Oral hygiene and gingival health among adult population (21–80) years in Thamar–Yemen

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ABSTRACT
The aim of the study is to evaluate the oral hygiene and gingival health and to find if there is any variation between sex and age groups among adults aged 21–80 years in Thamar–Yemen.

A sample of 224 individuals aged 21–80 years (177 males and 47 females) were examined using plaque index by Silness and Löe (1964) and gingival index by Löe and Silness (1963).

The results showed that the mean plaque score for the total sample was 1.15; the plaque index was increasing with age significantly. Males reported higher means than females with statistical significant difference in the 3rd and 5th age groups; while at the 4th age group the females reported significantly higher plaque scores than males.

The mean gingival score for the total sample was low (0.84) and it was increasing with age significantly. The mean gingival score was slightly better in males than females with statistical significant difference in all age groups except the 5th age group where the females showed better gingival health.

Therefore, the objective of dental health education to those adults is to improve the effectiveness of oral hygiene practice by tooth brushing and interdental aids.

Key Words: Oral hygiene, gingival health, adults.
INTRODUCTION
Periodontal disease is present in almost all persons with natural teeth irrespective of their age and race.\(^1\) Periodontal disease is one of the major adult oral problems and the principal reason for tooth loss in persons older than 35 years old.\(^8,9\) It is more prevalent among developing countries.\(^10\) It increases with increasing age which has a significant effect on gingival health and periodontal disease.\(^1,3\) Oral hygiene is the most important factor for the health of periodontal tissue; the most important oral hygiene habit is by the regular and proper technique of tooth brushing and the use of interdental aids to control and prevent periodontal disease.\(^14,15\)

So, the aim of this study was to evaluate gingival health among adult population and to find if there is any sex difference among these age groups.

MATERIALS AND METHODS
The study was conducted in Thamar Governorate in Arab Yemen Republic. Two hundred and twenty four individuals aged 21–80 years, who were attending the only two medical hospitals at the Governorate for different systemic diseases, were selected randomly for examination by one examiner.

As a general rule observed in the country, females numbers are relatively low in comparison with the males.

The clinical examinations were carried out in the hospitals using dental chair unit. Mouth mirrors and WHO periodontal probes were used to detect the dental plaque and gingival health.\(^8\)

The indices used for assessment of dental condition were used as follow:
1) Plaque index by Silness and Löe to evaluate the oral hygiene of the individuals.\(^16\)
2) Gingival index by Löe and Si-lness\(^17\) to evaluate the gingival health of the individuals.

Indexed teeth examined were: Upper right first molar and lateral incisor, upper left first premolar, lower left first molar and lateral incisor, and lower right first premolar. When any tooth was not present, the adjacent tooth was examined. The measurement of plaque and gingivitis was carried out for the four surfaces of each indexed tooth.

Additional information regarding this study such as age and sex were recorded on a special form.

The statistical analysis of the data included the mean and standard error for plaque and gingival indices. The differences in plaque score and gingival health between age groups and between males and females were tested statistically using Duncan’s Multiple Range Test and analysis of variance (ANOVA) test.

RESULTS
There were 224 individuals comprising 79% males and 21% females. The population sample is divided into 5 age groups as shown in Table (1).

Mean plaque index scores are shown in Table (2) according to sex and age groups. The mean plaque for the total sample was 1.13 and the males reported higher mean than females in the first, third and fifth age groups and also the total except the second and fourth age groups. The study revealed that the mean plaque is increased with age with significant difference at 0.05 level.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>No. (%)</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>21–30</td>
<td>60 (33.9)</td>
<td>16 (34.0)</td>
<td>76 (34.0)</td>
<td></td>
</tr>
<tr>
<td>31–40</td>
<td>35 (19.8)</td>
<td>13 (27.7)</td>
<td>48 (21.4)</td>
<td></td>
</tr>
<tr>
<td>41–50</td>
<td>28 (15.8)</td>
<td>9 (19.1)</td>
<td>37 (16.5)</td>
<td></td>
</tr>
<tr>
<td>51–60</td>
<td>33 (18.6)</td>
<td>6 (12.8)</td>
<td>39 (17.4)</td>
<td></td>
</tr>
<tr>
<td>≥ 61</td>
<td>21 (11.9)</td>
<td>3 (6.4)</td>
<td>24 (10.7)</td>
<td></td>
</tr>
</tbody>
</table>
Table (2): The mean and standard error of plaque index according to sex and age group

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Mean ± SE</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
<td>Total</td>
</tr>
<tr>
<td>21–30</td>
<td>0.78 ± 0.05</td>
<td>0.74 ± 0.10</td>
<td>0.77 ± 0.05</td>
</tr>
<tr>
<td>31–40</td>
<td>1.11 ± 0.11</td>
<td>1.18 ± 0.09</td>
<td>1.13 ± 0.08</td>
</tr>
<tr>
<td>41–50</td>
<td>1.45 ± 0.10</td>
<td>1.36 ± 0.19</td>
<td>1.43 ± 0.09</td>
</tr>
<tr>
<td>51–60</td>
<td>1.31 ± 0.10</td>
<td>1.52 ± 0.29</td>
<td>1.34 ± 0.09</td>
</tr>
<tr>
<td>&gt; 61</td>
<td>1.63 ± 0.32</td>
<td>1.58 ± 0.09</td>
<td>1.62 ± 0.30</td>
</tr>
<tr>
<td>Total</td>
<td>1.15 ± 0.05</td>
<td>1.10 ± 0.08</td>
<td>1.13 ± 0.03</td>
</tr>
</tbody>
</table>

Means of total with different letters are statistically significant at 0.05 level.

Means between groups with different letters are statistically significant at 0.0001 level.
SE: Standard error.

Table (3) shows the mean gingival score according to sex and age groups. The mean for the total sample was 0.84. Females reported higher mean gingival score than males but the difference was not found to be statistically significant. The mean gingival score was increased with age significantly at 0.05 level.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Mean ± SE</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
<td>Total</td>
</tr>
<tr>
<td>21–30</td>
<td>0.48 ± 0.05</td>
<td>0.48 ± 0.07</td>
<td>0.48 ± 0.04</td>
</tr>
<tr>
<td>31–40</td>
<td>0.82 ± 0.10</td>
<td>1.05 ± 0.12</td>
<td>0.88 ± 0.08</td>
</tr>
<tr>
<td>41–50</td>
<td>0.91 ± 0.10</td>
<td>1.30 ± 0.20</td>
<td>1.00 ± 0.09</td>
</tr>
<tr>
<td>51–60</td>
<td>1.91 ± 0.11</td>
<td>1.25 ± 0.23</td>
<td>0.96 ± 0.10</td>
</tr>
<tr>
<td>&gt; 61</td>
<td>1.42 ± 0.33</td>
<td>1.24 ± 0.24</td>
<td>1.39 ± 0.20</td>
</tr>
<tr>
<td>Total</td>
<td>0.81 ± 0.04</td>
<td>0.93 ± 0.07</td>
<td>0.84 ± 0.04</td>
</tr>
</tbody>
</table>

Means of total with different letters are statistically significant at 0.05 level.

Means between groups with different letters are statistically significant at 0.0001 level.
SE: Standard error.

**DISCUSSION**

Periodontal disease is present in almost all persons with natural teeth. It starts with gum tissues (gingivitis) or may involve the deeper supporting tissues (periodontitis). It is caused by dental plaque which is formed at tooth–gum junction and between the teeth. Plaque starts to accumulate soon after the tooth surface has been cleansed.14,18

The data reported here show that for the Yemenis population aged 21–80 years, the mean plaque score for the total sample was moderate (1.15). The plaque index score increased with age and there was a significant difference between the first, second, third and fifth age groups. This finding is in agreement with other studies.19,21

The females reported less mean plaque score in the first, third and fifth age groups, with statistical significant
difference between the third and fifth age groups. This was in accordance with other studies.\(^{(22, 23)}\)

The mean gingival score for the total sample was low (0.84), and it was increased with age significantly between the first, second, third and fifth age groups. That means the youngest age groups (21–30 years) have healthier gingiva than the older age groups. This means that this age group care for their gingival health in addition to that the disease is accumulative in nature.\(^{(24)}\)

Females reported higher mean gingival index than males with no statistical significant difference. This was in contrast with other studies carried out in developing countries that reported no difference between sexes in gingival health.\(^{(24–27)}\)

Regularly reported tooth cleaning instruction and prophylaxis are possible to stimulate adults to adopt proper oral hygiene habits together combined with dental plaque control programme seem to be the only effective and practical measures available for the prevention and control of periodontal disease for those population in the country.\(^{(13, 28–31)}\)

**CONCLUSIONS**

A review of epidemiological surveys of the periodontal conditions of people have shown that gingivitis associated primarily with plaque is very common in some population groups. Females reported less mean plaque score than males because females care much about their looking. The gingival health score was increasing with age due to the accumulative nature of the disease. Majority of the subjects needs oral health education by tooth brushing, dental flossing and other interdental aids.

**REFERENCES**

13) Sheiham A, Striffler DF. A comparison of four epidemiological methods of assessing periodontal disease. II. Test


Received: 20/12/2003

Accepted for Publication: 12/6/2004