

# Awareness of Oral Hygiene Methods of the Dental Students: A Pilot Survey

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## ABSTRACT

**Background:** The attitude and behavior of oral health providers towards their own oral health reflect their understanding of the importance of preventive dental procedures and of improving the oral health of their target population. Present study was conducted with to evaluate the knowledge, attitude and oral hygiene practices through self-reported awareness questionnaire amongst dental students.

**Methods:** A total sample of 200 dental students was randomly chosen, out of which 90(45%) were male and 110(55%) were female students. Self-reported questionnaire was distributed to all the subjects to evaluate awareness of oral hygiene methods and attitude of dental students towards was analyzed.

**Results:** According to the results obtained from the survey 96.5% of the students were aware of the importance of oral hygiene in their life. Amongst all 200 dental students, 39.5% were influenced by mass media for selection of their oral hygiene aids. It was reported that 90.5% of the subjects used toothbrush with toothpaste, 50.5% of the students used medium type of toothbrush and 50% of the subjects followed circular pattern of tooth brushing. Forty-one (41%) use chewing gums to mask their bad breath. It was further analysed that 76% of the students

knew about interproximal cleaning whereas 63% had no knowledge about gingival massage.

**Conclusion:** It can be concluded that the dental students do have some knowledge about oral hygiene methods, but it can be improved if they put it in their practice since the very beginning of first year.

**Keywords:** Attitude, dental students, knowledge, oral hygiene practices.

## INTRODUCTION

Health is defined as “a state of complete physical, mental and social well-being and not merely the absence of diseases or illness”.<sup>1</sup> Oral health is “a standard of health of the oral and related tissues which enables an individual to eat, speak and socialize without active disease, discomfort or embarrassment and which contributes to general well-being”.<sup>2</sup> Although dental diseases are not lethal, still they are detrimental to the quality of life throughout the lifetime and can influence the self-esteem, nutrition and health of an individual.<sup>3,4</sup> “Recommended oral self-care practices” is an effective preventive method for maintaining good oral health as part of overall health at individual level.<sup>5</sup>

Health behaviour is the action taken to maintain and promote health; in addition it also helps to prevent diseases. As oral diseases are primarily considered behavioural diseases, hence, adopting healthy habits is essential to control them. The first step in establishing a habit is to provide relevant information to the patients and to raise their awareness of how to prevent oral diseases.<sup>6</sup> Oral health behaviour consists of individual and professional care, and includes tooth brushing, dental flossing, visiting a dentist and following a proper diet.<sup>7</sup> Biology, environment, life style, health care organizations and psychological factors are essential components of oral health behaviour.<sup>8</sup> Home care is one of the simplest oral health measures, which involves removal of dental plaque with mechanical devices, such as a toothbrush, dental floss and mouth wash.<sup>9</sup>

It is the primary concern of oral health educators or dental professionals to impart a positive oral health knowledge and behaviour in the society,<sup>10</sup> and therefore, they are expected to be an exemplar for their patients and public in general.<sup>5</sup>



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Moreover, their oral health behaviours, their attitude and beliefs, plays and important role in dispensing the knowledge they impart to the general population and their society.<sup>5</sup> After going through an undergraduate dental curriculum; dental students are expected to be a role model for oral health behaviour amongst the community. An important assignment of oral health professionals is to inculcate in their patients the correct oral habits and behaviours to prevent oral diseases.<sup>6</sup> Therefore, the attitude and behavior of oral health providers towards their own oral health reflect their understanding of the importance of preventive dental procedures and of improving the oral health of their target population. Present study was conducted with to evaluate the knowledge, attitude and oral hygiene practices through self-reported awareness questionnaire amongst dental students.

## MATERIALS AND METHODS

This cross-sectional pilot survey was carried out among dental students (n=200) of Saraswati Dental College and Hospital, Lucknow, Uttar Pradesh. The study protocol, self-reported questionnaire and data-collection methods were approved by the Institutional Human Ethics Committee. Participation was voluntary, and all the participants were queried anonymously. The undergraduate dental course is a four year programme followed by one year internship. All these courses are conducted entirely in English.

**Questionnaire:** The self-administered questionnaire which inquired about the attitude of dental students towards oral hygiene, their dental awareness and the oral hygiene methods adopted by them in relation to usage of toothbrush, type of tooth-brush, pattern of tooth-brushing, interproximal brushing, use of dental floss and use of mouthwashes. The questionnaire was prepared after reviewing the literature and making modifications as per the requirement. The dental students were asked to fill questions about their awareness of routine oral hygiene methods which comprised of attitude of students towards oral hygiene and oral hygiene methods. All the willing-participants were asked to stay after the lectures. They were asked to answer all questions after full-explanation of the purpose of the study. The questionnaire was divided into three parts. First part pertains to general attitude of the dental students, second part related to awareness of oral hygiene habits of dental students, and third part consist of questions on the oral hygiene methods used by dental students (Fig. 1). The questionnaires were collected in person immediately after completion.

**Statistical Analysis:** The data was analysed using Statistical Package for Social Sciences (SPSS). Chi-square tests were used to analyse the awareness of oral hygiene methods adopted by the dental students. P-value less than 0.05 were considered statistically significant, and a P-value less than 0.001 were considered strongly significant.

**Table 1: Attitude of dental student towards dental hygiene**

| Question   | Options                | Total No. (%) | Total No. of Males (%) | Total No. of females (%) | "p" value           |
|--|------------------------|---------------|------------------------|--------------------------|---------------------|
| Do you know the importance of oral hygiene in your life?   | Yes                    | 193 (96.5%)   | 85 (94.4%)             | 108 (98.1%)              | 0.152               |
|  | No                     | 7 (3.5%)      | 5 (5.5%)               | 2 (1.8%)                 | 0.152               |
| Do you know why/how your oral hygiene gets compromised   | Yes                    | 178 (89%)     | 78 (86.6%)             | 100 (90.9%)              | 0.340               |
|  | No                     | 22 (11%)      | 12 (13.3%)             | 10 (9%)                  | 0.340               |
| Do you like eating junk food too often (chocolates, cold drinks, Pizzas, Burgers etc) especially when stressed out?  | Seldom                 | 18 (9 %)      | 10 (11 %)              | 8 (7.2%)                 | 0.345               |
|  | Occasionally           | 111 (55.5%)   | 48 (53.3%)             | 63 (57.2%)               | 0.577               |
|  | Frequently             | 71 (35.5%)    | 32 (35.5%)             | 39 (35.4%)               | 0.988               |
| Do you try to change your eating habits seeing your role model (favourite film stars, sportsperson, politician etc) whonormally endorse and are brand ambassadors of certain products? | No                     | 121 (60.5%)   | 54 (60%)               | 67 (60.9%)               | 0.896               |
|  | Only to some extent    | 52 (26%)      | 17 (18.8%)             | 35 (31.8%)               | <b>0.038 (S)</b>    |
|  | Yes                    | 25 (12.5%)    | 19 (21.1%)             | 6 (5.4%)                 | <b>0.001 (S)</b>    |
| Do you smoke for   | Do not smoke           | 157 (78.5%)   | 50 (55.5%)             | 107 (97.2%)              | <b>&lt;0.001(S)</b> |
|  | Peer pressure/show off | 12 (6%)       | 11 (12.2 %)            | 1 (0.9 %)                |                     |
|  | Personal gratification | 31 (15.5%)    | 29 (32.2%)             | 2 (1.8%)                 |                     |
| <b>Do media/advertisements influence selection of your oral hygiene aids?</b>  | Yes                    | 79 (39.5%)    | 52 (57.7%)             | 27 (24.5%)               | <b>&lt;0.001(S)</b> |
|  | No                     | 74 (37%)      | 27 (30%)               | 47 (42.7%)               |                     |
|  | Occasionally           | 47 (23.5%)    | 11 (12.2%)             | 36 (32.7%)               |                     |

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**Questions pertaining to general psychology of the students.**

1. Do you know the importance of oral hygiene in your life? **(Yes / No)**
2. Do you know why/how your oral hygiene gets compromised? **(Yes / No)**
3. Do you like eating junk food too often (chocolates, cold drinks, pizzas, burgers etc) especially when stressed out? **(Frequently / Occasionally / Seldom)**
4. Do you try to change your eating habits seeing your ROLE MODEL (favourite film stars, sportsperson, politician etc) who normally endorse and are brand ambassadors of certain food products? **(Yes / No / Only to some extent)**
5. Do you smoke for **(Your personal gratification / Peer pressure / Show off / Do not smoke)**
6. Do media/advertisements influence selection of your oral hygiene aids? **(Yes / No / Occasionally)**

**Questions related to oral hygiene habits of students and their dental awareness**

1. Do you know the effects of bad oral hygiene? **(Yes / No)**
2. Do you know the ill-effects of tobacco use? **(Yes / No)**
3. What are plaque/ calculus? Do you have any idea about it? **(Yes / No)**
4. How many times do you brush your teeth? **(Once / Twice / Thrice)**
5. How frequently do you change your toothbrush? **(Quite often / Once in 3 months / After 6 months)**
6. Do you think toothbrush alone can help you get a sparkling white smile? **(Yes / No)**
7. Do you know what is fluoride and its importance? **(Yes / No)**
8. Do you think vigorous brushing helps to clean your teeth properly? **(Yes / No)**
9. Do you know the areas where there is maximum plaque accumulation? **(Yes / No / Never made an attempt to know)**
10. Have you ever been poked by someone for your bad breath? **(Yes / No)**
11. Do you use any of the following to MASK your bad breath? **(Mouth fresheners / Chewing gums / Mouth-spray / Flavoured pan masala / Any other)**

**Questions on the oral hygiene methods used by dental students**

1. Have you ever visited a dentist for ANY of your dental problems? **(Yes / No)**
2. Which oral hygiene method do you often practise? **(Toothbrush / Brush with toothpaste / Datin / Any other)**
3. At what age do you remember, brushing your teeth for the first time ever (<2yrs / 2-4yrs / hard to remember)
4. What type of toothbrush do you use? **(Hard / Medium / Soft / Ultra-soft)**
5. What pattern of tooth brushing do you follow? **(Circular / Horizontal / Vertical / Sweeping / Haphazard)**
6. Has your pattern of tooth-brushing changed, now when you have entered into the field of dentistry? **(Yes / No)**
7. In what form do you use dentrifices? **(Toothpaste / Toothpowder / Gels)**
8. Do you know that excess of toothpowder can cause loss of tooth structure (abrasion) **(Yes / No)**
9. Are you aware of what powered toothbrushes are and have you ever used them? **(Yes / No)**
10. Have you got any idea of what inter proximal tooth cleaning is? **(Yes / No)**
11. Do you have an idea about dental floss/flossing? **(Yes / No / Seen it but never tried it)**
12. Do you often use a toothpick after your meals (though it is not recommended)? **(Frequently / Occasionally / Seldom)**
13. Have you ever practised gingival massage? **(Yes / No)**
14. Do you use oral rinses/mouthwashes? **(Yes / No)**
15. Being a responsible citizen of India will you contribute towards making it a tobacco free country by spreading awareness of ill effects of tobacco use especially amongst youngsters? **(Positively Yes / Not Sure / Never)**

Figure 1: Questionnaire

## RESULTS

The study sample consisted of 200 dental students with 48 students of 1<sup>st</sup> year, 38 students of 2<sup>nd</sup> year, 40 students of 3<sup>rd</sup> year, 44 students of 4<sup>th</sup> year while 30 students were interns (Figure 2). The study incorporated 90(45%) males and 110(55%) females (Figure 3).

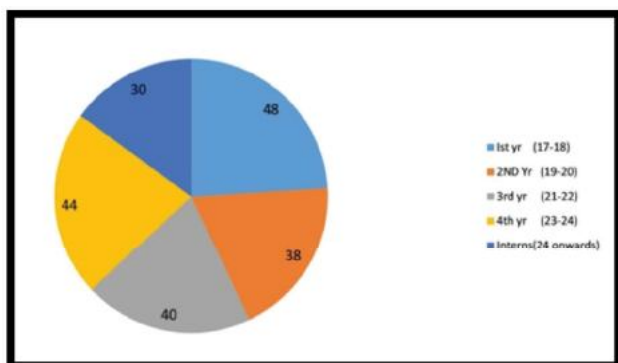


Figure 2: Distribution of dental students year-wise

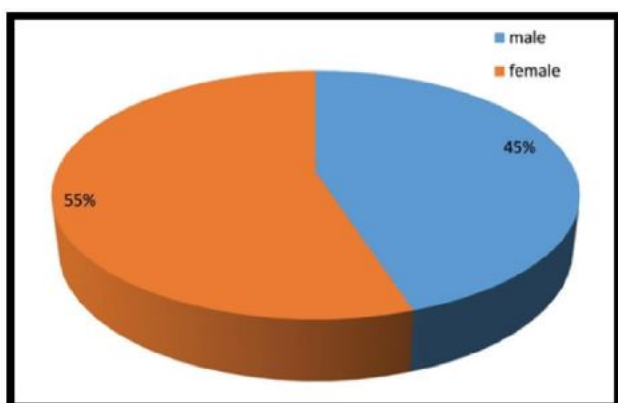


Figure 3: Gender-wise distribution of participants

*Attitude of dental students towards dental hygiene* (Table 1): Results of the survey showed that 96.5% of the dental students knew about the importance of oral hygiene in their lives and 89% of them knew why and how their oral hygiene gets compromised. Total of 55.5% of the dental students reported that they occasionally ate junk food when stressed out. Total of 60.5% of them do not get affected and thereby change their eating habits seeing endorsements **done by their favourite film stars, sportspersons etc**, whereas 39.5% of students reported to have the influence of media in selection of their oral hygiene aids. It was analysed that 78.5% of them did not smoke. Although majority of the dental students (60.5%) are not influenced by “role model (favourite film stars, sports-person, politician etc), however, 21.1% of males dental students answered “yes” for “Do you try to change your eating habits seeing your role model (favourite film stars, sportsperson, politician

*etc) who normally endorse and are brand ambassadors of certain products?”, and the number was highly significant as compared to female dental students participating in the study ( $p < 0.05$ ).*

*Dental Awareness and oral hygiene habits in dental students* (Table 2): Looking into the dental awareness of the dental students, 97% of them knew about the ill effects of bad oral hygiene and effects of tobacco use. Through the results it was noted that 67.5% of students brushed their teeth twice a day and 61% changed their toothbrush after 3-6 months. **Significantly higher numbers of female dental students were aware of “importance of fluoride”** as compared to males. It was reported that 33% of students especially 54.4% of male students thought that vigorous brushing helps to clean teeth properly and 88.1% of female students were well aware of the areas of maximum plaque accumulation. It was analysed from the results that 19.4% including 26.6% of male students at one point of their lives were poked for their bad breadth.

*Oral hygiene methods adopted by dental students* (Table 3): This part of questionnaire analysed the oral hygiene methods adopted by the dental students. Dental students’ answers to these questions revealed that vast majority of them (90.5%) used toothbrush with toothpaste, 50% used circular method for tooth-brushing, 93.5% used dentifrices in the form of toothpaste, 49.5% were aware of powered toothbrushes and had even used them. Responses to the questionnaire also revealed that most of them (59.5%) knew about interproximal cleaning and flossing and 67.5% were using mouthwashes. Majority of dental students (77%) also agreed or strongly agreed to have changed their pattern of tooth-brushing since they have now entered into dentistry and that excess of toothpaste can cause tooth abrasion. At the end of the questionnaire a last question was asked that being a responsible citizen of India if they would contribute in making India a tobacco free country, it was seen that a vast majority of dental students (84%) positively agreed to it and the results so also showed a strongly high level of **significance**.

## DISCUSSION

The pilot survey was conducted in 200 dental students with an aim to provide information about attitude of students towards dental hygiene, dental awareness and oral hygiene habits and methods adopted by dental students. Numerous descriptive, clinical, and health services studies make it clear that health behaviour in general, and oral health behaviour in particular are complex phenomena.<sup>7</sup> Several studies have reported that dental health attitudes become more positive and improved with an increasing level of dental education.<sup>11-14</sup>

In the present study 96.5% of dental students knew the importance of oral hygiene in their life as well as 97%

**Table 2: Dental awareness and oral hygiene habits in dental students**

| Question  | Options               | Total No. (%) | Total No. of Males (%) | Total No. of females (%) | "p" value            |
|---|-----------------------|---------------|------------------------|--------------------------|----------------------|
| Do you know the effects of bad oral hygiene?                            | Yes                   | 194 (97%)     | 84 (93.3%)             | 110 (100%)               | <b>0.006 (S)</b>     |
|   | No                    | 9 (5.2%)      | 9 (10%)                | 0 (0%)                   |                      |
| Do you know the ill-effects of tobacco use?                             | Yes                   | 192 (96%)     | 84 (93.3%)             | 108 (98.1%)              | 0.082                |
|   | No                    | 8 (4.7%)      | 6 (6.6%)               | 2 (1.8%)                 |                      |
| What is plaque & calculus? Do you have any idea about it?               | Yes                   | 189 (94.5%)   | 82 (91.1%)             | 107 (97.2%)              | 0.057                |
|   | No                    | 11 (6.47%)    | 8 (8.8%)               | 3 (2.7%)                 |                      |
| How many times do you brush your teeth?                                 | Once                  | 60 (30%)      | 23 (25.5%)             | 37 (33.6%)               | 0.147                |
|   | Twice                 | 135 (67.5%)   | 63 (70%)               | 72 (65.4%)               |                      |
|   | Thrice                | 5 (2.94%)     | 4 (4.4%)               | 1 (0.9%)                 |                      |
| How frequently do you change your toothbrush?                           | <3 months             | 35 (17.5%)    | 22 (24.4%)             | 13 (11.8%)               | 0.100                |
|   | 3-6 months            | 122 (61%)     | 56 (62.2%)             | 76 (69%)                 |                      |
|   | After 6 months        | 34 (17%)      | 13 (14.4%)             | 21 (19%)                 |                      |
| Do you think toothbrush alone can help you get a sparkling white smile? | Yes                   | 56 (28%)      | 34 (37.7%)             | 22 (20%)                 | <b>0.005 (S)</b>     |
|   | No                    | 144 (72%)     | 56 (62.2%)             | 88 (80%)                 |                      |
| <b>Do you know what is fluoride and its importance?</b>                 | Yes                   | 179 (89.5%)   | 75 (83.3%)             | 104 (94.5%)              | <b>0.010 (S)</b>     |
|   | No                    | 21 (10.5%)    | 15 (16.6%)             | 6 (5.4%)                 |                      |
| Do you think vigorous brushing helps to clean your teeth properly?      | Yes                   | 67 (33.5%)    | 49 (54.4%)             | 18 (16.3%)               | <b>&lt;0.001 (S)</b> |
|   | No                    | 122 (61%)     | 41 (45.5%)             | 81 (85.2%)               |                      |
| Do you know the areas where there is maximum plaque accumulation?       | Yes                   | 156 (78%)     | 59 (65.5%)             | 97 (88.1%)               | <b>&lt;0.001 (S)</b> |
|   | No                    | 32 (16%)      | 22 (24.4%)             | 10 (9%)                  |                      |
|   | Made no attempt       | 12 (7.05%)    | 9 (10%)                | 3 (2.7%)                 |                      |
| Have you ever been poked by someone for your bad breath?                | Yes                   | 33 (19.4%)    | 24 (26.6%)             | 9 (8.1%)                 | <b>&lt;0.001 (S)</b> |
|   | No                    | 167 (83.5%)   | 66 (73.3%)             | 101 (91.8%)              |                      |
| Do you use any of the following to MASK your bad breath?                | Mouth fresheners      | 50 (25%)      | 16 (17.7%)             | 34 (30.9%)               | <b>0.033 (S)</b>     |
|   | Chewing gums          | 82 (41%)      | 35 (38.8%)             | 47 (42.1%)               | 0.583                |
|   | Mouth-spray           | 8 (4%)        | 7 (7.7%)               | 1 (0.9%)                 | <b>0.014 (S)</b>     |
|   | Flavoured pan masala  | 10 (5%)       | 6 (6.6%)               | 2 (1.8%)                 | 0.082                |
|   | Any other             | 23 (13.5%)    | 11 (12.2%)             | 12 (10.9%)               | 0.772                |
|   | Have never used them. | 29 (17.05%)   | 15 (16.6%)             | 14 (12.7%)               | 0.431                |

knew the effects of bad oral hygiene and this was higher when compared to the findings of Ohshima *et al.*<sup>15</sup> where a necessity for improving oral hygiene in Chinese students has been shown. The findings were similar to the study by Cortes *et al.*<sup>16</sup> where the perception of state of oral health was positive in dental students and to a study done by Udoye *et al.*<sup>17</sup> where the respondents had good oral health knowledge. Majority of dental students (75%) did not smoke in the study which was much higher than the findings in a study by Almas *et al.*<sup>18</sup> and Ohshimia *et al.*<sup>15</sup> where smoking was much higher in Japanese students. Total of 67.5% of the students brushed their teeth twice a day. The percentage in this sample is higher than that reported from Kuwait and Jordan where only one-third and two-thirds of the students brushed their teeth twice a day respectively.<sup>19</sup> Majority of the dental students accepted to have changed their brushing habits after they entered into dentistry. The above findings were similar to a study by Al-Wahadani *et al.*<sup>20</sup> where females

did not use toothbrush which had hard bristles while a lower percentage of them thought they were able to clean teeth well without toothpaste. Usman *et al.*<sup>21</sup> also showed that tooth-brushing with paste was the right option and was similar to the present study.

By virtue of their professional role and education, dentists are models on health issues. Therefore, it is expected of them to be more knowledgeable in the community about oral health and its diseases, so as to be a positive model to the society. Exact relationship between knowledge and behaviour is yet unclear. However, a clue was glimpsed by Freeman *et al.*<sup>10</sup> in their report on 14–16 year olds where they noted that oral health knowledge does not necessarily relate to better health behaviour. However, they found that subjects who assimilated oral health knowledge and feel a sense of personal control over their oral health are more likely to adopt self-care practices.<sup>10</sup>

**Table 3: Oral hygiene methods adopted by dental students**

|   |                                  |             |            |             |                      |
|---|----------------------------------|-------------|------------|-------------|----------------------|
| Have you ever visited a dentist for ANY of your dental problems?  | Yes                              | 154 (77%)   | 72 (80%)   | 82 (74.5%)  | 0.362                |
|   | No                               | 46 (23%)    | 18(20%)    | 28 (25.4%)  |                      |
| Which oral hygiene method do you often practise?  | Toothbrush                       | 13 (6.5%)   | 8 (8.8%)   | 5 (4.5%)    | <b>0.025 (S)</b>     |
|   | Brush with toothpaste            | 181(90.5%)  | 76 (84.4%) | 105 (95.4%) |                      |
|   | Datun                            | 3 (1.5%)    | 3 (3.3%)   | 0 (0%)      |                      |
|   | Any other                        | 3 (1.5%)    | 3 (3.3%)   | 0 (0%)      |                      |
| At what age do you remember, brushing your teeth for the first time ever?   | < 2 yrs                          | 53(26.5%)   | 25 (27.7%) | 28 (25.4%)  | 0.187                |
|   | 2-4 yrs                          | 66(33.0%)   | 29 (32.2%) | 37 (33.6%)  |                      |
|   | Hard to remember                 | 81 (40.5%)  | 36 (40%)   | 45 (40.9%)  |                      |
| What type of toothbrush do you use?   | Hard                             | 13 (6.5%)   | 13 (14.4%) | 0 (0)       | <b>&lt;0.001 (S)</b> |
|   | Medium                           | 101(50.5%)  | 50 (55.5%) | 51 (46.3%)  |                      |
|   | Soft                             | 75 (37.5%)  | 27(30%)    | 48 (43.6%)  |                      |
|   | Ultrasoft                        | 21 (10.5%)  | 10 (11.1%) | 11 (10%)    |                      |
| What pattern of tooth brushing do you follow?   | Circular                         | 100 (50%)   | 35 (38.8%) | 65 (59%)    | <b>0.002 (S)</b>     |
|   | Horizontal                       | 38 (19%)    | 22 (24.4%) | 16 (14.3%)  |                      |
|   | Vertical                         | 50 (25%)    | 28 (31.1%) | 22 (20%)    |                      |
|   | Sweeping                         | 4 (2%)      | 4 (4.4%)   | 0 0         |                      |
|   | Haphazard                        | 8 (4%)      | 1 (1.1%)   | 7 (6.3%)    |                      |
| Has your pattern of Tooth-brushing changed, now when you have entered into the field of dentistry?  | Yes                              | 154 (77%)   | 75 (83.3%) | 79(75.8%)   | 0.054                |
|   | No                               | 46 (23%)    | 15 (16.6%) | 31(28.1%)   |                      |
| In what form do you use dentifrices?  | Toothpaste                       | 187(93.5%)  | 77 (85.5%) | 110(100%)   | <b>&lt;0.001 (S)</b> |
|   | Tooth Powder                     | 8 (4%)      | 8 (8.8%)   | 0 (0%)      |                      |
|   | Gels                             | 5 (2.5%)    | 5 (5.5%)   | 0 (0%)      |                      |
| Do you know that excess of toothpowder can cause loss of tooth structure (abrasion)?  | Yes                              | 169 (84.5%) | 75 (83.3%) | 94 (85.4%)  | 0.680                |
|   | No                               | 31 (15.5%)  | 15 (16.6%) | 16 (14.5%)  |                      |
| Are you aware of what powered toothbrushes are and have you ever used them?   | Yes                              | 99 (49.5%)  | 61 (67.7%) | 38 (34.5%)  | <b>&lt;0.001 (S)</b> |
|   | No                               | 90 (45%)    | 29 (32.2%) | 61 (55.4%)  |                      |
| Have you got any idea of what inter proximal tooth cleaning is?   | Yes                              | 152 (76%)   | 68 (75.5%) | 84 (76.3%)  | <b>0.894</b>         |
|   | No                               | 48 (24%)    | 22 (24.4%) | 26 (23.6%)  |                      |
| Do you have an idea about dental floss/ flossing?   | Yes                              | 119 (59.5%) | 57 (63.3%) | 62(56.3%)   | 0.543                |
|   | No                               | 54 (27%)    | 21 (23.3%) | 33 (30%)    |                      |
|   | Seen it but have never tried it. | 27 (13.5%)  | 12 (10.9%) | 15(13.6%)   |                      |
| Do you often use a toothpick after your meals (though it is not recommended)?   | Frequently                       | 33 (16.5%)  | 29 (32.2%) | 4 (3.6%)    | <b>&lt;0.001 (S)</b> |
|   | Occasionally                     | 76 (38%)    | 38 (42.2%) | 38 (34.5%)  |                      |
|   | Seldom                           | 83 (41.5%)  | 15 (16.6%) | 68 (61.8%)  |                      |
| Have you ever practised gingival massage?   | Yes                              | 64 (32%)    | 47 (52.2%) | 17(15.4%)   | <b>&lt;0.001 (S)</b> |
|   | No                               | 126 (63%)   | 43 (47.7%) | 83 (75.4%)  |                      |
| Do you use oral rinses /mouthwashes?  | Yes                              | 135 (67.5%) | 70 (77.7%) | 65 (59%)    | <b>0.005 (S)</b>     |
|   | No                               | 65(32.5%)   | 20 (22.2%) | 45 (40.9%)  |                      |
| Being a responsible citizen of India will you contribute towards making it a tobacco free country by spreading awareness of ill effects of tobacco use especially amongst youngsters? | Positively yes                   | 168 (84%)   | 74 (82.2%) | 94 (98.9%)  | <b>&lt;0.001 (S)</b> |
|   | Not sure                         | 9 (4.5%)    | 8 (10.6%)  | 1 (0.9%)    |                      |
|   | Never                            | 8 (4%)      | 8 (8.8%)   | 0 (0%)      |                      |

A study by Neamatollahi *et al.*<sup>22</sup> revealed a low level of knowledge and oral health behaviour in Iranian students but in our study the overall knowledge among the dental students was good although they had deficits in knowledge in few areas. Oral health education needs to be provided in those areas where there are deficits in knowledge; the dental students in our study had less knowledge of the harmful effects of junk food, the effects of using toothbrush with hard bristles and should upgrade their knowledge related to gingival massage. They need to change their opinion that toothbrush alone is best for their oral health.

One limitation of the study is that since convenience sampling was utilized in this study, participants were often seated beside their friends or peers when completing their questionnaire so error in the measurements may have increased because social desirability could have contributed to a lack of full disclosure of the participant's true self-consciousness levels, hence leading to a response bias. Another obvious limitation is that all assessments were self-reported and no objective oral health outcome was incorporated. In the present study there is no way of knowing to what extent these self-reports correspond with patient's oral and gingival health status.

Within the limitations, this study according to our evaluation is the first formal assessment of awareness of oral hygiene methods amongst dental students in north Indian city. In this study the overall knowledge of oral health behaviours among the dental students was good, even though there were deficits in their knowledge in few areas. Although, results of present cross-sectional study are based on low-sample population, nevertheless these observations, could serve as pilot survey for future long-term study.

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