EFFECTS OF GENDER AND FACIAL PROFILES ON THE SIZE OF MAXILLARY CENTRAL INCISORS

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ABSTRACT

The aims of the study were to compare the mean tooth length of the upper right central incisor with respect to facial profiles and gender. It is a cross sectional study and was carried out at the Prosthodontic Department of Lahore Medical and Dental College, Lahore from 16th August 2014 to January 2015.

A total of 400 dentate subjects; 200 male and 200 females of age range 18 to 53 years were randomly selected from the department of Prosthodontics, Lahore Medical and Dental College, Lahore. Subjects with intact maxillary anterior teeth and with healthy periodontal and gingival tissues were included in the study. To compare the percentage of mean tooth length of the upper right central incisor the measurements were carried out using a digital Vernier caliper. The maximum incisogingival length was measured from the gingival margin to the incisal edge vertically slightly distal to the middle of the tooth.

The results of the present study have shown that men have significantly longer maxillary right central incisors as compared to the female participants. However no significant difference was found in maxillary right central incisors length in different facial profiles.

It was concluded that there were no significant effects of different facial profiles on the length of maxillary central incisors. However, significant gender based difference was found as men having longer central incisors than females counterparts.

Key Words: Esthetics, smile, facial profiles, edentulism, teeth selection.
Effects of gender and facial profiles on the size of maxillary central incisors

The amount of maxillary anterior teeth visibility diminishes and mandibular anterior teeth display increases. Hence maxillary incisor tooth display is inversely proportional to age and mandibular incisor tooth display is directly proportional to age. Maxillary central incisors are more significant than the rest of the anterior teeth in regards to the amount of observable crown. The significant factors contributing to a harmonious maxillary anterior teeth is the size mainly the maxillary central incisors as observed from the front. Among all the anterior teeth the maxillary central incisor has maximum visibility due to its large surface area. They are the most prominent anterior teeth in dental arch because their dimensions can be seen in full size during smile.

Therefore maxillary right central incisor was used as a parameter to asses gender differences between subjects evaluated. This study will help in accurate selection of artificial tooth size of maxillary anterior teeth in complete dentures in both genders. This all will result in achieving esthetically better Prosthodontic rehabilitation of the patients. This will also result in obtaining better patient satisfaction and lessen the cost of making denture repeatedly for a single patient.

**METHODOLOGY**

A total of 400 dentate subjects; 200 male and 200 females fulfilling the inclusion criteria were selected from the department of Prosthodontics, Lahore Medical and Dental College, Lahore. Informed consent and demographic information (name, age, sex and contact) was obtained. Subjects having intact maxillary anterior teeth with healthy periodontium were included in the study. However all those subjects who had undergone who had crown and bridge work on maxillary anterior teeth, interdental spacing, crowding or treated orthodontically were not included.

For comparing the mean tooth length of the upper right central incisor with respect to facial profiles and gender, the measurements were carried out using a digital Vernier caliper. The caliper has two edges, external and internal. External edges were used to measure the length of the maxillary central incisor. Length measurement was performed on the labial surface of the maxillary right central incisor. The maximum incisogingival length was measured from the gingival margin to the incisal edge vertically slightly distal to the middle of the tooth. Measurements were performed with the subjects seated in a dental chair with the head and back in an upright position. Cheek retractors were used to facilitate using the caliper intraorally so that the cheeks and lips should not interfere with accuracy of the measurements.

The data was entered and analyzed in statistical software (SPSS version 17) a computer based software program. The quantitative variable, age was presented as mean and standard deviation. The qualitative variable like sex were presented as frequency and percentage. Data was presented separately in both male and female patients.

**RESULTS**

The mean age of subjects in this study was 29.608±11.298 year. Out of total 400 recruited subjects, 200(50%) were males and 200(50%) were females. The mean age of females (28.045±9.554) was less than those of males (32.051±13.251) in the study. Majority of subjects (250) showed a straight facial profile (62.5%) whilst only 150 (37.5%) subjects had a convex facial profile. (Table.1) The mean length of maxillary central incisor was found to be 9.567±0.78038 with minimum recorded length to be 7.96 mm and maximum length to be 11.20 mm. (Table.2)

The mean length of maxillary central incisor in males was found to be 9.802±0.7567 and in females it was 9.417±0.75946.

**TABLE 1: FREQUENCY TABLE OF FACIAL PROFILE**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
<th>Valid percent</th>
<th>Cumulative percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convex</td>
<td>150</td>
<td>37.5</td>
<td>37.5</td>
</tr>
<tr>
<td>Straight</td>
<td>250</td>
<td>62.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>400</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**TABLE 2: DESCRIPTIVE STATISTICS OF LENGTH OF MAXILLARY CENTRAL INCISOR**

<table>
<thead>
<tr>
<th>Length of maxillary central Incisor</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>9.5671</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>0.78038</td>
</tr>
<tr>
<td>Range</td>
<td>3.24</td>
</tr>
<tr>
<td>Minimum</td>
<td>7.96</td>
</tr>
<tr>
<td>Maximum</td>
<td>11.20</td>
</tr>
</tbody>
</table>

**TABLE 3: COMPARISON OF LENGTH OF MAXILLARY CENTRAL INCISOR IN MALE AND FEMALE SUBJECTS**

<table>
<thead>
<tr>
<th>Gender of Subjects</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Mean</td>
<td>9.8015</td>
<td>9.4172</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>0.75679</td>
<td>0.75946</td>
</tr>
<tr>
<td>Std. Error Mean</td>
<td>0.06059</td>
<td>0.04862</td>
</tr>
<tr>
<td>t-test</td>
<td>4.943</td>
<td></td>
</tr>
<tr>
<td>p-value</td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>
was found to be 9.417±0.7594. There was a significant difference in mean length of maxillary central incisors among males and females. (Table.3) The average length of maxillary central incisor in those subjects having a convex facial profile was 9.568±0.8823 and in those subjects with straight facial profile, it was 9.567±0.7556. The difference in mean length of maxillary central incisor was statistically insignificant among both types of facial profiles. (Table.4)

**DISCUSSION**

Maxillary anterior teeth length is important parameter in denture esthetic. It changes from patient to patient. This study showed the variability of this factor in both genders and also evaluated the effect of facial profiles on length of incisor maxillary teeth. In the present study, 400 dentate subjects; 200 male and 200 female patients were selected. The present study showed the mean length of maxillary right central incisor 9.5 mm. Furthermore it showed that men had longer maxillary right central incisor than females. Similar results were shown in a study done by Al Habheh.4

Al-Jabrah et al18 investigated length of maxillary right central incisor at rest for the patients. They found the length of maxillary central incisors about 9.75 mm. Their study further revealed that male had significantly longer maxillary right central incisor than females. These results are consistent with the present study.

Brimson AS19, Gillen RJ et al20, Gran SM21, potter RH22, Arya BS et al23 found that there is differences in dimensions of maxillary right central incisor in different gender, however Sterrett et al24 reported that positive correlation was found between same gender as that of present study.

In contrast to present study Sherfudhin H et al25 and Lavelle CLB26 found that there is no correlation between tooth length and gender. In the present study intraoral measurements were carried out, while other studies considered the clinical crown dimensions either on casts24 or using computer-based images25 or intraoral assessments.28

In the current study the measurement of average length of maxillary central incisor with respect to facial profiles has also been recorded. The difference in mean length of maxillary central incisor was statistically insignificant among both types of facial profiles. In case of providing removable prosthesis, besides the other guide lines for arrangement of artificial teeth we should also consider the length of artificial teeth for every individual. The significant gender differences in the length of the maxillary right central incisor strongly recommend that this parameter should be assessed carefully when replacing anterior teeth.

**REFERENCES**

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CONTRIBUTIONS BY AUTHORS

1 Khezran Qamar: Article writing
2 Gotam Das: Data collection/results/review
3 Permanand: Editing/analysis
4 Sajid Naeem: Proof reading