ORAL HEALTH BEHAVIOR AMONG MEDICAL, DENTAL AND PARAMEDICAL STUDENTS – A CROSS SECTIONAL STUDY

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Abstract

Background: Medical, dental and pharmacy students play an important role in maintenance of oral health care and promotion. Learning and practicing in these fields becomes ineffective unless there is a profound change in student’s behavior and attitude towards improvement of their personal oral health.

Objective: To assess the attitude towards oral health care of medical, dental and pharmacy students of Narayana Medical, Dental and Pharmacy Colleges, Nellore, Andhra Pradesh, India.

Materials and methods: A cross-sectional survey was organized comprising of 264 students, out of which 135 were medical, 85 were dental and 44 were pharmacy students. Hiroshima University-Dental Behaviour Inventory (HU-DBI) questionnaires were used to assess their attitudes towards oral health.

Results: Medical, dental and pharmacy students presented a mean HU-DBI score of 7.18, 8.97 and 3.95 respectively and the difference was statistically significant among them.

Conclusion: The present study concludes that dental students has better attitude towards personal oral health care when compared to medical and pharmacy students. This may be attributed to the extra knowledge of oral health care and associated diseases attained by the dental students.

Short title: Is education related to oral health behavior
INTRODUCTION:

Oral health knowledge is a requisite criterion for health related behavior. Till now a frail association seems to exist between knowledge and behavior in cross-sectional studies. According to previous studies, dentist lacks self-motivation to practice basic preventive oral health care. As medical and paramedical students specialize in preventive information and health promotion it is essential that their own oral health knowledge is good and endorses to professional recommendations. In day to day practice, professional students come across a prodigious number of patients of diverse age groups from different backgrounds. Hence with proper knowledge and oral health behavior they can act as role models for oral health education at individual and community levels.

As their dental education progresses, dental students are considered as imminent leaders in oral health care and role facsimiles of self-care regimens for their patients. So it is critical to appraise yearly progress of dental students learning about self-care regimens such as oral health attitudes and behavior. But little attention has been paid to annual progress due to the exertion of outcomes measurement and lack of control group students outside the dental school. Consequently, the existing problem is the difficulty of examining how dental education helps to shape oral health attitudes and behavior for dental students in comparison to non-dental students.

Although diverse factors play a role in shaping attitude and health behaviors, two major factors have been identified, one is learned experience and the other is culturally determined attitudes/beliefs/behaviors (social norms). Learned experience is equated with dental education and its curriculum, while social norms are established and reinforced by non-dental education. However, learned experience has greater influence over social norms. One of the common objectives of dentistry is to train experts whose primary task is to motivate patients to espouse good oral hygiene practices. Unless motivated, they are able to follow it. Thus, teaching in dental schools become futile unless it leads to a intense change in the student's behavior and attitude towards improvement of his own personal oral health. Furthermore, the behaviour of oral health providers and their attitudes towards oral health could affect their capacity to deliver oral health care and thus might have influence on the oral health behavior of their patients.

Cortes et al witnessed that dental students in general have been found to be motivated about maintaining a good oral health attitude. Moreover to dental students, students from akin health streams also are supposed to have better oral health knowledge and behaviour as proper knowledge and oral health behaviour can play an significant role in the health education of individuals and groups. Considerable differences were found in dental health attitudes and behaviour among students from different countries, cultural groups and courses. There is no data concerning the oral health attitudes and behaviour of the study population from the region of Andhra Pradesh, India. Hence, the present study was instigated to assess the attitudes towards oral health behaviour of dental, medical and pharmacy students at a Dental, Medical and Pharmacy Colleges, in a single city, Andhra Pradesh, India.

MATERIALS AND METHODS:

A cross-sectional survey was done comprising of 264 students, out of which 135 were medical, 85 were dental and 44 were pharmacy students. No sampling technique was used and the participation was voluntary. All the students present on the days of the survey were considered for inclusion and the questionnaires that were unfilled or partly filled constituted the exclusion criteria. However, none of the questionnaires were incomplete.

The students included in this study were in the first year of their study course because everyone has little or same knowledge about oral health care. All of the participants were provided with a full explanation of the purpose of the study and Hiroshima University-Dental Behaviour Inventory (HU-DBI) questionnaires, the English version, were then distributed. It has been observed that the HU-DBI questionnaires retained excellent psycho-metric properties after translation into English and no deficiency was found in the translated version.

The HU-DBI, developed by Kawamura, consists of twenty questions eliciting dichotomous responses (agree/disagree) to examine oral health attitudes and behavior of patients during tooth brushing. The HU-DBI has good test/retest reliability, and thus, it is not only useful for understanding patients but also for predicting clinical outcomes. In addition, the HU-DBI has been translated from Japanese into English, Finnish, Chinese, and Korean for cross-cultural comparisons. The success of translated versions, including methods and reliability, have been previously reported.

The study was conducted in January 2014 during the academic year 2013-2014. A quantitative estimate of oral health attitude and behaviour is provided by the total appropriate agree/disagree responses from 12 items (Table 1). Of the 12 items, 6 items are given one point for each agreed response (marked as ‘A’) and zero on disagreed response while for the other 6 items one point is given for each disagreed response (marked as ‘D’) and zero on agreed response. The maximum possible score was 12. A high score indicated better attitude towards oral health behaviour. Data collected were entered into spreadsheets, and statistical analysis
was performed by SPSS version 20.0. Discrete data were analyzed by the one way ANOVA and significance of difference between the HU-DBI scores from the dental, medical and pharmacy students was analyzed by using Tukey HSD test (Multiple comparisons). A p-value of < 0.05 was considered significant.

RESULTS:
The response rates among dental, medical and pharmacy students were 90% (135 of 150), 85% (85 of 100) and 88% (44 of 50) respectively. Medical, dental and pharmacy students presented a mean HU-DBI score of 7.18, 8.97 and 3.95 respectively and the difference was significant (Table 2, 3 and 4) and (Graph 1)

Table 1 denotes that significantly greater number of medical students (46%) than the dental and pharmacy students were not bothered about visiting the dentist. Approximately 36% of the pharmacy students in contrast to 29% of dental students and 14% of medical students felt that their teeth are getting worse despite brushing daily.

It is evident from Table 1 that 87%, 95% and 57% of the medical, dental and pharmacy students respectively expressed that they check their teeth in a mirror after brushing. More than one third (45%) of the pharmacy students disagreed that it is impossible to prevent gum disease with tooth brushing alone in contrast to 22% and 26% of medical and dental students respectively. It was interesting to note that 52% of the pharmacy students worried about having bad breath in comparison to 27% of dental students and 24% of medical students. In addition to this 100% pharmacy students reported bleeding from gums despite of brushing daily.

Approximately, four-fifths (91%) of the medical and dental students informed that they don’t visit a dentist until they have a toothache in contrast to 79% of pharmacy students. It was observed that 100% of dental and pharmacy students reported of using hard bristles toothbrush and brushing with strong strokes to clean their teeth in contrast to 93% of medical students. In addition, only 13% and 4% of dental and medical students used a dye to see how clean their teeth are whereas none of the pharmacy students had reported of using a dye to see how their teeth. (Table 1)

DISCUSSION:
Dental students presented a HU-DBI score of 8.97 in comparison to 7.18 and 3.95 among medical and pharmacy students respectively and the difference was significant which suggests that the dental students had better attitudes towards oral health behaviour than their medical and pharmacy counterparts. Such difference between the medical, pharmacy and dental students could be due to the extra knowledge and experience dental students had gained from their basic dental subjects during the initial teaching sessions.

In accordance, two previous studies among Indian students observed similar results. Doshi et al. found medical and dental students to have better attitudes towards oral health behaviour than their engineering counterparts. Furthermore, Kumar Tadakamadla et al. also reported that dental students exhibited better HU-DBI scores than students from other streams. A proportion of 89% of the whole population informed that they put off visiting a dentist until they have a toothache, in accordance Kawamura et al. observed a similar figure of more than 60% among dental hygiene and nursing students.

In agreement with the present study, Al-Hussaini et al. reported that the main reason for visiting a dentist was toothache in 70% of the Health Sciences students of Kuwait. However, these findings are similar to the present study where 91% of the medical and dental students and 79% of the pharmacy informed that they don’t visit a dentist until they have a toothache the corresponding figures among medical and dental students of Emirates were found to be 46% and 20% respectively.

It was noticed that 95% of dental students used mirror to check their teeth after brushing than their medical (87%) and pharmacy (57%) counterparts. In addition, a greater number of pharmacy students (52%) worried about having bad breath and believed that their teeth are getting worse despite brushing daily. Approximately, 91% of medical, dental students and 79% of the pharmacy students informed that they don’t visit a dentist until they have a toothache. This is in contrast with a study in India by Usmanet al. which observed that 86% of paramedical students and more than half the dental students (69%) put off visiting the dentist till they encountered a dental problem (p<0.001). Ronget et al. compared the oral health behaviour of dental students with medical students and found that 60% of dental students used dye in contrast to 11.9% medical students to see how clean their teeth, this is in concordance with the present study where significantly greater number of dental students (13%) used dye than their medical (4%) and pharmacy (0%) counterparts.

Although the present study has yielded some preliminary findings on the oral health behaviour of medical dental and pharmacy students it is not free of limitations. The main limitations are, students from medical or other paramedical professions such as physiotherapy were not considered. In addition to this, only first years were included without equal proportions.
CONCLUSION:
Oral health knowledge and attitude was high among the dental students as studying dentistry would predispose dental students to receive dental health related information routinely and thus aid in adopting positive attitudes and oral health behavior. Medical and pharmacy students showed poor oral health knowledge comparatively as oral health education is hardly a part of their curriculum; hence oral health education must be included in pre-clinical curriculum of medical and pharmacy courses. Further research is needed to examine the students clinically for assessing their periodontal and caries status.

Table 1: Questionnaire items of the HU-DBI and percentage of ‘agree’ and ‘disagree’ responses

<table>
<thead>
<tr>
<th>Statement</th>
<th>Medical</th>
<th>Dental</th>
<th>Pharmacy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agree n (%)</td>
<td>Disagree n (%)</td>
<td>Agree n (%)</td>
</tr>
<tr>
<td>I don’t worry much about visiting the dentist</td>
<td>62 (46)</td>
<td>73 (54)</td>
<td>0</td>
</tr>
<tr>
<td>My gums tend to bleed when I brush my teeth (D)</td>
<td>10 (7)</td>
<td>125 (93)</td>
<td>0</td>
</tr>
<tr>
<td>I worry about the color of my teeth</td>
<td>128 (95)</td>
<td>7 (5)</td>
<td>85 (100)</td>
</tr>
<tr>
<td>I have noticed some white sticky deposits on my teeth (A)</td>
<td>89 (66)</td>
<td>46 (34)</td>
<td>39 (46)</td>
</tr>
<tr>
<td>I use a child sized tooth brush</td>
<td>0</td>
<td>135 (100)</td>
<td>0</td>
</tr>
<tr>
<td>I think that I cannot help having false teeth when I am old (D)</td>
<td>62 (46)</td>
<td>73 (54)</td>
<td>21 (25)</td>
</tr>
<tr>
<td>I am bothered by the color of my gums</td>
<td>124 (92)</td>
<td>11 (8)</td>
<td>70 (82)</td>
</tr>
<tr>
<td>I think my teeth are getting worse despite my daily brushing (D)</td>
<td>19 (14)</td>
<td>116 (86)</td>
<td>25 (29)</td>
</tr>
<tr>
<td>I brush each of my teeth carefully (A)</td>
<td>6 (4)</td>
<td>129 (96)</td>
<td>10 (12)</td>
</tr>
<tr>
<td>I have never been taught professionally how to brush (D)</td>
<td>125 (93)</td>
<td>10 (7)</td>
<td>76 (89)</td>
</tr>
<tr>
<td>I think I can clean my teeth well without using tooth paste (A)</td>
<td>0</td>
<td>135 (100)</td>
<td>0</td>
</tr>
<tr>
<td>I often check my teeth in a mirror after brushing (A)</td>
<td>118 (87)</td>
<td>17 (13)</td>
<td>81 (95)</td>
</tr>
<tr>
<td>I worry about having bad breath</td>
<td>32 (24)</td>
<td>103 (76)</td>
<td>23 (27)</td>
</tr>
<tr>
<td>It is impossible to prevent gum disease with tooth brushing alone (D)</td>
<td>105 (78)</td>
<td>30 (22)</td>
<td>63 (74)</td>
</tr>
<tr>
<td>I put off going to a dentist until I have a toothache(D)</td>
<td>123 (91)</td>
<td>12 (9)</td>
<td>77 (91)</td>
</tr>
<tr>
<td>I have used a dye to see how clean my teeth are (A)</td>
<td>6 (4)</td>
<td>129 (96)</td>
<td>11 (13)</td>
</tr>
<tr>
<td>I use a tooth brush that has hard bristles</td>
<td>125 (93)</td>
<td>10 (7)</td>
<td>85 (100)</td>
</tr>
<tr>
<td>I don’t feel I’ve brushed unless I brush with strong strokes</td>
<td>120 (89)</td>
<td>15 (11)</td>
<td>78 (92)</td>
</tr>
<tr>
<td>I feel I sometimes take too much time to brush my teeth (A)</td>
<td>125 (93)</td>
<td>10 (7)</td>
<td>74 (87)</td>
</tr>
<tr>
<td>I have had my dentist tell me that I brush very well</td>
<td>25 (19)</td>
<td>110 (81)</td>
<td>18 (21)</td>
</tr>
</tbody>
</table>
Table 2: Mean HU-DBI scores among the study population

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical</td>
<td>135</td>
<td>7.1852</td>
<td>.73490</td>
<td>.06325</td>
</tr>
<tr>
<td>Dental</td>
<td>85</td>
<td>8.9765</td>
<td>.77115</td>
<td>.08364</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>44</td>
<td>3.9545</td>
<td>.83400</td>
<td>.12573</td>
</tr>
<tr>
<td>Total</td>
<td>264</td>
<td>7.2235</td>
<td>1.83317</td>
<td>.11282</td>
</tr>
</tbody>
</table>

Table 3: Comparison of total HU-DBI scores within the groups and between the groups among the study population

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>731.582</td>
<td>2</td>
<td>365.791</td>
<td>627.143</td>
<td>.000*</td>
</tr>
<tr>
<td>Within Groups</td>
<td>152.232</td>
<td>261</td>
<td>.583</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>883.814</td>
<td>263</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p-value < 0.05 is significant

Table 4: Multiple Comparison of total HU-DBI scores among the study population

<table>
<thead>
<tr>
<th></th>
<th>Mean Difference</th>
<th>Std. Error</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dental</td>
<td>-1.79129*</td>
<td>.10575</td>
<td>.000*</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>3.23064*</td>
<td>.13258</td>
<td>.000*</td>
</tr>
<tr>
<td>Dental</td>
<td>1.79129*</td>
<td>.10575</td>
<td>.000*</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>5.02193*</td>
<td>.14184</td>
<td>.000*</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>-3.23064*</td>
<td>.13258</td>
<td>.000*</td>
</tr>
<tr>
<td>Dental</td>
<td>-5.02193*</td>
<td>.14184</td>
<td>.000*</td>
</tr>
</tbody>
</table>

*p-value < 0.05 is significant

Graph 1: Mean HU-DBI scores among the study population
REFERENCES: