Evaluation of the Oral Health Knowledge, Attitude and Behaviour of the Preclinical and Clinical Dental Students

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Abstract:
Introduction: Dentists play a very crucial part in the oral health education of the community. thus it is essential to know the level of their knowledge, attitude and behaviour towards the maintenance of oral health at the undergraduate level. Aim: to assess the oral health knowledge, attitude and behaviour between preclinical and clinical dental students. Materials and Method: A cross-sectional study was performed on 282 dental college students from 1st to 4th year of Maharashtra Institute of Dental Science and Research, Latur in the year of June – December 2022 and was executed with the help of self-administered questionnaire (SAQ). Percentage analysis was performed with the help of data collected using the self-administered questionnaire. Result: The contradiction in scores of oral health knowledge, attitude and behaviour between preclinical and clinical dental students was found notable based on the data collected. The differences in scores of knowledge, attitude and behaviour also showed remarkable increase with the year of Study. The Present research thus showed enhancement of knowledge, attitude and behaviour with the academic years and need of conducting oral health education programs for students for improving their knowledge of Oral Health. Conclusion: Even though oral health knowledge, attitude and behaviour displayed improved results from 1st to 4th year dental students, it ought to be improved in order to serve better for the society within the future.

Introduction

Oral health is the condition of the mouth, teeth and orofacial structures that permit individuals to carry out vital functions which include eating, breathing and speaking and encompasses psychosocial dimensions like self-confidence, well-being and the capability to socialize and work without pain, discomfort and embarrassment. Oral health is a primary indicator of overall health, well-being and quality of life.

The prevention of oral disease is the widely recognised and effective method for assuring oral health. Oral health is now acknowledged to be equally crucial with regards to general health.[2]

In India, dental education system accepts aspirants from various socio-economic backgrounds who become permitted to study dentistry based upon their score in state entrance examinations. The dental Curriculum in India consists of four years, that are divided in two parts: Pre-clinical years (1st year and 2nd year) and Clinical years (3rd year and 4th year) and 1 year of rotatory internship.[5]

The initial years of dental curriculum in India mainly occupied with basic medical science subjects; accordingly, the first 2 years (1st year & 2nd year) are considered as "Preclinical", while the subsequent 2 years (3rd year & 4th year) are regarded as "Clinical" as they accommodate the clinical - oriented subjects.

Dental students in India are only introduced to the preventive aspects of oral health in second half; hence, their level of dental education can change oral health behaviour. Moreover, males and females have contrasting physiological and psychological behaviour, so it is feasible that their oral health behaviour might be different too. Age may also be a determinant, as many clever students who score well in state entrance examinations join dental colleges. The Students who want to join dental colleges but did not succeed in the first attempt reappear for the exams in the following year. Hence, the most of the intelligent students are of younger age at a particular level of dental education.[5]

It is of foremost need that, as the dental students are experts in conditions related to oral regions, they have righteous knowledge, attitude and expertise in oral health behaviours.[1]

The attitude and behaviour towards oral health maintenance of the dental professionals indicate their understanding of the preventive oral health measures, and this is essential for the improvement of their patient's oral health.[1]

Before dental professionals are trained as oral health educators, there is a prerequisite to determine the status of their own oral health Attitude, knowledge and behaviours.[7]

Dental students generally have been found to have a positive attitude toward oral health. Oral health behaviour of dental students ought to be improved if they are to act as positive models for their Patients, families and friends.

This study was put together to study and comparatively analyse between preclinical and clinical students about oral health knowledge, attitude and behaviour.

MATERIALS AND METHOD

Design

The present study had been designed as a descriptive cross-sectional study utilizing a self-administered questionnaire (SAQ) that was developed and disseminated digitally through Maharashtra Institute of Dental Science and Research, Latur, Maharashtra. The study was carried out in the month of June - December of the academic year 2021-2022.

A total of 25 questions were designed to evaluate the oral health knowledge, attitude and behaviour of students between male and female students; and between preclinical and clinical students. The questionnaire was in the format multiple choice questions (MCQ) and yes/no type questions. The students were instructed to pick up only one answer for each question. The students were permitted to interact with the study committee for the meaning of any word or question.

The first part of self-administered questionnaire (SAQ) was related to demographic data (age, gender, academic year of students). The second part consisted of eight questions to assess oral health behaviour (Type, Frequency and Duration of Cleaning teeth, Use of Ideal Brushing Technique, having Bleeding Gums, Use of Other Oral Hygiene Aids, cleaning of tongue, about visit to a dentist). The third part consisted of eight questions to assess the attitude toward the dental profession (Colour of teeth, About Bad Breath, Visit to Dentist, Gutkha/tobacco chewing/smoking habit, well cleaning of teeth without toothpaste, Immediate replacement of missing teeth, Effect of Hardness of bristles, Dentist cares treatment not prevention) toward professional dental care among the study subject. The fourth part consisted of Nine questions related to dental and periodontal health knowledge (Effect of retention of sweet food on teeth, total number of teeth, main purpose of brushing, meaning of gum bleeding, effect of fluorides on teeth, reasons of oral cancer, irregularly placed teeth corrections, effect of oral health on health of body, dental plaque) among the study sample.

Differences between Oral health behaviour, Attitude and Knowledge of preclinical students and clinical students were compared. Percentage analysis was performed with the help of Data collected using the self-administered questionnaire.

Participants

The target population of the present study was dental students who were enrolled at Maharashtra Institute of Dental Science and Research, Latur, Maharashtra during the academic year 2021/2022.

A total 282 Dental Students of 1st to 4th year of Maharashtra Institute of Dental Science and Research, Latur, Maharashtra voluntarily participated in the study. It included 57 of 1st year, 72 of 2nd year, 13 of 3rd year and 140 of 4th year. Out of these 282 Students, 222 are female and 60 Students are male.

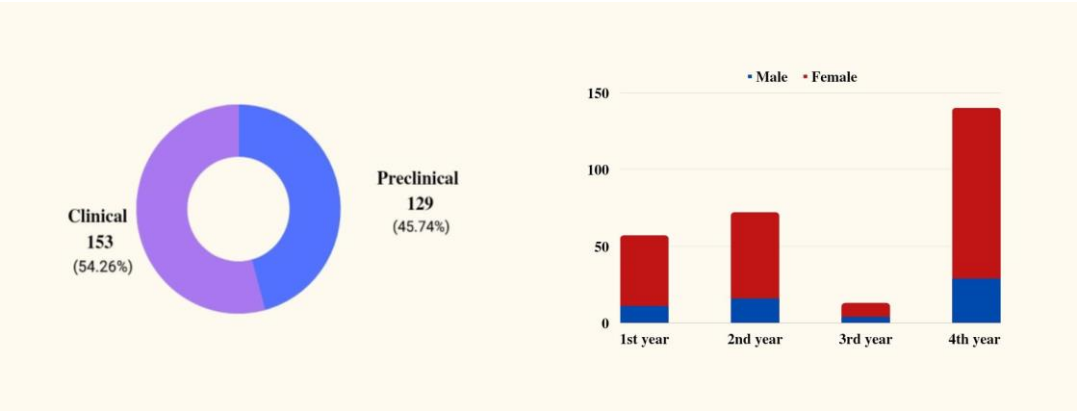
The study was promoted during lectures and practical classes of all academic years from in the College

The students were able to access the SAQ through uniform resource locator (URL). The students were guaranteed that their identity was anonymous and the decision to participate was entirely voluntary which had no impact on their academic grading. The students who did not give their consent to participate and those who had incomplete responses were ruled out from the final analysis.

Ethics

The Institutional Ethics Committee of the Maharashtra Institute of Dental Science and Research, Latur under Registration No. MIDSR/STU/IEC – 107/837/2022 approved the study.

Results



A total of 282 dental students from 1st, 2nd, 3rd and 4th year participated in the study (Table 1 and Graph). Out of 282, 129 (45.74%) students were Preclinical students and 153 (54.26%) students were Clinical (Pie Chart 1). 222 (78.72%) female students and 60 (21.28%) male students participated in this study. The majority of the participants were from 4th year (49.65%) while least were from 3rd year (4.61%).

Pie chart 1: Distribution of Preclinical and Clinical dental students.

Table.1: Distribution of dental students according to their academic years and gender.

Year of Study	Male	Female	Total
1st year	11	46	57 (20.21%)
2nd year	16	56	72 (25.53%)
3rd year	04	9	13 (4.61%)
4th year	29	111	140 (49.65%)
Total	60 (21.28%)	222 (78.72%)	282

Graph 1: Distribution of dental students according to their academic year and gender.

Oral Health Behaviour:

59.69% of Preclinical and 62.09% of Clinical students do not practice oral hygiene aids like floss and mouthwash (Q.6). 63.57% of Preclinical and 73.86% of Clinical students think that dentist should be visited regularly and not only after having toothache (Q.8). In most of the questions related to oral health behaviour clinical students presented similar or superior results to the Preclinical group (Table 2).

Oral Health Attitude:

45.74% of Preclinical and 62.75% of Clinical Students visited to a dentist regularly (Q.10). The number of Clinical students who worried about bad breath (40.52%) are significantly higher than Preclinical students (28.68%) (Q.9). Nevertheless, Clinical dental students showed better Oral Health Attitudes than the Preclinical group in most of the questions related to oral health attitude (Table 3).

Questions	Responses	Total	Preclinical	Clinical
Q.1 " Type of Tooth Cleaning "	Correct	279 (98.94%)	128 (99.22%)	151 (98.69%)
	Incorrect	3 (1.06%)	1 (0.78%)	2 (1.31%)
Q 2 " Frequency of Cleaning "	Correct	167 (59.22%)	74 (57.36%)	93 (60.78%)
	Incorrect	115 (40.78%)	55 (42.64%)	60 (39.22%)
Q 3 " Duration of Cleaning "	Correct	146 (51.77%)	68 (52.71%)	78 (50.98%)
	Incorrect	136 (48.23%)	61 (47.29%)	75 (49.02%)
Q.4 " Do you use Ideal Brushing Technique "	Correct	216 (76.6%)	97 (75.19%)	119 (77.78%)
	Incorrect	66 (23.4%)	32 (24.81%)	34 (22.22%)
Q.5 " Do you have Bleeding Gums "	Correct	270 (95.74%)	122 (94.57%)	148 (96.73%)
	Incorrect	12 (4.26%)	7 (5.43%)	5 (3.27%)
Q.6 " Do you Use Dental floss / Mouthwash / Other Oral Hygiene Aids Regularly ? "	Correct	110 (39.01%)	52 (40.31%)	58 (37.91%)
	Incorrect	172 (60.99%)	77 (59.69%)	95 (62.09%)
Q.7 " Do you Clean your Tongue ? '	Correct	267 (94.68%)	121 (93.8%)	146 (95.42%)
	Incorrect	15 (5.32%)	8 (6.2%)	7 (4.58%)
Q.8 " Visit to a Dentist should only be after having a Toothache ? "	Correct	195 (69.15%)	82 (63.57%)	113 (73.86%)
	Incorrect	87 (30.85%)	47 (36.43%)	40 (26.14%)

Table 2: Percentage analysis of "Correct" and "Incorrect" responses to questions of Oral Health Behaviour comparing the Preclinical and Clinical dental students.

Oral Health Knowledge:

No significant differences were observed between Preclinical and Clinical dental students for meaning of bleeding gums (Q.20), reason of oral cancer (Q.22), effect of fluoride on teeth (Q.21), treatment for irregularly placed teeth (Q.23). Strongly significant difference is seen in responses as 56.59% of Preclinical and 92.8% of Clinical dental students knew the meaning of dental plaque (Q. 25). Clinical students presented superior knowledge to Preclinical group (Table 4).

Table 3: Percentage analysis of "Correct" and "Incorrect" responses to questions of Oral Health Attitude comparing the Preclinical and Clinical dental students.

Questions	Responses	Total	Preclinical	Clinical
Q.9 " Do you feel worried about Bad Breath? "	Correct	99 (35.11%)	37 (28.68%)	62 (40.52%)
	Incorrect	183 (64.89%)	92 (71.32%)	91 (59.48%)
Q.10 " Dentist should be visited regularly ? "	Correct	155 (54.96%)	59 (45.74%)	96 (62.75%)
	Incorrect	127 (45.04%)	70 (54.26%)	57 (37.25%)
Q.11 " Do you worried about Colour of Teeth ? "	Correct	136 (48.23%)	54 (41.86%)	82 (53.59%)
	Incorrect	146 (51.77%)	75 (58.14%)	71 (46.41%)
Q.12 " Do you think Tobacco / Gutkha chewing or Smoking is a Bad habit ? "	Correct	261 (92.55%)	120 (93.02%)	141 (92.16%)
	Incorrect	21 (7.45%)	9 (6.98%)	12 (7.84%)
Q.13 " Well Cleaning of Teeth can be done without using Toothpaste ? "	Correct	243 (86.17%)	108 (83.72%)	135 (88.24%)
	Incorrect	39 (13.83%)	21 (16.28%)	18 (11.76%)
Q.14 " Immediate replacement of missing teeth with Artificial teeth is necessary or not ? "	Correct	239 (84.75%)	100 (77.52%)	139 (90.85%)
	Incorrect	43 (15.25%)	29 (22.48%)	14 (9.15%)
Q.15 " Hardness of Bristles have any Effect on Teeth or Gums ? "	Correct	264 (93.62%)	118 (91.47%)	146 (95.42%)
	Incorrect	18 (6.38%)	11 (8.53%)	7 (4.58%)
Q.16 " Dentist plays role only in Treatment part and not in the Prevention ? "	Correct	223 (79.08%)	104 (80.62%)	119 (77.78%)
	Incorrect	59 (20.92%)	25 (19.38%)	34 (22.22%)

Table 4: Percentage analysis of "Correct" and "Incorrect" responses to questions of Oral Health Knowledge comparing the Preclinical and Clinical dental students.

Questions	Responses	Total	Preclinical	Clinical
Q.17 " Effect of Retention of Sweet food on Teeth "	Correct	268 (95.04%)	122 (94.57%)	146 (95.42%)
	Incorrect	14 (4.96%)	7 (5.43%)	7 (4.58%)
Q.18 " Total Number of Deciduous & Permanent Teeth ? "	Correct	277 (98.23%)	129 (100%)	148 (96.73%)
	Incorrect	5 (1.77%)	0 (0%)	5 (3.27%)
Q.19 " Main Purpose of Tooth Brushing "	Correct	258 (91.49%)	118 (91.47%)	140 (91.5%)
	Incorrect	24 (8.51%)	11 (8.53%)	13 (8.5%)
Q.20 " Meaning of Gum Bleeding "	Correct	271 (96.1%)	120 (93.02%)	151 (98.69%)
	Incorrect	11 (3.9%)	9 (6.98%)	2 (1.31%)
Q.21 " Effect of Fluorides on Teeth "	Correct	239 (84.75%)	108 (83.72%)	131 (85.62%)
	Incorrect	43 (15.25%)	21 (14.29%)	22 (14.38%)
Q.22 " Reasons of Oral Cancer "	Correct	272 (96.45%)	126 (97.67%)	146 (95.42%)
	Incorrect	10 (3.55%)	3 (2.33%)	7 (4.58%)
Q.23 " Is it possible to correct Irregularly Placed Teeth ? "	Correct	266 (94.33%)	115 (89.15%)	151 (98.69%)
	Incorrect	16 (5.67%)	14 (10.85%)	2 (1.31%)
Q.24 " Can Health of Teeth and Mouth affect Health of Body ? "	Correct	273 (96.81%)	124 (96.12%)	149 (97.39%)
	Incorrect	9 (3.19%)	5 (3.88%)	4 (2.61%)
Q.25 " Meaning of Dental Plaque "	Correct	215 (76.24%)	73 (56.59%)	142 (92.8%)
	Incorrect	67 (23.76%)	56 (43.41%)	11 (7.19%)

Discussion

Dental students should be a good example of positive oral health attitude and behaviour to their families, patients and friends. Generally they have been found to be motivated about maintaining a good oral health. Self reported oral health practices among dental student and differences by year of study were analysed.

About 60.78% of clinical dental students and 57.36% of preclinical students brushes their teeth twice a day compared to 39.22% of clinical dental students and 42.64% of preclinical dental students who brushes their teeth once a day. 3.27% of clinical and 5.43% preclinical dental students had bleeding gums.

77.78% of clinical and 55.19% of preclinical students use the ideal brushing technique to clean the teeth. This showed that the students in this study paid good attention to their oral hygiene maintenance although there is need for increasing awareness in dental students about oral hygiene maintenance.

40.31% of preclinical and 37.9% of clinical dental students use oral hygiene aids like floss and mouthwash. This showed slight negligence of clinical dental students as compared to preclinical students towards oral hygiene maintenance.

62.75% of clinical students agree to regular visit to dentist compared to 45.74% preclinical dental students. This suggests that the level of students oral health awareness may have been influenced by their course contents.

58.14% and 71.32% of the preclinical students are not concerned about their colour of teeth and bad breath, this suggests that the preclinical students are less concerned about aesthetics and halitosis

No significant difference in the opinion was observed between preclinical and clinical students about hazards of smoking and tobacco chewing.

The questions of attitude like well cleaning of teeth without toothpaste, immediate replacement of missing teeth, effect of hard bristles on teeth and gum and dentist cares treatment not prevention had shown much higher frequency of correct answers from both clinical and preclinical students.

Overall knowledge among preclinical and clinical dental students in this study was good, although they had deficits in knowledge in few areas. Oral health education needs to be provided in those area where there are deficits in knowledge. The dental students in our study were lacking in the knowledge about dental plaque and effect of fluorides.

In accordance with several studies the result of this study confirmed that overall health attitude and behaviour improves with increasing level of educations. This improvement in personal oral health among dental student has been shown to be linked to their dental education experience.

One of the limitations on this type of studies as the source depends on self reported data, the result may be biased though, over and under reporting due to social desirability, though confidentiality is maintained.

Conclusion

To have a positive attitude regarding good oral health practices, knowledge of the health professionals must be improved which will eventually reflect in the community they are practicing as they are the future health professionals. We must accentuate on the programs that will help in increasing awareness and improving knowledge about oral health among dental students.

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Self-administered questionnaire (SAQ)

(c) – correct answer of Self-administered questionnaire

1. Type of Tooth Cleaning
   - Toothbrush (c)
   - Finger
   - Twigs
   - Specify If any other _____
2. Frequency of Cleaning :
   - Once in a Day
   - Twice in a Day (c)
   - More than Twice in a day
3. Duration of Cleaning :
   - Less than 2-3 min.
   - 2-3 min. (c)
   - 5 min.
   - 10 min.
4. Do you use Ideal Brushing Technique ?
   - Yes (c)
   - No
5. Do you have Bleeding Gums ?
   - Yes
   - No (c)
   - Sometimes
6. Do you Use Dental floss / Mouthwash / Other Oral Hygiene Aids Regularly ?
   - Yes (c)
   - No
7. Do you Clean your Tongue ?
   - Yes (c)

- No

8. Visit to a Dentist should only be after having a Toothache ?
   - Yes
   - No (c)
9. Do you Feel worried about Bad Breath ?
   - Yes (c)
   - No
   - Sometimes
10. Dentist should be visited regularly ?
   - Yes (c)
   - No
11. Do you worried about Colour of Teeth ?
   - Yes (c)
   - No
12. Do you think Tobacco / Gutkha chewing or Smoking is a Bad habit ?
   - Yes (c)
   - No
13. Well Cleaning of Teeth can be done without using Toothpaste ?
   - Yes
   - No (c)
14. Immediate replacement of missing teeth with Artificial teeth is necessary or not ?
   - Yes (c)
   - No
15. Hardness of Bristles have any Effect on Teeth or Gums ?
   - Yes (c)
   - No
16. Dentist plays role only in Treatment part and not in the Prevention ?
   - Yes
   - No (c)
17. Effect of Retention of Sweet food on Teeth :
   - Can lead to Decaying of teeth (c)
   - Calcium Deficiency
   - Leads to Bleeding Gums
   - Don't Know
18. Total Number of Deciduous & Permanent Teeth ?
   - 5 & 24
   - 20 & 32 (c)
   - 32 & 32
   - Don't Know
19. Main Purpose of Tooth Brushing :
   - Prevention of Tooth decay & Gum Disease (c)
   - Achievement of Cleaner & Brighter Teeth
   - To remove stains on Teeth
   - Don't Know
20. Meaning of Gum Bleeding :
   - Gum disease (Inflammation of Gums) (c)
   - Infection of Tooth
   - Calcium Deficiency
   - Don't Know
21. Effect of Fluorides on Teeth :
   - Prevention of Gum disease
   - Prevention of Tooth Decay (c)
   - Cleaning of Teeth
   - Don't Know.
22. Reasons of Oral Cancer :
   - Calcium Deficiency
   - Gutkha & tobacco Chewing, Smoking (c)
   - Vit. C Deficiency
   - Don't Know
23. Is it possible to correct Irregularly Placed Teeth ?
   - Yes (c)

- No
- Don't Know

24. Can Health of Teeth and Mouth affect Health of Body ?
    - Yes (c)
    - No
25. Meaning of Dental Plaque :
    - Discoloration of Teeth
    - Soft Deposits on Teeth (c)
    - White patches on Teeth
    - Don't Know