DENTAL CARIES AND ORAL HYGIENE IN MALE DENTAL STUDENTS OF KING SAUD UNIVERSITY COLLEGE OF DENTISTRY, RIYADH

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ABSTRACT

The objective of the present study was to determine caries experience, oral hygiene status and practices in male dental students of King Saud University, Riyadh, Saudi Arabia. A total of 211 male undergraduate dental students were examined for dental caries and oral hygiene. The information about oral hygiene practices was obtained through a self-administered questionnaire. The prevalence of caries was 95.3%. Mean decayed, missing and filled (DMFT) score in the dental students was 7.97 (SD 4.64) with decay (D) component of 3.59 (SD 3.88), missing (M) component of 0.67 (SD 1.29) and filled component of 3.71 (SD 3.89). There was no significant difference (p>0.05) between the mean DMFT scores of the students from various academic levels. Only one-fifth (20.9%) of the students had good oral hygiene. The percentage of students with poor oral hygiene significantly (p<0.05) decreased as the academic level increased. The use of toothbrush significantly (p<0.05) increased through senior academic levels, with a majority cleaning their teeth either once (33.2%) or twice (35.1%) daily. It can be concluded that the caries prevalence and severity among the dental students was very high. Only a small percentage of the students had good oral hygiene.

INTRODUCTION

University students are an important section of a society. They are role models for a society and future leaders in their respective fields. Health sciences students including dental students have significant role in structuring health related behaviors in their patients. The dental health-related behaviors of dental students play an important role in promoting good oral health in their future patients1,2.

A general decline in dental caries prevalence has been reported in most of the Western countries3. In contrast, several studies in Saudi Arabia have reported very high caries prevalence in school children4-6. There are no specific studies on caries prevalence in Saudi university students. However, high caries prevalence is expected in the university students including dental students, as school students with high caries experience are entering the universities. 

An association between poor oral hygiene and gingival/periodontal disease has long been established7,8. An association has also been reported between poor oral hygiene and dental caries8,9. Motivating and providing oral hygiene instructions to patients is one the tasks for the dental students. It would be interesting to determine the oral hygiene status and practices of the dental students, and whether any difference exists in this regard between students of various academic levels.

The objectives of the present study were to determine:

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Dental Caries and Oral Hygiene in Male Dental Students

– Caries prevalence and severity in the male dental students in College of Dentistry, King Saud University, Riyadh.
– Oral hygiene status and practices in the dental students.
– If there was any difference between the students of various academic levels in relation to the caries experience and oral hygiene status/practices.

SUBJECTS AND METHODS

King Saud University Riyadh has two campuses; Darriyah Campus, for male students and Malaz Campus for female students. The present study was carried out in Darriyah all-male Campus. All the male undergraduate dental students in male campus of College of Dentistry, King Saud University were examined for dental caries and oral hygiene. The WHO criteria were used for the diagnosis of dental caries\(^\text{11}\) (WHO 1997). The oral hygiene status was assessed utilizing the oral hygiene index described by James \textit{et al}\(^\text{12}\), which has three oral hygiene categories; good, fair and poor. The information about oral hygiene practices was obtained through a self-administered questionnaire. Following details were collected through the questionnaire.

– Demographic information of the students such as age and academic level.
– Oral hygiene tools used such as toothbrush, miswak (the traditional wooden toothbrush) etc; and frequency of tooth cleaning.
– Use of dental floss.

One of the researchers (EAA) examined all the students on a dental chair utilizing a mirror and explorer. The examiner was calibrated with a senior faculty, and inter- and intra-examiner reliability was determined. The data obtained through the examination were recorded on a form especially designed for the study. The data were then entered in a computer using the FOXPRO software and analyzed utilizing the Statistical Program for Social Sciences (SPSS Version 10). ANOVA was utilized to test any difference between mean DMFT scores of various academic levels. Chi-square tests were used to check the difference between various academic levels in terms of oral hygiene status and practices.

RESULTS

A total of 211 dental students participated in the study which was completed in 2003, with mean age of 22 years ranging from 20 - 25 years. There were 61 students in first year, 50 in second year, 33 in third year, 40 in fourth year and 27 students in the final year BDS class. The inter- and intra-examiner reliability for dental caries was 0.85 and 0.89 respectively as determined by Kappa statistics. The inter-examiner reliability for oral hygiene was 0.84 as determined by Kappa statistics.

Caries prevalence among the study population was 95.3%, and mean DMFT score was 7.97 (SD 4.64) with decay (D) component of 3.59 (SD 3.88), missing (M) component of 0.67 (SD 1.29) and filled component of 3.71 (SD 3.89). There was no significant difference in mean DMFT scores of the students from various academic levels (Table 1). However, the ratio of the decay component of the mean DMFT score was significantly \((p<.05)\) low among senior dental students (Table 1). In contrast, the ratio of the filled component of the mean DMFT score significantly increased \((p<0.05)\) through academic levels (Table 1). Missing component of the mean DMFT score was very small for all academic levels and its ratio did not change significantly \((p>0.05)\) through academic levels.

Only one-fifth (20.9%) of the students had good oral hygiene (Table 2). Majority (76.8%) of the students in first year had poor or fair oral hygiene as compared with the final year students where a majority (86.1%) had fair or good oral hygiene (Table 2).

There was a significant \((p<.05)\) increase in the percentage of students using toothbrush only as the academic level increased, in contrast to the use of combination of toothbrush and miswak which significantly decreased \((p<.05)\) through academic levels (Table 3). The use of dental floss was also significantly \((p<.05)\) higher among senior dental students as compared to juniors (Table 3). A majority of the students were cleaning their teeth once (33.2%) or twice (35.1%) daily and only about one in ten (9.3%) students cleaned their teeth three times a day (Table 4).

\[
\begin{array}{|c|c|c|c|}
\hline
\text{Academic Level} & \text{Mean DMFT (SD)} & \text{Mean Decay (SD)} & \text{Mean Filled (SD)} \\
\hline
1^{\text{st}} \text{ year} & 7.11(5.10) & 4.25(4.3) & 2.2(3.17) \\
2^{\text{nd}} \text{ year} & 8.38(4.67) & 5.00(4.07) & 2.8(3.46) \\
3^{\text{rd}} \text{ year} & 7.06(3.82) & 2.45(2.81) & 3.94(3.52) \\
4^{\text{th}} \text{ year} & 9.10(4.35) & 2.93(3.58) & 5.65(4.42) \\
5^{\text{th}} \text{ year} & 8.56(4.55) & 1.89(2.95) & 5.56(4.39) \\
\hline
\end{array}
\]

\text{TABLE 1: CARIES EXPERIENCE OF THE DENTAL STUDENTS}
Table 2: Oral Hygiene Status of the Dental Students.

<table>
<thead>
<tr>
<th>Academic Level</th>
<th>Good (%)</th>
<th>Fair (%)</th>
<th>Poor (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td>13 (23.2)</td>
<td>21 (37.5)</td>
<td>22 (39.3)</td>
</tr>
<tr>
<td>2nd year</td>
<td>10 (20.0)</td>
<td>19 (38.0)</td>
<td>21 (42.0)</td>
</tr>
<tr>
<td>3rd year</td>
<td>3 (9.1)</td>
<td>29 (87.9)</td>
<td>1 (3.0)</td>
</tr>
<tr>
<td>4th year</td>
<td>7 (17.5)</td>
<td>27 (67.5)</td>
<td>6 (15.0)</td>
</tr>
<tr>
<td>5th year</td>
<td>10 (37.0)</td>
<td>13 (48.1)</td>
<td>4 (14.8)</td>
</tr>
<tr>
<td>Total</td>
<td>43 (20.9)</td>
<td>109 (52.9)</td>
<td>54 (26.2)</td>
</tr>
</tbody>
</table>

Table 3: Various Oral Hygiene Methods Used by the Dental Students.

<table>
<thead>
<tr>
<th>Academic Level</th>
<th>Brush Only (%)</th>
<th>Brush &amp; Miswak (%)</th>
<th>Miswak Only (%)</th>
<th>Dental Floss (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td>32 (52.5)</td>
<td>24 (39.3)</td>
<td>7 (1.5)</td>
<td>9 (4.8)</td>
</tr>
<tr>
<td>2nd year</td>
<td>23 (48.9)</td>
<td>20 (42.6)</td>
<td>6 (12.8)</td>
<td>11 (23.4)</td>
</tr>
<tr>
<td>3rd year</td>
<td>24 (75.0)</td>
<td>7 (21.9)</td>
<td>1 (3.1)</td>
<td>14 (43.8)</td>
</tr>
<tr>
<td>4th year</td>
<td>31 (79.5)</td>
<td>8 (20.5)</td>
<td>4 (10.3)</td>
<td>24 (61.5)</td>
</tr>
<tr>
<td>5th year</td>
<td>20 (74.1)</td>
<td>6 (22.2)</td>
<td>3 (11.1)</td>
<td>18 (66.7)</td>
</tr>
</tbody>
</table>

Table 4: Frequency of Tooth Cleaning Among the Students.

<table>
<thead>
<tr>
<th>Academic Level</th>
<th>Once (%)</th>
<th>Twice (%)</th>
<th>Thrice (%)</th>
<th>&gt;3 times (%)</th>
<th>Sometime (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td>19 (31.1)</td>
<td>17 (27.9)</td>
<td>1 (1.6)</td>
<td>2 (3.3)</td>
<td>22 (36.1)</td>
<td>61 (100)</td>
</tr>
<tr>
<td>2nd year</td>
<td>18 (38.3)</td>
<td>9 (19.1)</td>
<td>6 (12.8)</td>
<td>2 (4.3)</td>
<td>12 (25.5)</td>
<td>47 (100)</td>
</tr>
<tr>
<td>3rd year</td>
<td>11 (34.4)</td>
<td>14 (43.8)</td>
<td>5 (15.6)</td>
<td>2 (6.3)</td>
<td>–</td>
<td>32 (100)</td>
</tr>
<tr>
<td>4th year</td>
<td>13 (34.2)</td>
<td>17 (44.7)</td>
<td>5 (13.2)</td>
<td>1 (2.6)</td>
<td>2 (5.3)</td>
<td>38 (100)</td>
</tr>
<tr>
<td>5th year</td>
<td>7 (25.9)</td>
<td>15 (55.6)</td>
<td>2 (7.4)</td>
<td>2 (7.4)</td>
<td>1 (3.7)</td>
<td>27 (100)</td>
</tr>
<tr>
<td>Total</td>
<td>68 (33.2)</td>
<td>72 (35.1)</td>
<td>19 (9.3)</td>
<td>9 (4.4)</td>
<td>37 (18.0)</td>
<td>205 (100)</td>
</tr>
</tbody>
</table>

Particular trend across the academic levels in relation to the frequency of tooth cleaning (Table 4).

Discussion

The present study has provided an interesting insight into caries experience and oral hygiene status/practices among male undergraduate dental students. The results would be useful in motivating the students to improve their oral health status and practices. These results will also serve as baseline data for future comparisons. The caries experience of the dental students in this study was very high. However, this result was not unexpected. Recent studies of Saudi schoolchildren have reported very high levels of caries experience and the schoolchildren are carrying the disease with them to the universities. Nevertheless, such a high level of caries experience is alarming. The challenge of high caries prevalence and severity among school children in Saudi Arabia had been identified, and plea made for immediate steps towards enhanced preventive efforts among the schoolchildren.

The ratio of the decay component of the DMFT score decreased through the academic levels. It is believed that students got their carious teeth restored, probably as a result of increased awareness about the disease and importance of its treatment. A recent study in Tunisian dental students showed similar trend. A study of Danish dental students also ascertained a better oral health through the academic years. The dental students are expected to have better oral health than other similar-age youngsters. There are no such recent data available comparing Saudi dental students with other similar-age Saudi population. However, studies in other countries have shown results in favor of the dental students.

Few dental students in this study had good oral hygiene. However, the percentage of those with good oral hygiene increased through the higher academic levels. The improvement was expected though, as a result of the awareness obtained through courses in preventive dentistry as well as peer interaction.
results were in agreement with those of Lang et al\textsuperscript{15} who attempted to determine the status of oral hygiene among Danish dental students from 1\textsuperscript{st} to the 5\textsuperscript{th} year, and reported an improvement through the years possibly due to the intensive exposure to preventive dentistry. Howat et al\textsuperscript{16} also compared the oral hygiene levels of preclinical and final year dental students in Birmingham England showing a significantly better oral hygiene levels in senior students. Recently, Maatouk et al\textsuperscript{14} showed a similar trend among Tunisian dental students.

The use of combination of brush and miswak significantly decreased through the academic year. This trend could be attributed to conventional preventive dentistry education, where so much emphasis is placed on the use of toothbrush to clean teeth. Several studies have reported on the usefulness of miswak for dental health\textsuperscript{17-19}. Therefore, it would be beneficial to continue using combination of brush and miswak for optimum oral health. Most importantly, the use of miswak has been historically encouraged in the religious and cultural oral hygiene guidelines. The increased use of dental floss among higher academic levels could be attributed to enhanced oral hygiene awareness and to increased number of restored teeth in the mouth requiring inter-proximal area cleaning with dental floss.

A response obtained through questionnaire has to be considered with some degree of caution. In the present study, oral hygiene practice questions were a sensitive area for a dental student, and possibility of a bias created by favorable response could not be ruled out. Nevertheless, the study has provided interesting and useful information about dental caries and oral hygiene in the study population. All undergraduate dental students should be screened for dental disease(s) at the beginning of their dentistry course, encouraged to seek treatment immediately and improve their oral health behaviors.

CONCLUSIONS

- The caries prevalence and severity was very high among the undergraduate male dental students of King Saud University.
- Only one-fifth of the study population had good oral hygiene; though the percentage of those with good oral hygiene increased in senior academic levels.
- The ratio of filled component of the mean DMFT score became significantly high through senior academic levels.

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REFERENCES