: A Place In The Medical Profession; 1995,Eastern Mediterranean Health Journal, Vol.1(1), 8-16**

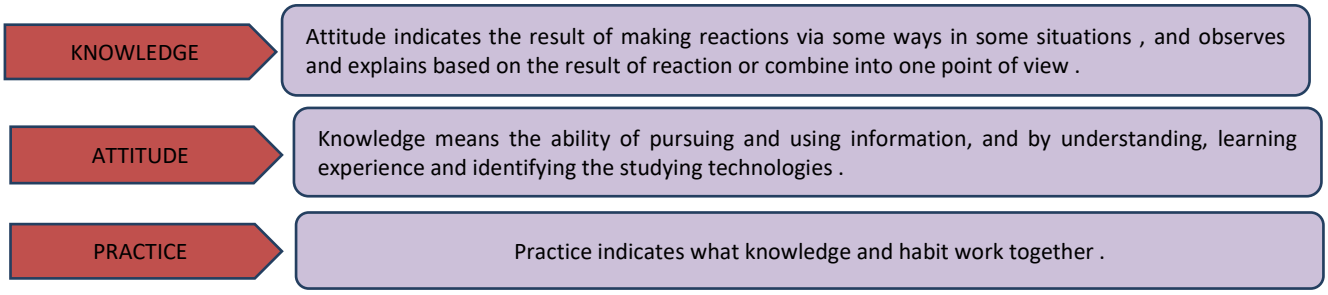
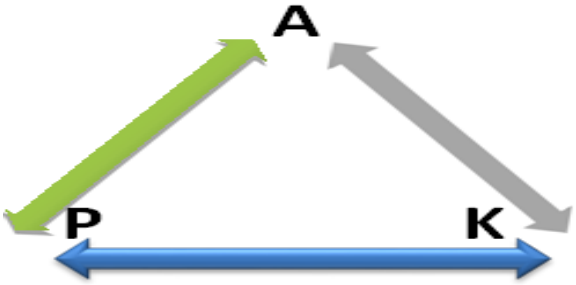



**Figure: 2 Knowledge-Attitude-Practice model (Schwartz , 1976)**




**Objectives Of The Study:** 1- To study the KAP (knowledge, attitude and practice) among the dental students and professionals , towards the interdental aids. 2- To check whether increasing dental education improve the Knowledge, Attitude and Practice of interdental aids among the dental students and professionals

**Material and Methods:** A total of 500 students between the ages of 18-40 years pursuing the undergraduate program (B.D.S), Post graduate (M.D.S) and faculty at the Dental College in Greater Noida were recruited for this study. Participation was voluntary and informed consent was collected from all participants. Out of the total 500 dental professionals, 214 were males and 286 females. The study population was divided into 5 groups based on the year of study as under:

**Group I:** First and second year B.D.S.
**Group II:** third and final year B.D.S.
**Group III:** Interns B.D.S.
**Group IV:** Post Graduates and Faculty (Departm ent of Periodontics and Public Health Dentistry) .
**Group V**: PG and Faculty of all other Dental departments

All the participants had to answer a self-administered questionnaire which collected demographic information regarding age, gender and year of study. The questionnaire consisted of a total of 16 questions which were divided into 3 sections such as:

Section 1- Knowledge - is the capacity to acquire, retain and use information. (Q-4,5,7,8,9.) - When to use interdental Aids? According to ADA, How frequently interdental aids be used?, What do you understand by the term dental floss?, In which type of embrasure, we use dental floss? and What is the recommended length of dental floss ?

Section 2- Attitude- refers to inclinations to react in a certain way to certain situation (Q-6,12, 13,14,15,16)

Do you think interdental cleaning is important for maintaining good gingival health?, Do you think that the use of dental floss would inflict injury to the interdental gingiva, Would you advise specially abled patients to use a floss holder?, Will you stop flossing if your gum bleeds after or during flossing?, Do you think patient compliance is required in the use of interdental cleaning aids? and What can be the reason for not using floss?

Section 3- Practice - means the application of rules and knowledge that leads to action (Q-1,2,3, 10,11)- Do you take history of personal oral care before prescribing interdental cleaning aids? ,Do you educate your patients about the maintenance of interdental embrasures?, Which interdental aid do you use?, Which type of

dental floss do you use ? and How often do you use dental floss?

Statistical Analysis: The data was tabulated and analyzed using SPSS software v.21. We used mean ± standard deviation (SD) for expressing quantitative variables. One-way analysis of variance and independent t-test were used for comparison of mean scores of the KAP components by socio-demographic characteristics of participants. The correlations were evaluated by Pearson correlation coefficients. A p value less than 0.05 were considered statistically significant, and a P value less than 0.001 were considered strongly significant.

**Results: Table: 1 The Demographic Data Of The Participants**

| Characteristics | Frequency | Percent |
|---|---|---|
| AGE( in years) | | |
| 18-24 yrs. | 410 | 82% |
| 25-30 yrs. | 65 | 13% |
| >30 yrs. | 25 | 5% |
| Gender | | |
| Male | 214 | 42.8 |
| Female | 286 | 57.2 |
| Designation | | |
| Group I: First and second year B.D.S. | 160 | 32 |
| Group II: third and final year B.D.S. | 160 | 32 |
| Group III: Interns B.D.S. | 100 | 20 |
| Group IV: Post Graduates and Faculty (Department of Periodontics and P.H.D) | 30 | 6 |
| Group V: PG and Faculty of all other Dental departments | 50 | 10 |

Table: 1 Represents The Demographic Data Of The Participants.A total of 500 students between the ages of 18-40 years were included in the study . Out of the total 500 dental professionals, 214 were males and 286 females. All 500 students and dental professionals were allocated into 5 groups .

Table: 2 Represents The Knowledge , Attitude And Practice Scores In Males And Females. Mean Knowledge score in males and females is 6.78 ±1.99 and 6.98±2.93 respectively . Mean Attitude score in males and females is 8.57 ±1.47 and 6.98±2.93 respectively . Mean Practice score in males and females is 8.16 ±1.64 and 8.27±1.67 respectively .

**Table: 2 Knowledge, Attitude And Practice Scores In Males And Females**

| | Gender | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|
| Knowledge Score | Male | 6.7850 | 1.99072 | .13608 |
| | Female | 6.9860 | 2.03474 | .12032 |
| Attitude Score | Male | 8.5701 | 1.47347 | .10072 |
| | Female | 8.6713 | 1.52074 | .08992 |
| Practice Score | Male | 8.1682 | 1.64723 | .11260 |
| | Female | 8.2727 | 1.67199 | .09887 |

**Table: 3 Association Of Designation With Knowledge Score**

| Knowledge Score | | | |
|---|---|---|---|
| | **Mean** | **Std. Deviation** | **Std. Error** |
| Group I | 5.05 | 0.29246 | 0.02312 |
| Group 2 | 6.475 | 1.69702 | 0.13416 |
| Group 3 | 8.5 | 0.67763 | 0.08589 |
| Group 4 | 14.4 | 0.37905 | 0.0692 |
| Group 5 | 9.16 | 0.85894 | 0.09583 |

Table: 3 represents the association of designation with knowledge score. Knowledge score in Group 1 is 5.05 ±0.29. , Group 2 is 6.47 ±1.69, Group 3 is 8.50 ±0.67, Group 4 is 14.40 ±0.37 and Group 5 is 9.16 ±0.85

**Table: 4 Association Of Designation With Attitude Score**

| Attitude Score | | | |
|---|---|---|---|
| | **Mean** | **Std. Deviation** | **Std. Error** |
| Group I | 7.1875 | 1.00431 | 0.0794 |
| Group 2 | 8.5875 | 0.65768 | 0.05199 |
| Group 3 | 9.6 | 0.64756 | 0.659 |
| Group 4 | 12.3 | 0.45743 | 0.45768 |
| Group 5 | 10.6 | 0.49487 | 0.06999 |

Table: 4 represents the association of designation with Attitude score. Attitude score in Group 1 is 7.18 ±1.00 , Group 2 is 8.58 ±0.65, Group 3 is 9.60

±0.64, Group 4 is 12.30 ±0.45 and Group 5 is 10.60 ±0.49

**Table: 5 Association Of Designation With Practice Score**

| Practice Score | | | |
|---|---|---|---|
| | **Mean** | **Std. Deviation** | **Std. Error** |
| Group I | 6.4625 | 1.12651 | 0.08906 |
| Group 2 | 8.2 | 0.70094 | 0.06332 |
| Group 3 | 9.8 | 0.06332 | 0.80094 |
| Group 4 | 13 | 0.80094 | 0.07906 |
| Group 5 | 10.2 | 0.05332 | 0.70094 |

Table: 5 represents the association of designation with Practice score. Practice score in Group 1 is 6.46 ±1.12 , Group 2 is 8.20 ±0.70, Group 3 is 9.80 ±0.06, Group 4 is 13.00 ±0.80 and Group 5 is 10.20 ±0.05

**Discussion:** There is a two-way relationship in which periodontal disease in an individual may be a powerful influence on an individual's systemic health or disease. Baseline information on oral health, associated with adequate prevention procedures, is fundamental to promote self preventive behavior.[10] This latter includes many factors such as consistent modalities of oral hygiene, appropriate diet and life styles, and compliance towards professional counseling and care. It is demonstrated that plaque is an important factor in the development of hard and soft tissue diseases and that the reduction of its accumulation decreases the prevalence of dental caries, gingivitis, and periodontal diseases. Tooth brushing is essential for maintaining oral hygiene. However, tooth brushing alone is not sufficient in the interproximal areas. Interdental aids provide auxiliary assistance. Dental floss, toothpicks, and single tufted brushes are some of the tools recommended for interdental cleaning.

The current study was designed to assess and compare the Knowledge, Attitude and Practice interdental aids among dental students and professionals during their academic training and to study the extent to which an increase in this knowledge was reflected in their own dental health.

Comparing the KAP scores among both the genders, it was found that females have better knowledge, attitude and Practice of interdental aids than males. Though the differences were non-significant (p> 0.005). Conflicting results have been reported by various researchers regarding the impact of education on the attitude, behavior and oral hygiene of dental students. Studies done by Cortes et al[11], Lang et al[12], Cavaillon et al[13], Yildiz et al [14] noted a clear improvement in the oral hygiene practices of students during their studies. On the other hand, El- Mostehy et al [15] in an investigation of 100 Egyptian students noted the absence of an improvement in the practices of oral hygiene in students, in spite of having received information and education.

In the present study we found that with increase in the level of education, the amount of knowledge, attitude and practice of interdental aids improved. Among group 1, 2, and 3, the level of knowledge, attitude and practice improved with the increase in the level of education . Also when compared between the post graduate groups, group 4 and Group 5, it was seen that the group 4 i.e. Post Graduates and faculty of Department of Periodontics and Public Health Dentistry. Group 5, i.e. post graduates and faculty from other dental department i.e. Pediatric Dentistry, Orthodontics and Dentofacial Orthopedics, Prosthodontics, Endodontics, Oral and Maxillofacial Surgery, Oral and Maxillofacial Pathology and Oral and Maxillofacial Radiology, showed better knowledge, attitude and practice than other groups i.e. group 1, 2, and 3.

Hence , Department of Periodontics which deals with the health of periodontium and Department of Public Health Dentistry that specializes in preventing and controlling dental diseases and promoting dental health through community efforts , should use their knowledge about interdental aids in preventing the periodontal disease and caries in the patients and among all the dentists , by keeping the positive attitude and practicing the prevention of plaque accumulation in the interdental areas by using the interdental aids effectively. The other dental department should also develop knowledge about the interdental aids as they are also dealing with the prosthesis, braces etc., which requires the effective and continuous surveillance of the periodontal health.

Patients from all other dental department should always be referred to department of periodontics and department of Public Health Dentistry so that better counselling of patients can be done.

Patients with prosthesis and crowns have higher chances of food accumulation interdentally. And if the interdental embrasures are not cleaned properly, it can lead to either periodontal problems or caries. So to cater all the problems, the budding dentists, the post graduates and faculties need to have the knowledge regarding the oral hygiene, interdental aids and should have positive attitude and good practice of interdental health to keep their periodontium healthy.

**Conclusion:** This study was executed on account of limited available literature of oral hygiene practices and usage of interdental aids among Indian dental students. The overall dental knowledge among the students was good but with deficits in certain areas. The oral health attitude and behavior of dental students improved with increasing level of dental education. Presently, Periodontology is a subject that is introduced to a dental student in the third year of his/her undergraduate curriculum which teaches them precisely about plaque and plaque control. In order to improve the preventive behavior among the preclinical students of 1st and 2nd years, it is mandatory to include preventive courses right from the beginning which provides them apt information on proper techniques of plaque control and interdental aids. Also, after a careful evaluation of the dental knowledge among the first year dental students, we stress the need for more effective school dental programs. Thus, dental institutions should provide professional education to the upcoming dentists which not only creates a stable health behavior but helps them to provide good preventive services to their patients, family and friends.

Ethical Approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional ethical committee ( I.T.S Institutional Ethics Committee).

Informed Consent: For this type of study, formal consent is not required.

**References:**


1. Sana Abdullah A ,Pavithra S ,Ahmed N . Interdental Aids-A Literature Review. J Dental Sci .2018; 3(5):1-7.
2. Purnima V. Nadkerny, Thilagarani P. R, Pramod V, Vidyesh Durga Nadkerny, Nitin Suvarna, Ravishankar P. L, Anil Sharma, Amit Upadhyay."Does Increasing Dental Education Improve the Oral Hygiene Status of Dental Students?".Journal of Evolution of Medical and Dental Sciences.2015; 4(51): 8792-8801
3. Bertolami C. Rationalizing the dental curriculum in light of current disease prevalence and patient demand for treatment: form vs. content. J Dent Educ. 2001;65: 725-735.
4. Bano R., AlShammari E., Fatima S.B., Al-Shammar N.A. A comparative study of Knowledge, Attitude, Practice of nutrition and non-nutrition student towards a balanced diet in Hail University. Journal of Nursing and Health Science.2013;2(3) :29–36.
5. Ibrahim G. knowledge, attitude and practice the three pillars of excellence and wisdom: a place in the medical profession. Eastern mediterranean health j.1995;1:8-16.
6. Cortes FJ, Nevot C, Ramon JM, Cuenca E. The evolution of dental health in dental students at the University of Barcelona. J Dent Educ.2002; 66:1203-1208.
7. Loe H, Theilade E, Jensen SB. Experimental gingivitis in man. J Periodontol.1965;36:177-87.
8. Lindhe J, Koch G. The eff ect of supervised oral hygiene on the gingivae of children. J Periodontal Res.1967;2:215-20.
9. Johansen JR, Flotra L, Gjermo P. A clinical evaluation of the effect of Ascoxal T on plaque formation and gingivitis. Acta Odontol Scand.1970;28:661-77.
10. Tinanoff N. Dental caries risk assessment and prevention. Dent Clin North Am.1995; 39:709-19.
11. Cortes FJ, Nevot C, Ramon JM, Cuenca E. The evolution of dental health in dental students at the University of Barcelona. J Dent Educ .2002;66:1203-1208.
12. Lang NP, Cumming BR, Loe HA. Oral hygiene and gingival health of Danish dental students and faculty. Community Dent Oral Epidemiol .1977;5:237-242.
13. Cavaillon JP, Conge M, Mirisch D, Nemeth T, Sitbon JM. Longitudinal study on oral health of dental students at Paris VII University. CommunityDentOralEpidemiol.1982;10:137-143.
14. Yildiz S, Dogan B. Self-reported dental health attitudes and behaviour of dental students in Turkey. Eur J Dent.2011;5:253-259.

15. El- Mostehy MR, Zaki HA. The dental students' attitude towards the profession as reflected in his oral cavity. Egypt Dent J.1969;15:104-109..

Conflict of interest: None

Funding: None

Cite this Article as: Gupta N,Arora S, Chhina S, Chand J, Abrol S. Knowledge, Attitude And Perceptions Of Interdental Aids Usage Amongst Dental Students And Professionals: A Questionnaire Based Survey. Natl J Integr Res Med 2020; Vol.11(2): 74-79