



ASSESSMENT OF BASIC KNOWLEDGE AND AWARENESS OF VARIOUS INTERDENTAL AIDS AND THEIR USAGE AMONG DENTAL STUDENTS – A QUESTIONNAIRE STUDY.

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INTRODUCTION: Overall, there is lack of awareness regarding usage of interdental aids compared to toothbrushing in our society. Dentists being the primary educators for oral hygiene maintenance, current study was formulated based on the hypothesis that there may be lack of importance and awareness of interdental aids amongst dental students.

OBJECTIVE: Assessment of basic knowledge of various Interdental Aids among dental undergraduate students.

METHODOLOGY: A self-structured Questionnaire based pilot study consisting of 12 questions was conducted to evaluate the knowledge about Interdental Aids of Dental students. A total of 144 students participated, and the data was then put to statistical analysis.

RESULTS: On performing Descriptive Statistics, 90% of dental students were found to be aware regarding basic knowledge about interdental aids while 55.56% knew about its usage, 67.4% knew about its disadvantages and around 84% were aware of its selection criteria.

CONCLUSION: The current sample demonstrates a lack of awareness regarding the use of interdental aids, necessitating further study and targeted intervention among undergraduate dental student.

Keywords: - Interdental Aids, dental students, knowledge, dental health practices

INTRODUCTION

Dentists serve as primary educators in advocating and guiding individuals toward maintaining optimal oral hygiene practices. While toothbrushing remains a widely understood and practiced aspect of oral care, the awareness and significance of utilizing interdental aids seem to lag behind. The role of these aids in enhancing oral health by accessing interproximal spaces and preventing periodontal diseases is often underestimated¹. Considering this disparity in awareness and the critical role of interdental aids, the current study aims to delve into the fundamental understanding and awareness levels among dental undergraduate students.²

The hypothesis driving this research stems from the observed inadequacy in acknowledging the importance and understanding of interdental aids among dental students. This gap in knowledge poses a concern as dental professionals are pivotal in not only maintaining their own oral health but also in educating and encouraging their future patients regarding comprehensive oral hygiene practices.

OBJECTIVE

The objective of this study is distinctly outlined to comprehensively assess the basic knowledge of various interdental aids among undergraduate dental students. In pursuit of this objective, a meticulously structured self-administered questionnaire, consisting of 12 meticulously formulated questions, was deployed as a pilot study. This questionnaire served as the primary tool to evaluate the depth of knowledge pertaining to interdental aids among dental undergraduates.

MATERIAL AND METHODS:

Study Design: This study utilized a self-structured questionnaire-based pilot design to evaluate the knowledge of interdental aids among dental undergraduate students. The questionnaire comprised 12 carefully formulated questions aimed at assessing the participants' understanding of various interdental aids.

Participant Selection: A total of 144 dental undergraduate students voluntarily participated in this study. Participants were recruited from using convenience sampling, ensuring representation across different academic years.²

Questionnaire Development: The questionnaire was meticulously designed by experts in the field, drawing inspiration from existing literature and previous studies related to interdental aids awareness among dental professionals. The questions were structured to

evaluate the participants' familiarity with different types of interdental aids, their applications, potential disadvantages, and criteria for selection.³

Data Collection: Participants were provided with the self-structured questionnaire and were given clear instructions on how to complete it. The questionnaire was administered during, ensuring a standardized approach to data collection.³

Statistical Analysis: The collected data were subjected to rigorous statistical analysis. Descriptive statistics were employed to analyse the participants' responses, providing an overview of the level of knowledge and awareness regarding interdental aids among the dental undergraduate cohort.

Limitations: It's essential to acknowledge certain limitations inherent in the study. These might include potential biases due to the sampling method, the self-report nature of the questionnaire, and the limited scope of questions⁴, which might not fully encompass all aspects of interdental aid knowledge among dental students.

The questionnaire will be circulated among a total of 144 undergraduate dental students of first, second, third, final year and interns through Google Forms. A proper consent will be taken including right to give their personal information such as name, year of study and e-mail id. The collected data will be then put to statistical analysis.

Following Questionnaire will be Distributed:

Enter your Name-

Enter your Email-

Undergraduate Course -BDS

Please Select Year from Following

a) First b) Second c) Third d) Fourth e) Intern
1) Can you Name Five INTERDENTAL AIDS you are Aware of? 2) Have you heard of Dental Floss?
a) Yes b) No
3) What is Dental Floss?
a) Wire to Polish Teeth b) Thread to whiten Teeth c) Thread to Clean Teeth d) Thread to Polish Teeth
4) Dental floss must be used _____
a) Daily b) Weekly c) Monthly d) Used Only When if there Is Spacing in teeth
5) Improper Flossing can lead to:
a) Floss clefts b) Floss cuts c) Both d) None
6) Interdental brush should be changed when
a) Worn and out of shape b) Once in a 3 Months c) Should be Changed after each Use d) None
7) Interdental Brush should be used:
a) After Brushing b) Before Brushing c) No need to use toothbrush while using interdental toothbrush d) None
8) According to you, which factors are necessary in selection of Interdental Cleaning Aids?
a) Type of Gingival Embrasure b) Alignment of teeth c) Contact Area d) All the Above
9) Interdental area is more vulnerable to gingival infection.

Above statement is:

- a) True
- b) False
- c) Don't Know
- d) None

10) Below image depicts which INTERDENTAL AID?

- a) Toothpicks in holders
- b) Oral Irrigator
- c) Powered Toothbrushes
- d) None of the Above

11) Which of the following INTERDENTAL AID is not recommended by dental professionals?

- a) Oral irrigators
- b) Toothpick
- c) Dental floss
- d) Interdental brushes

12) Which of the following Auxiliary Aid is useful for cleaning furcation areas?

- a) Power dental flosser
- b) End tufted brush
- c) Wooden Wedge
- d) None

RESULTS

Out of all participants, 25% were Final year UG followed by First year UG (24.3%) , then Interns (18.9%) and Second year UG (17.4%). The least number of participants were Third year UG (14.6%).

Table 1 depicts distribution of study participants based on class.

Table 1. Distribution of study participants based on Class

Class		Frequency	Percent
Responses	UG I	35	24.3%
	UG II	25	17.4%
	UG III	21	14.6%
	UG IV	36	25%
	Interns	27	18.8%
	Total	144	

In response submitted by dental students, following key revealing were founded:

- Overall, 90% of the dental students demonstrated awareness of basic knowledge regarding interdental aids.⁵
- Specifically, 55.56% exhibited familiarity with the usage of these aids, while 67.4% were aware of their potential disadvantages.
- Notably, approximately 84% of the participants showcased an understanding of the selection criteria for interdental aids. These statistics underscore a varying depth of awareness among the dental undergraduate cohort regarding different aspects of interdental aids, highlighting potential areas for targeted educational interventions.

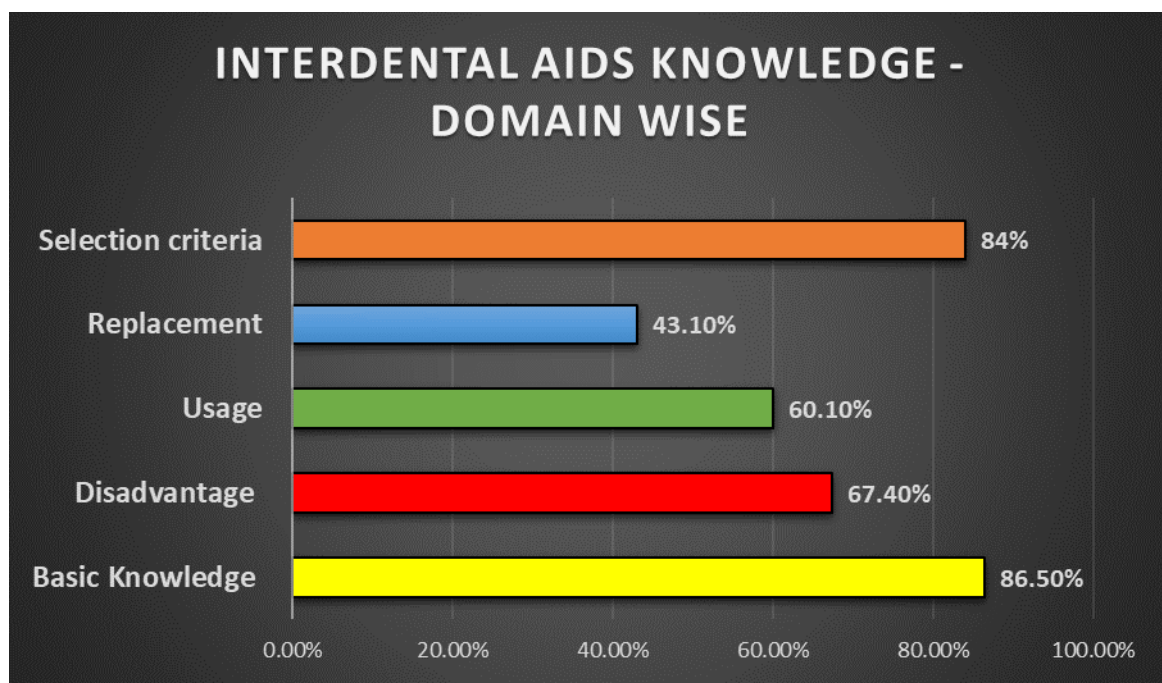


Figure: overall graph depicting domain wise knowledge of interdental aids among UG Students

Table: - Analysis of each of the questions along with its correct answer

Questions	Correctly Identified n/N (%)	Chi square test	P value, Significance
Could name 5 interdental aids	96/144 (66.6%)	Chi = 16.0	p< 0.001**
Heard of dental floss	137/144 (95.1%)	Chi = 117.361	p< 0.001**
What is dental floss	138/144(95.8%)	Chi = 121.0	p< 0.001**
4) dental floss must be used	94/144(65.3%)	Chi =13.444	p< 0.001**
5) improper flossing can lead to	97/144(67.4%)	Chi = 17.361	p< 0.001**
6) interdental brush should be changed when	62/144(43.1%)	Chi = 2.778	p =0.096 (NS)
7) interdental brush should be used	79/144(54.9%)	Chi = 1.361	p =0.243 (NS)
8) which factors are necessary in selection of interdental cleaning aids?	121/144(84%)	Chi = 66.694	p< 0.001**
9) interdental area is more vulnerable to gingival infection true or false	110/144(76.4%)	Chi = 40.111	p< 0.001**
10) image depicts which interdental aid	122/144(84.7%)	Chi = 69.444	p< 0.001**
11) interdental aid not recommended by dental professional	116/144(80.6%)	Chi = 53.778	p< 0.001**
12) Auxiliary Aid is useful for cleaning furcation areas	67/144(46.5%)	Chi = 0.694	p =0.405 (NS)

p>0.05 – not significantly (NS)

**P< 0.001 – highly significant

In the realm of statistical significance, it's intriguing to note that for questions like q6, q7, and q12, participants didn't demonstrate a statistically significant ability to answer correctly (p>0.05). This highlights particular areas where the participants may have struggled to grasp the underlying concepts or details related to those specific questions.

Conversely, for all other questions, participants showcased a statistically significant capability to answer correctly ($p < 0.05$). This signifies a strong understanding and competence among the participants in comprehending and addressing the majority of the queries posed, underscoring their overall grasp of interdental aid knowledge.

DISCUSSION

In dental practice, a profound understanding and effective use of interdental aids play a pivotal role in preventing oral diseases. Elevating awareness and proficiency among dental students directly impact their future practices, ensuring they become adept educators for their patient's oral health⁶. Ultimately, this leads to enhanced overall oral hygiene and reduced prevalence of oral diseases within the community. A cohort comprising 144 undergraduate dental students voluntarily participated in this study, contributing their insights and perspectives. The responses gathered were subjected to statistical analysis, aiming to extract comprehensive information into the baseline understanding of interdental aids within this cohort.

It was revealed that a considerable 90% of the dental student cohort exhibited a baseline awareness of basic knowledge concerning interdental aids. However, the study revealed disparities in the depth of knowledge regarding usage, drawbacks, and selection criteria of interdental aids, indicating areas necessitating substantial improvement to influence real-life oral health practices significantly.

However, the depth of this understanding varied when evaluating their usage, as only 55.56% demonstrated familiarity with their application. Moreover, 67.4% showcased an understanding of potential disadvantages associated with interdental aids.

The majority of our first- and second year BDS students lacked adequate knowledge regarding interdental aids; their understanding increases marginally in the third year, but primarily in the fourth year and in the internship phase, they will begin prescribing interdental aids to patients who qualified. This indicates the possible reason for less positive response of correct answers in first- and second-year undergraduate students as compared to third, final year undergraduate students and interns. Although our curriculum appears to provide some instruction on interdental aids and their usage, it does not appear to be sufficient to qualify and inspire them to confidently demonstrate the material to patients. Students exhibit a profound deficiency in understanding with respect to the application and purpose of interdental aids. Inadequate knowledge of how to use interdental aids was one of the primary obstacles to its adoption by students, followed by a lack of time^{7,8}. Several factors might contribute to the observed knowledge variations. Cultural influences, disparities in educational modules, and the evolving nature of oral hygiene practices in different regions could impact the depth of awareness among dental students⁹. Clinical exposure to diverse patient demographics during training might also significantly influence their understanding and application of interdental aids.

Also, to our observation, around 84% of the participants showcased an awareness of the selection criteria pertaining to these aids. These statistics hint that students are well aware of certain factors regarding interdental aids but seem to have a potential gap in understanding and their application, particularly in utilizing interdental aids effectively.

The disparity in statistical significance regarding certain questions draws attention to potential focal points for improvement. For instance, q6, q7, and q12 might necessitate targeted interventions to enhance comprehension and retention of those specific aspects of interdental aid knowledge among dental students.

Understanding these statistical differences guides the direction for certain educational initiatives apart from the curriculum. By focusing on the areas where statistical significance wasn't achieved, educators and curriculum designers can refine teaching methods to ensure a more comprehensive and robust understanding of all facets of interdental aid usage, drawbacks, and selection criteria among future dental professionals.

Comparatively analysing our findings with existing literature, highlights a good general understanding of interdental aids among dental students. Diverse researchers have documented the findings concerning the influence of education on dental students' attitudes, behaviours, and proficiency in oral hygiene¹¹. Several studies (Cortes et al.¹², Lang et al.¹³, Cavaillon et al.¹⁴, Yildiz et al.¹⁵) have observed that students' oral hygiene practices have significantly improved throughout their academic careers. In contrast, El-Mostehy et al.¹⁶ observed that despite receiving education and information, there was no discernible improvement in the oral hygiene practices of one hundred Egyptian students during their investigation and it unveiled awareness of limitations associated with these aids.¹¹ This may emphasize the urgent need for targeted educational initiatives to bridge these gaps and equip future dental professionals with comprehensive practical knowledge regarding interdental aids.

The implications of these revelations echo profoundly in dental practice. As key influencers in patient's oral health, dental professionals must possess extensive knowledge and practical adaptness in utilizing interdental aids. Our study also underscores the possible necessity for raising the awareness of interdental aids and their usage among society as a whole and not just focusing their attention on dental students and dentists.

Acknowledging the study's limitations, such as its scope and sample size, is crucial. Future research endeavours could delve into assessing the efficacy of specific educational interventions in augmenting practical proficiency with interdental aids among dental students. Longitudinal studies evaluating the enduring impact of tailored education on oral health practices among graduating dentists could yield invaluable insights.¹⁰

CONCLUSION: -

The findings gleaned from this sample highlight a good basic knowledge of interdental aids among dental students. However, the study also signifies prevalent lack of awareness regarding the practical application and potential drawbacks of interdental aids among undergraduate dental students. These revelations call for further in-depth investigations and targeted interventions to foster a more profound understanding and practical implementation of interdental aids among future dental professionals.

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