Evaluation of dental health education and dental status among dental students at Liaquat College of Medicine and Dentistry
Muhammad Nadeem, Syeda Sidra Ahmed Rabbia Khaliq Huda Mirza

Abstract
Aims: To assess a possible change in dental health condition with increase of dental knowledge among dental students of Liaquat College of Medicine and Dentistry (LCMD). Material and Methods: A total of 221 dental students participated in this survey. Subjects were divided into two groups, i.e., group 1 pre-clinical group (first and second year students) and group 2 clinical groups (third and fourth year students). Results: Most of the students showed improved oral hygiene following dental health education and the overall DMFT score were reduced. Conclusion: Dental knowledge and motivation had a positive effect in improving the behavior of oral self-care.

Key Words: Dental Health; Dental Students; Dental Health Education

Introduction
Dental health education plays an important role in improving oral hygiene of dental students. A study to assess the application of dental education by dental students to improve their own oral health care could be of great value because the students will transfer the same knowledge and behavior patterns to their patients during their practices. (1-3) The purpose of this study was to evaluate the relationship between dental health education and dental status, among dental students of Liaquat College of Medicine and Dentistry (LCMD).

Material and methods
A survey was conducted in the month of February 2011, among dental students of LCMD. The study protocol was approved by the Department of Research and Ethics of LCMD, Karachi and written informed consent was collected from all participants. The sample population includes dental students of undergraduate program (BDS) of LCMD. Out of 252 dental students at LCMD 221 (87.6%) dental students aged 18-25 years were participated in this study (males 80% (59/73) and females 90% (162/179), There were no exclusion criteria for this study. The study population was divided into two groups based on the year of study, i.e., Group 1 Preclinical Group (First and second years) and Group 2 Clinical Group (third and fourth year). All the participants undergone a self-administered questionnaire survey followed by a dental checkup by single examiner to access the dental health and oral hygiene status.

Dental examination were carried out by DMFT-(DT- decayed, MT- missed, and FT- filled tooth) index as an assessment tool according to the criteria selected for the assessment of dental caries experience in the study followed WHO Oral health Surveys.(4) The mean value, standard deviation, standard error of mean and $\chi^2$ statistics were calculated using SPSS v.19 to compare overall differences between groups and their habits. Differences were considered statistically significant for $p<0.001$, although chi-square test with $(k)$ degree of freedom for goodness of fit.

Results
The study showed that all 221 participants reported to brush their teeth. Around 63.2% of 1st year students brushed only once a day, 29.8% brushed twice and only 7% brushed after every meal. 80.8% of the 2nd year students brushed once daily, 13.7% twice daily and only 5.5% brushed after every meal. There was a vast difference in the brushing habits of 1st year to final year students. (Figure 1)

![Figure 1: Tooth brushing habits among students of different years.](image)

About 25.1% of the 3rd year students reported to brush once daily, 72.9% brushed twice daily and 2.1% brushed after every meal, while, 7% of the final year students brushed once daily, 65.1% brushed twice a day and considerably 27.9% were reported to brush after every meal (Figure 2). Statistical results were significant with $\chi^2=18.74$, $k=9$, $p<0.001$. Along with these results an increase of mouthwash (figure 3) was significant among first year 33.3%, second year students 30.1%, third
The number of decayed teeth was decreasing together with the increase amount of dental knowledge and the year of studies, based upon the mean values of the data which has been previously collected. (Table 2) The lowest mean number of untreated carious lesion [DT segment] has been registered among clinical group (0.62 ± 1.19) and highest among pre-clinical group (1.15 ± 1.98) and mean number of missed teeth [MT segment] is lowest among Clinical group (0.24 ± 0.79) and highest among pre-clinical group (0.30 ± 0.96) while the lowest mean number of filled teeth [FT segment] was seen in pre-clinical group (0.42 ± 1.13) and highest in clinical group (0.55 ± 1.20).

According to the clinical examination the highest amount of prosthesis was owned by the clinical group (1.73 ± 0.45) and least by the pre-clinical group (1.02 ± 0.95), these variables of restored and prosthesis reflect the increased awareness among the students to get their teeth treated. Mean value of whole DMFT scores decreases from pre-clinical group (1.87 ± 2.63) to clinical group (1.41 ± 1.95).

Discussion

To the best of our knowledge, this is the first study examining the association between dental status, oral hygiene status, replacement of missing teeth and delivery of knowledge in dental student of LCMD, Karachi, Pakistan. The results of this study confirm previous reports suggesting the enough knowledge and motivation dental students are using more preventive measure in final year as compare to previous years.(2, 5-8) The criteria selected for the assessment of dental caries experience in the study followed WHO Oral health Surveys.(4) This method ensures that the data collected in a wide range of dental and oral condition. Furthermore, it gives a standard

<table>
<thead>
<tr>
<th>Year of study</th>
<th>Duration of Tooth Brushing</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 1 min</td>
<td>%</td>
<td>1 - 2 min</td>
<td>%</td>
<td>2 - 3 min</td>
</tr>
<tr>
<td>1st</td>
<td>36</td>
<td>63.2</td>
<td>7</td>
<td>12.3</td>
<td>11</td>
</tr>
<tr>
<td>2nd</td>
<td>38</td>
<td>52.1</td>
<td>9</td>
<td>12.3</td>
<td>22</td>
</tr>
<tr>
<td>3rd</td>
<td>5</td>
<td>10.4</td>
<td>19</td>
<td>39.6</td>
<td>22</td>
</tr>
<tr>
<td>4th</td>
<td>7</td>
<td>16.3</td>
<td>6</td>
<td>14</td>
<td>28</td>
</tr>
</tbody>
</table>

Table 1. Increase in tooth brushing time period as seniority rises.

<table>
<thead>
<tr>
<th>Professional Years</th>
<th>DMFT</th>
<th>DT</th>
<th>MT</th>
<th>FT</th>
<th>Prosthesis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean ± SD</td>
<td>SE</td>
<td>Mean ± SD</td>
<td>S.E</td>
<td>Mean ± SD</td>
</tr>
<tr>
<td>Preclinical (I &amp; II)</td>
<td>1.87 ± 2.63</td>
<td>0.08</td>
<td>1.15 ± 1.98</td>
<td>0.2</td>
<td>0.30 ± 0.96</td>
</tr>
<tr>
<td>Clinical (III &amp; IV)</td>
<td>1.41 ± 1.95</td>
<td>0.2</td>
<td>0.62 ± 1.19</td>
<td>0.1</td>
<td>0.24 ± 0.79</td>
</tr>
</tbody>
</table>

Table 2: DMFT composition

year students 64.6% and final year students 67.4%, $\chi^2=25.73, k=3, p<0.001$ The most important indicator describing oral-self-care level was DMFT composition, which was increased with knowledge (Table 1), and was statistically significant with $\chi^2=14.94, k=9, p=0.098$. The daily use of a dental floss (figure 2) increased with the year of studies: the lowest amount of dental floss-users was in the second year (59%), and the highest in the final year (82%). Mouth rinses were used by students less often: the lowest amount of mouth rinse-users were among third year students (27%), and the highest among final year students (35%). These results were statistically significant with $\chi^2=33.18, k=3, p<0.001$. 

![Figure 2: Implements of oral hygiene.](image)

![Figure 3: Mouth Rinses Yes %](image)
measurement of oral diseases, conditions and treatment need as a base for planning and evaluating oral health. It can be assumed that there is a significant difference in oral health condition of community and dental students, as these are the people who showed enough interest to take it as a profession which deliberately affects a behavioral change in their personality and personally accept themselves as dental personnel who do or will be motivated enough to improve themselves and their corresponding societies.

The impact of knowledge can easily see in the considerable difference in DMFT index, which reflects the professional habits and enough motivation to care for their oral health status and have their own dental problems treated. These results reflect that these students are already such motivated and can lead in making of a society with great improvements if proper revised and continuous education is implicated towards the people of different interests through different resources. Key role in implicating this change will be to form role models to which people of different societies look forward to. Through this study we accept that these students fulfill the criteria of standardizations. A step forward of this study is to educate a respective group of a different interest and evaluate the results to establish the more emphasized association between education of different universitiys of different areas of this world proved the same statement: ‘constant exercise in the field of profession reflects in students ‘oral hygiene habits’. (1-5, 7-9)

**Conclusion**

This study concludes that enough dental knowledge and motivation has an association in improving the behavior of oral self-care and thus, if proper information regarding oral health care is implicated in a society we can assure positive results. As far as these students were concerned these results have provided in immersed hope that they will keep improving their own oral hygiene and will certainly play a beneficial key role in educating their societies and will help in improving oral health care as a community.

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**References**


7. Dąbrowska E, Letko R, Balunowska M. Assessment of dentition status and oral hygiene in first year dental students, Medical University of Bialystok. Advances in Medical Sciences. 2006;51(1).


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