INTRODUCTION

Smile is the first introduction of your personality and it has been accepted that it is the best gift any one can give. The balance smile midline has great importance. The balance smile depends on the coincidence of facial and dental midlines respectively. The facial midline is defined by the landmarks such as nose, philtrum and chin aligned in a straight line. It should be in the centre of face and should coincide with the dental midline. The dental midline is the mid sagittal line of maxillary and mandibular arches when teeth are in maximum intercuspation.

Dental midline is the vital element in smile design and should be parallel to the long axis of the face. Furthermore it should be perpendicular to Incisal plane and perpendicular to papilla. Establishing dental midline parallel to that of face is the initial step while fabricating fixed or removable prosthesis. If it is in harmony with facial component it significantly contributes to the aesthetics of the face. This will give patient a feeling of symmetry and balance. The objective of the present study was to determine the coincidence of dental midline with facial midline.

METHODOLOGY

A total of 500 dentate patients were selected from Baqai Medical University, Karachi, Pakistan. The criteria for selection of patients include patients with age range from 18 to 30 years. All of them had permanent dentition from 2nd molar to 2nd molar in maxillary arch. There was random selection for male and female patients, no fixed proportion was proposed. The patients with midline diastema, congenital or acquired maxillofacial deformity were excluded. The patients underwent any orthodontic treatment were also not included in the study. An informed written consent was obtained from each selected patient.

The results of the present study showed that 82.8% patients had their maxillary dental midline coinciding with facial midline. Therefore it was concluded that the Facial midline can be taken as reliable guide in establishment of maxillary dental midline among Pakistani population.
All the patients were examined by 2 examiners separately. To avoid eye fatigue both the examiners analyzed 10 patients per day. The patients were observed to check if maxillary dental midline coincides with facial midline. The facial midline was examined by marking points between nasion till pognion including centre of philtrum with the help of scale or dental floss. During the study after month duration, a total no. of 50 patients was randomly selected and their facial midline with maxillary dental midline was re-examined by a third examiner to avoid biasness in results.

**RESULTS**

Data were entered and analysed by using software SPSS statistic 17.0. The statistical analysis obtained has shown that the midline of the majority population was coincident with the facial midline that is 82.8%. However 17.2% patients were showing non coincident maxillary dental midline with facial midline Table 2, (Fig 1).

While examining patients with shifted maxillary dental midline in comparison of facial midline, 5.4% patients were found with the shifted midline 0.5mm to left Table 3, (Fig 2).

**TABLE 1: FREQUENCY OF PATIENTS ON BASIS OF GENDER**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Male</td>
<td>137</td>
<td>27.4</td>
<td>27.4</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>363</td>
<td>72.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>500</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**TABLE 2: CORRELATION OF MAXILLARY MIDLINE WITH FACIAL MIDLINE**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Coincide</td>
<td>414</td>
<td>82.8</td>
</tr>
<tr>
<td></td>
<td>Non Coincide</td>
<td>86</td>
<td>17.2</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>500</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**TABLE 3: PERCENTAGES OF MAXILLARY DENTAL MIDLINE SHIFT**

<table>
<thead>
<tr>
<th>Dm</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>DncL .5mm</td>
<td>27</td>
<td>5.4</td>
<td>5.4</td>
<td>87.8</td>
</tr>
<tr>
<td>Dnc L 1mm</td>
<td>12</td>
<td>2.4</td>
<td>2.4</td>
<td>90.2</td>
</tr>
<tr>
<td>Dnc L 2mm</td>
<td>12</td>
<td>2.4</td>
<td>2.4</td>
<td>92.6</td>
</tr>
<tr>
<td>DncR .5mm</td>
<td>12</td>
<td>2.4</td>
<td>2.4</td>
<td>95.0</td>
</tr>
<tr>
<td>DncR 1mm</td>
<td>13</td>
<td>2.6</td>
<td>2.6</td>
<td>97.6</td>
</tr>
<tr>
<td>DncR 1.5mm</td>
<td>1</td>
<td>.2</td>
<td>.2</td>
<td>97.8</td>
</tr>
<tr>
<td>Dnc R 2mm</td>
<td>11</td>
<td>2.2</td>
<td>2.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>500</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

![Fig 1: Correlation between maxillary and facial midline](image1)

![Fig 2: Frequency of maxillary dental midline shift](image2)
2.4% showed maxillary dental midline shift 1 mm towards left
2.4% showed maxillary dental midline shift 2 mm towards left
2.4% showed maxillary dental midline shift 0.5 mm towards left
2.6% showed maxillary dental midline shift 1 mm towards right
0.2% showed maxillary dental midline shift 1.5 mm towards right.
2.2% showed maxillary dental midline shift 2 mm towards right.

DISCUSSION

Facial symmetry is one of the facial aesthetic characteristic. According to the golden proportion, beauty of the face depends on alignment, symmetry and proportion of face. To achieve a balance smile while fabricating fixed or removable prosthesis is mandatory. The maxillary dental midline harmony with facial component significantly contributes to the aesthetic.

The purpose of the study was to take out norm and relation of facial midline with maxillary dental midline among Pakistani population. The facial midline can be used as a guide for establishing maxillary dental midline while replacing anterior teeth. We found 82.8% coincidence of facial and maxillary midline, While 17.2% showed none coinciding. This non coinciding maxillary midline in our study was found to be 0.5 mm commonly towards left (5.4%).

During this study nasion, centre of philtrum and pognion were used to determine the facial midline. The results of the present study are in agreement with the results obtained in the study conducted in city of Riyadh, Saudi Arabia. They have found 88.10% subjects showing coinciding maxillary dental midline with facial midline. Similar results were obtained in another study done by Miller. He observed the midline situated exactly in the middle of the mouth in approximately 70% of people.

David R has also suggested that the coincidence of facial midline with dental midline is a reliable method during fabrication of prosthesis. However Frush and Fisher have stated that “an eccentric midline in a denture, if not too exaggerated, is acceptable and may lead to an illusion of a natural dentition”.

CONCLUSION

From the results of the present study it was concluded that the facial midline is in coincident with the maxillary dental midline. Furthermore it can be used as a reliable guide for establishing maxillary dental midline while fabricating fixed prosthesis or during oral rehabilitation in edentulous patients in Pakistani population.

REFERENCES

3 Zhang YF, Xiao L, Juan Li et al. Young People’s Esthetic Perception Of Dental Midline Deviation. Angle Orthodont 2010; 80; 3-5.
14 Harold S. Observable deviation of facial and anterior tooth midlines prosthodont 2003; 89: 282-85.