Assessment of knowledge and practice of oral health among nursing and pharmacy students

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Received: 02 August 2020
Revised: 17 September 2020
Accepted: 18 September 2020

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ABSTRACT

Background: Oral health is an integral part of general health and wellbeing of an individual at every stage of life. Good oral health knowledge is a requisite criterion for good oral health related behavior. So, this study was done to assess knowledge and practice about oral health and whether there is any difference of knowledge and practice about it among nursing and pharmacy students.

Methods: A cross sectional study was done among 110 nursing and 90 pharmacy students in June 2019 by stratified random sampling method using a self-administered predesigned structured questionnaire. Descriptive statistics and chi-square test were applied using SPSS software.

Results: Knowledge and practice of pharmacy students was found to be better than nursing students.

Conclusions: Knowledge and practice of the students should be improved through health education.

Keywords: Oral health, Oral cancer, Dental decay

INTRODUCTION

WHO defines oral health as “a state of being free from chronic mouth and facial pain, oral and throat cancer, oral infection and sores, periodontal (gum) disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual’s capacity in biting, chewing, smiling, speaking, and psychosocial well-being.”

A beautiful smile, fresh breath, white teeth and the ability to chew are some of indicators of good oral health. Oral health-related disorders comprise a global challenge and are caused by variety of factors ranging from individual factors to oral health-related literacy and behaviour, social and familial factors, economic and environmental factors. So, this study was conducted to study socio demographic profile of the students, to assess knowledge and practices of pharmacy and nursing students about oral health and to assess whether there is any difference of knowledge and practices among nursing and pharmacy students in relation to oral health.

METHODS

Study area
Institute of Pharmacy and BSc. College of Nursing, Assam Medical College & Hospital, Dibrugarh

Type of study
Cross sectional study.
Study population

1st & 2nd year students of Institute of Pharmacy and 1st, 2nd, 3rd & 4th year students of BSc. College of Nursing, Assam Medical College & Hospital.

Study period

June 2019

Sample size calculation

Assuming that 50 percent of students had adequate knowledge about oral health, with an allowable error of 15% and 95% confidence interval, using formula N=4pq/l2 minimum sample size of 178 was calculated. Further, considering a 10% non-response rate, required sample size came out to be 196, which was rounded off to 200.

Inclusion criteria

Students present on the day of study and willing to participate in the study.

Exclusion criteria

Students absent on the day of study.

Sampling technique

Stratified random sampling method with proportion allocation was used to select the students. There were 180 pharmacy students (90 students each in 1st & 2nd year) and 218 BSc nursing students (56 students each in 1st & 3rd year, 53 students each in 2nd & 4th year) enrolled in the college which constituted the sampling frame. So, a total of 90 students (45 students each from 1st & 2nd year) from Institute of Pharmacy and 110 students (28 students each from 1st & 3rd year, 27 students each from 2nd & 4th year) from BSc. College of Nursing were selected randomly from the list of attendance register of the students.

Data collection tools

A pre designed structured questionnaire in English containing close ended questions about oral health knowledge and practices and socio-demographic profile of the students. Knowledge was assessed using 16 questions which included “yes” or “no” responses and Practice using 14 questions which included multiple choice and “yes” or “no” responses.

Data collection method

Before the start of the study, permission was taken from the Vice Principal, Institute of Pharmacy and Principal, BSc. College of Nursing, AMCH. The institutes were visited according to a prefixed day wise schedule and students were approached in their classrooms without disturbing their academic classes. Purpose of the study was explained to the students and after obtaining informed verbal consent from the students, they were given the questionnaire which was self-administered by each student. Knowledge and practice were assessed using a scoring system. For knowledge section, each correct answer/yes was given a score of 1 and every wrong answer/no/don’t know was given a score of 0 with maximum score of 16 and minimum score of 0. Total knowledge score was calculated for each student. Out of total questions regarding knowledge, score more than 75% (12-16 points) was considered as good, more than 50% (8-11 points) average and below 50% (0-7 points) poor. For practice section score of 1 was given for good practice and 0 for bad practice on selected questions with maximum score of 10 and minimum score of 0. Total practice score was calculated for each student with score between 6-10 points considered as following good practice and score between 0-5 points considered as bad practice.

Data analysis

Data was analyzed using SPSS version 20.0 software. Statistical analysis was done by percentage and chi square test. A p value <0.05 was taken to be statistically significant.

Operational definition good practice

Frequency of brushing teeth twice or more per day, mode of brushing teeth with toothbrush and toothpaste, brushing time both in the morning and at the bedtime, brushing duration two or more than two minutes, using soft toothbrush and fluoridated toothpaste, brushing looking at mirror, rinsing mouth with water after meal, changing toothbrush in 3 to 6 months and visit to dentist once or more in a year.

RESULTS

The mean age of the students was 20.8±1.4 years which ranged from 18 to 26 years (nursing students 21±1.4 years and pharmacy students 20.7±1.4 years.) Majority (80.9%) of nursing students belonged to Hindu religion and most of the (46.7%) pharmacy students belonged to Muslim religion.

Almost all (99.1% and 96.7%) nursing and pharmacy students were aware that oral health is as important as general health. (p>0.05) All (100.0%) pharmacy and majority (90.9%) of nursing students were aware about dental caries. (p<0.05) Majority (84.5% & 82.2%) of nursing and pharmacy students were aware that consuming sugary food causes dental caries. (p>0.05) Most (61.8% & 60 %) of nursing and pharmacy students knew that consuming soft drinks causes dental caries. (p<0.05) Majority (93.6% & 91.1%) of nursing and pharmacy students were aware that daily brushing can
Almost all nursing students (98.2%) knew that Smoking/chewing tobacco is harmful for oral health compared to pharmacy students (93.3%). Majority (80.0% & 86.7%) of nursing & pharmacy students were aware about the causes of gum bleeding. Again majority (71.1%) of pharmacy students were aware that daily brushing can prevent gum bleeding whereas only (58.2%) of nursing students were aware about the fact. Majority (78.2% & 78.9%) of nursing and pharmacy students were aware about the causes of oral cancer but more than half (53.6% & 57.8%) of nursing and pharmacy students were not aware about the treatment of oral cancer. Majority (86.4% & 92.2%) of nursing and pharmacy students knew that decayed teeth can affect teeth appearance. Majority (90% & 84.8%) of nursing and pharmacy students knew that regular visit to dentist keeps the teeth in a healthy state. Only knowledge of the students about harmful effect of tobacco on oral health was found to be statistically significant (Table 2).

### Table 1: Distribution of students according to their knowledge about oral health.

|                                  | Nursing students (n=110) | Pharmacy students (n=90) | Total (n=200) | P value |
|----------------------------------|--------------------------|--------------------------|---------------|---------|
| **Oral health is important as general health** |                          |                          |               |         |
| Yes                              | 109 (99.1)               | 87 (96.7)                | 196 (98.0)    |         |
| No                               | 1 (0.9)                  | 1 (1.1)                  | 2 (1.0)       | 0.287   |
| Don’t know                       | 0 (0.0)                  | 2 (2.2)                  | 2 (1.0)       |         |
| **Know about dental caries**     |                          |                          |               |         |
| Yes                              | 100 (90.9)               | 90 (100.0)               | 190 (95.0)    | 0.003   |
| No                               | 10 (9.1)                 | 0 (0.0)                  | 10 (5.0)      |         |
| **Consuming sugary food causes dental caries** |                          |                          |               |         |
| Yes                              | 93 (84.5)                | 74 (82.2)                | 167 (83.5)    | 0.596   |
| No                               | 14 (12.7)                | 11 (12.2)                | 25 (12.5)     |         |
| Don’t know                       | 3 (2.7)                  | 5 (5.6)                  | 8 (4.0)       |         |
| **Consuming soft drinks causes dental caries** |                          |                          |               |         |
| Yes                              | 68 (61.8)                | 54 (60.0)                | 122 (61.0)    | 0.965   |
| No                               | 36 (32.7)                | 31 (34.4)                | 67 (38.5)     |         |
| Don’t know                       | 6 (5.5)                  | 5 (5.6)                  | 11 (6.5)      |         |
| **Daily brushing prevents dental caries** |                          |                          |               |         |
| Yes                              | 103 (93.6)               | 82 (91.1)                | 185 (92.5)    | 0.792   |
| No                               | 6 (5.4)                  | 7 (7.8)                  | 13 (6.5)      |         |
| Don’t know                       | 1 (0.9)                  | 1 (1.1)                  | 2 (1.0)       |         |
| **Brushing with fluoridated toothpaste prevent dental caries** |                          |                          |               |         |
| Yes                              | 69 (62.7)                | 77 (85.6)                | 146 (73.0)    | 0.001   |
| No                               | 28 (25.5)                | 9 (10.0)                 | 37 (18.5)     |         |
| Don’t know                       | 13 (11.8)                | 4 (4.4)                  | 17 (8.5)      |         |

### Table 2: Distribution of students according to their knowledge about oral health.

|                                  | Nursing students (n=110) | Pharmacy students (n=90) | Total (n=200) | P value |
|----------------------------------|--------------------------|--------------------------|---------------|---------|
| **Smoking/chewing tobacco is harmful for oral health** |                          |                          |               |         |
| Yes                              | 108 (98.2)               | 82 (91.1)                | 190 (95.0)    | 0.0176  |
| No                               | 1 (0.9)                  | 8 (8.9)                  | 9 (4.5)       |         |
| Don’t know                       | 1 (0.9)                  | 0 (0.0)                  | 1 (0.5)       |         |
| **Causes of gum bleeding**       |                          |                          |               |         |
| Yes                              | 88 (80.0)                | 78 (86.7)                | 166 (83.0)    | 0.2118  |
| No                               | 22 (20.0)                | 12 (13.3)                | 34 (17.0)     |         |
| **Daily brushing can prevent gum bleeding** |                          |                          |               |         |
| Yes                              | 64 (58.2)                | 64 (71.1)                | 128 (64.0)    | 0.1643  |
| No                               | 42 (38.2)                | 24 (26.7)                | 66 (33.0)     |         |
| Don’t know                       | 4 (3.6)                  | 2 (2.2)                  | 6 (3.0)       |         |
| **Causes of oral cancer**        |                          |                          |               |         |
| Yes                              | 86 (78.2)                | 71 (78.9)                | 157 (78.5)    | 0.5577  |
| No                               | 24 (21.8)                | 19 (21.1)                | 43 (21.5)     |         |
| **Treatment of oral cancer**     |                          |                          |               |         |
| Yes                              | 51 (46.4)                | 38 (42.2)                | 89 (44.5)     | 0.5577  |
| No                               | 59 (53.6)                | 52 (57.8)                | 111 (55.5)    |         |
| **Decayed teeth can affect teeth appearance** |                          |                          |               |         |
| Yes                              | 95 (86.4)                | 83 (92.2)                | 178 (89.0)    | 0.3731  |
| No                               | 6 (5.4)                  | 2 (2.2)                  | 8 (4.0)       |         |
| Don’t know                       | 9 (8.2)                  | 5 (5.5)                  | 14 (7.0)      |         |
| **Regular dental visit keeps teeth in a healthy state** |                          |                          |               |         |
| Yes                              | 99 (90.0)                | 76 (84.4)                | 175 (87.5)    | 0.3491  |
| No                               | 9 (8.1)                  | 13 (14.4)                | 22 (11.0)     |         |
| Don’t know                       | 2 (1.8)                  | 1 (1.2)                  | 3 (1.5)       |         |

Almost all nursing students (98.2%) knew that Smoking/chewing tobacco is harmful for oral health compared to pharmacy students (93.3%). Majority (80.0% & 86.7%) of nursing & pharmacy students were aware about the causes of gum bleeding. Again majority (71.1%) of pharmacy students were aware that daily brushing can prevent gum bleeding whereas only (58.2%) of nursing students were aware about the fact. Majority (78.2% & 78.9%) of nursing and pharmacy students were aware about the causes of oral cancer but more than half (53.6% & 57.8%) of nursing and pharmacy students were not aware about the treatment of oral cancer. Majority (86.4% & 92.2%) of nursing and pharmacy students knew that decayed teeth can affect teeth appearance. Majority (90% & 84.8%) of nursing and pharmacy students knew that regular visit to dentist keeps the teeth in a healthy state. Only knowledge of the students about harmful effect of tobacco on oral health was found to be statistically significant (Table 2).
compared to (64.6%) of nursing students. (p<0.05) Majority (91.1%) of pharmacy students brush their teeth both in the morning and before going to bed whereas only (66.4%) of nursing students do so. (p=0.05) Only (32.7% & 38.9%) of nursing and pharmacy students have the habit of brushing their teeth for two minutes. Only half (50.9% & 60%) of nursing and pharmacy students brush their teeth with soft toothbrush. More than half (58.9%) of pharmacy students use fluoridated toothpaste whereas only (29.1%) of nursing students do so for brushing. (p<0.05) (Table 3).

Most (62.7% & 71.1%) of nursing and pharmacy students have the habit of brushing their teeth in front of mirror. Majority (86.3% & 87.7%) of nursing and pharmacy students rinse their mouth after eating. Majority (94.5% & 94.4%) of nursing and pharmacy students change their toothbrush and among them most (53.8%) of nursing and majority (73%) of pharmacy students do so in less than 3 months. (p<0.05) Most (68.2% & 66.7%) of nursing and pharmacy students visit dentist only when necessary and among them (70.0% & 73.8%) of nursing and pharmacy students do so only when there is dental pain. Only (18.2% & 11.1%) of nursing and pharmacy students had never visited a dentist due to lack of awareness (45% & 80%). (Table 4).

### Table 3: Distribution of students according to their practices in relation to oral health.

| Material used for brushing teeth | Nursing students | Pharmacy students | Total | P value |
|---------------------------------|------------------|------------------|-------|---------|
|                                 | No (%)           | No (%)           | No (%)|         |
| Toothpaste & toothbrush         | 110 (100.0)      | 87 (96.7)        | 197 (98.5) | 0.155 |
| Tooth-powder & toothbrush       | 0 (0.0)          | 2 (2.2)          | 2 (1.0)   |         |
| Toothpaste & finger             | 0 (0.0)          | 1 (1.1)          | 1 (0.5)   |         |
| Frequency of brushing teeth     |                  |                  |         |         |
| Once                            | 37 (33.6)        | 8 (8.9)          | 45 (22.5) | 0.000 |
| Twice                           | 71 (64.6)        | 77 (85.6)        | 148 (74.0) |       |
| Thrice                          | 2 (1.8)          | 5 (4.5)          | 7 (3.5)   | <0.001 |
| Time of brushing teeth          |                  |                  |         |         |
| Morning                         | 37 (33.6)        | 8 (8.9)          | 45 (22.5) |       |
| In the morning & before going to bed | 73 (66.4) | 82 (91.1) | 155 (77.5) | <0.001 |
| Duration of brushing teeth      |                  |                  |         |         |
| Less than one minute            | 3 (2.7)          | 1 (1.1)          | 4 (2.0)   |         |
| One minute                      | 27 (24.5)        | 11 (12.2)        | 38 (19.0) |       |
| Two minute                      | 36 (32.7)        | 35 (38.9)        | 71 (35.5) | 0.1160 |
| More than two minute            | 25 (22.7)        | 30 (33.3)        | 55 (27.5) |       |
| Don't remember                  | 19 (17.3)        | 13 (14.4)        | 32 (16.0) |       |
| Type of toothbrush used         |                  |                  |         |         |
| Soft                            | 56 (50.9)        | 54 (60.0)        | 110 (55.0) |       |
| Hard                            | 1 (1)            | 2 (2.3)          | 3 (1.5)   | 0.414  |
| Medium                          | 46 (41.8)        | 28 (31.1)        | 74 (37.0) |       |
| Never noticed                   | 7 (6.3)          | 6 (6.6)          | 13 (6.5)  |       |
| Type of toothpaste used         |                  |                  |         |         |
| Fluoridated                     | 32 (29.1)        | 53 (58.9)        | 85 (42.5) | 0.000  |
| Non fluoridated                 | 16 (14.6)        | 7 (7.8)          | 23 (11.5) |       |
| Don't know                      | 62 (56.3)        | 30 (33.3)        | 92 (46.0) |       |

### Table 4: Distribution of students according to their practices in relation to oral health.

| Brushing in front of mirror | Nursing students | Pharmacy students | Total | P value |
|-----------------------------|------------------|------------------|-------|---------|
|                             | No (%)           | No (%)           | No (%)|         |
| Yes                         | 69 (62.7)        | 64 (71.1)        | 133 (66.5) | 0.211 |
| No                          | 41 (37.3)        | 26 (28.9)        | 67 (33.5) |       |
| Rinsing of mouth after eating |                  |                  |         |         |
| Yes                         | 95 (86.3)        | 79 (87.7)        | 174 (87.0) | 0.767 |
| No                          | 15 (13.7)        | 11 (12.3)        | 26 (13.0) |       |

Continued.
Table 5: Table showing distribution of students according to their knowledge and practice score.

| Variables                      | Nursing students (n=110) | Pharmacy students (n=90) | Total (n=200) | P value |
|--------------------------------|-------------------------|--------------------------|---------------|---------|
|                                | N (%)                   | No (%)                   | No (%)        |         |
| Changes toothbrush             |                         |                          |               |         |
| Yes                            | 104 (94.5)              | 85 (94.4)                | 189 (94.5)    | 0.975   |
| No                             | 6 (5.5)                 | 5 (5.6)                  | 11 (5.5)      |         |
| Time interval of changing toothbrush |                     |                          |               |         |
| <3 months                      | 56 (53.8)               | 62 (73.0)                | 118 (62.4)    | 0.005   |
| 3-6 months                     | 34 (32.7)               | 21 (24.7)                | 55 (29.1)     |         |
| >6 months                      | 14 (13.5)               | 2 (2.3)                  | 16 (8.5)      |         |
| Frequency of visiting dentist  |                         |                          |               |         |
| Once in a year                 | 12 (10.9)               | 11 (12.2)                | 23 (11.5)     | 0.106   |
| Two times a year               | 3 (2.7)                 | 9 (10.0)                 | 12 (6.0)      |         |
| Only when necessary            | 75 (68.2)               | 60 (66.7)                | 135 (67.5)    |         |
| Not at all                     | 20 (18.2)               | 10 (11.1)                | 30 (15.0)     |         |
| Reasons for visiting dentist   |                         |                          |               |         |
| Dental pain                    | 63 (70.0)               | 59 (73.8)                | 122 (71.8)    | 0.132   |
| General/routine checkup        | 18 (20.0)               | 19 (23.8)                | 37 (21.8)     |         |
| Gum bleeding                   | 9 (10.0)                | 2 (2.5)                  | 11 (6.5)      |         |
| Reasons for not visiting dentist |                       |                          |               |         |
| Fear                           | 1 (5.0)                 | 0 (0.0)                  | 1 (3.3)       | 0.267   |
| Expensive                      | 3 (15.0)                | 0 (0.0)                  | 3 (10.0)      |         |
| Lack of awareness              | 9 (45.0)                | 8 (80.0)                 | 17 (56.7)     |         |
| Lack of time                   | 7 (35.0)                | 2 (20.0)                 | 9 (30.0)      |         |

Majority (80%) of pharmacy students have good knowledge about oral health than nursing students (68.2%). Majority (84.5%) of the pharmacy students were found to be following good oral health related practices than nursing students (50%) (Table 5).

**DISCUSSION**

In our study, 96.7% of pharmacy students knew oral health is as important as general health which was better than study by AL-Jawfi et al (78%). In our study, majority (80%) of pharmacy students were aware that consuming sugary food causes dental caries which was better than study by AL-Jawfi et al (65%). In our study, more than half (60%) pharmacy students knew that consuming soft drinks causes dental caries which is almost similar to study by AL-Jawfi et al (55%).

In our study, (85.6%) of pharmacy students knew that brushing with fluoridated toothpaste can prevent dental caries which was better than study by AL-Jawfi et al (78%).

In our study, (85.6%) of pharmacy students had an habit of brushing teeth twice daily which was better than study by AL-Jawfi et al (78%).

In our study, (84.8%) of pharmacy students knew that regular visit to dentist keeps the teeth in a healthy state which was better than study by Preethi et al (47.8%). In our study, (58.9%) of the pharmacy students uses fluoridated toothpaste for brushing which was better than study by Preethi et al (21.5%). In our study, (87.7%) of pharmacy students rinse their mouth after eating which is better than study by Preethi et al (44.8%).

In our study, 66.7% of pharmacy students visit dentist only when necessary which is contrast to study by Preethi et al (78.9%). Again, (11.1%) of pharmacy students had never visited a dentist which is better than study by Preethi et al (58.9%).

In our study, (96.7%) pharmacy students use toothpaste & toothbrush for brushing their teeth which is almost similar to study by Bashiru et al.

In our study, (64.6%) of nursing students brush twice daily which is contrary to study by Bhattarai R et al (78.9%).
In our study, all nursing students use toothpaste and toothbrush for brushing which is similar to study by Bhattarai et al (98 %). 7

In our study, (70%) of nursing students visit dentist on dental pain which is better than study by Bhattarai et al (58.6 %). 7

CONCLUSION

The current study observed that pharmacy students are having better oral health related knowledge and following good oral health related practices than nursing students. So, Oral health awareness among nursing students should be increased through oral health education and awareness programs.

ACKNOWLEDGEMENTS

Authors are thankful to the students for their participation without whose help this study would not have been possible.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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