ORTHODONTIC TREATMENT NEED AT de,MONTMORENCY COLLEGE OF DENTISTRY LAHORE USING THE AESTHETIC COMPONENT OF IOTN INDEX

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ABSTRACT

Although work has been done in Pakistan to determine the orthodontic treatment need of patients, but till now no study had been done to evaluate the orthodontic treatment need on aesthetic basis. Aesthetic Component (AC) of Index of Orthodontic Treatment Need (IOTN) was used on a sample of 100 pretreatment study casts of the patients at de'Montmorency College of Dentistry, Lahore Pakistan, to evaluate the aesthetic need for orthodontic treatment. The data was statistically analyzed by SPSS (8.0). Overall it was found that 41% of the cases needed definite orthodontic treatment. 37% of female patients and 52% of male patients needed definite orthodontic treatment. 41% of the patients were classified as being in need of moderate orthodontic treatment, with 18% having no orthodontic treatment need. Aesthetic Component grade 8 was shown by 26% of cases. Results of the study showed a high number of patients in need of the orthodontic treatment.

Key words: Occlusal indices, the Aesthetic Component, Index of Orthodontic Treatment Need.

INTRODUCTION

Human self-esteem and self-confidence depends on acceptable physical appearance, well proportioned facial features, properly aligned teeth and a pleasing attractive smile. Most people undergo orthodontic treatment to improve aesthetics and to look attractive to succeed in life1.

Historically orthodontic diagnosis has been taught and practiced as a descriptive, qualitative subject2. However to get information about the prevalence of malocclusion and to quantify the severity of various features of malocclusion, several indices have been proposed2. An orthodontic index is a numerical scale that is derived by scoring specific features of a malocclusion to objectively assess some parameters3.

There are five main types of occlusal indices, namely Angle's classification, epidemiological indices, treatment need indices, treatment outcome indices and treatment complexity indices4. Occlusal indices have been used to 1) identify patients with treatment needs. 2) Prioritize their treatment needs. 3) Useful tools in epidemiological studies5.

The Index of Orthodontic Treatment Need (IOTN) was introduced as a combination of SCAN scale (Standardized Continuum of Aesthetic Need) and the index used by the Swedish Dental Health Board; Later on it was modified. IOTN has two components; a Dental Health Component (DHC) and an Aesthetic Component (AC). The AC takes into account the aesthetic impairment, and consists of a 10 grade

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scale illustrated by numbered intra-oral photographs. The photographs represent three treatment categories:

No treatment need (grades 1-4), moderate need (grades 5-7), and great treatment need (grades 8-10). 6.

Very little work has been done in Pakistan to determine the orthodontic treatment need of patients4,7, 8, but till now no study had been done to evaluate the orthodontic treatment need on aesthetic basis.

The purpose of our study was

• To determine the orthodontic treatment need of patients on aesthetic basis at the orthodontic department, de’Montmorency College of Dentistry, Lahore by using Aesthetic Component of the Index of Orthodontic Treatment Need.

MATERIALS AND METHODS

It was a cross-sectional, observational study, carried on 100 pretreatment study casts of patients having permanent dentition, irrespective of their gender. Study casts were selected consecutively 5, 9 from the model store of orthodontics department de’Montmorency College of Dentistry, Lahore Pakistan, having the following inclusion criteria; undamaged, acceptable quality study casts 10 and presence of permanent dentition 9, 11. Care was taken to exclude study casts of patients, who were having; previous orthodontic treatment 10, 12, history of serial extraction7 and history of extraction of any permanent teeth10.

Scoring of the selected 100 sets of study casts was done, to evaluate the aesthetic need for orthodontic treatment by using Aesthetic Component of IOTN (Annexure I) by the authors.

Aesthetic Component of IOTN has a scale based on a series of 10 colored photographs of anterior teeth numbered 1-10, which represents a range of deteriorating dental esthetics. Photograph 1 is the most attractive and photograph 10 is the least attractive arrangement of teeth 6.

Photographs represent three treatment categories;

Grades 8-10 indicate definite orthodontic treatment need.
Grades 5-7 indicate moderate need of orthodontic treatment
Grades 1-4 indicate no/ slight orthodontic treatment need

Intraexaminer reliability, 30 sets of study casts were randomly selected from the main sample and were reassessed 15 days after the initial assessment. SPSS (8.0) was used to analyze the data statistically.

RESULTS

The chronological age range of the sample (Fig 1) was 11- 25.5 years, with a mean age of 17.19 years (S.D 3.1). The sex distribution (Table 1) was 25 males (25%) and 75 females (75%). The mean age of male patients were 17.12 years and mean age of female patients were 17.22 years.

41 study casts of patients (41%) were found to be in definite need of orthodontic treatment on aesthetic grounds. 41 (41%) were having moderate orthodontic treatment need, while 18 patients’ study casts were found to have no/ slight need of orthodontic treatment.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Total</th>
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<tbody>
<tr>
<td>Male</td>
<td>25</td>
</tr>
<tr>
<td>Female</td>
<td>75</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
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</tbody>
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TABLE 1: DISTRIBUTION OF MALE AND FEMALE SUBJECTS INTO TREATMENT NEED AND NO NEED CATEGORY.

<table>
<thead>
<tr>
<th>Orthodontic Treatment Need</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No/ slight</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>3</td>
</tr>
<tr>
<td>Female</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
</tr>
<tr>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>9</td>
</tr>
<tr>
<td>Female</td>
<td>32</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
</tr>
<tr>
<td>Definite</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>13</td>
</tr>
<tr>
<td>Female</td>
<td>28</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

TABLE 2
Orth Treatment need using IOTN Index

Out of 75 female patients, 28 (37%) needed definite need of orthodontic treatment, 32 patients (43%) needed moderate orthodontic treatment need, while 15 (20%) were in no/ slight need of orthodontic treatment.

13 male patients (52%) were in definite need of treatment, 9 male patients (36%) were in moderate treatment group and 3 patients (12%) were having no need of orthodontic treatment.

The value for the kappa statistics was found to be 1.

**DISCUSSION**

The study was conducted in Punjab Dental Hospital/ de, Montmorency College of Dentistry on study casts of patients present in model store of orthodontics department. The subjects for this study were not taken from general population, but sought care and were receiving treatment at the orthodontic department, de, Montmorency College of Dentistry, Lahore. Patients seeking orthodontic treatment are of both sexes; including preadolescents, adolescents and adults.

The number of female patients 75% compared to 25% male patients in this study clearly indicates the concern of orthodontic treatment need of females in our socioeconomic setup, this is consistent with findings of other studies done elsewhere. Although the figure of 75% of females is quite higher than a previously conducted IOTN survey at our department, but that survey was conducted on the patients reporting to the orthodontic department, while subjects of the present study were the ones who were already receiving orthodontic treatment or they were about to receive it.

The results of this study showed (Table II) that 41 patients (41%) were in definite need of orthodontic treatment on aesthetic grounds. 41 (41%) were having moderate orthodontic treatment need, while 18 (20%) were in no/ slight need of orthodontic treatment.

13 male patients (52%) were in definite need of treatment, 9 male patients (36%) were in moderate treatment group and 3 patients (12%) were having no need of orthodontic treatment.

Of 41 patients who needed definite treatment need; 13 (32%) were male and 28 (68%) were females. Of 41 patients who were in moderate treatment need; 9 patients (22%) were male and 32 (78%) were female. In no treatment category; 3 (17%) of 18 patients were male and 15 (83%) were female patients.

Value of kappa statistics of 1.0 is in agreement with the value proposed by Landis and Koch.

If we look at the Table III, which gives the sex distribution of the sample into different grades of Aesthetic Component (AC), it becomes clear that the highest number of cases showed AC 8 of ICON, AC 8 was exhibited by 26 cases (26%), followed by AC 7 and AC 5 which were exhibited by 14 cases (14%) each. The AC grade, which was shown by the least number of cases, was AC 10, being showed only by 6 cases (6%).
As far as the AC 8 is concerned 18.6% females showed it, while for males these figures were 48%. For AC 10, 8% females exhibited it while for males this figure was 0%. It shows that in general males have more aesthetic problems as is shown by AC.

CONCLUSION

On aesthetic needs 41% of patients in our study needed definite orthodontic treatment. 41% were ranked in the moderate treatment need group, while 18% patients belonged to no treatment need group. This high figure is due to the fact that subjects of the study were not taken from general population, nor they included patients reporting to the out door of the orthodontics department, rather study sample consisted of study casts of the patients who were already undergoing orthodontic treatment at the department. AC grade 8 was shown by maximum number of cases.

REFERENCES

4. Fida M. Orthodontic treatment need in a Pakistani sample. JCPSP 2000; 10: 360-4
5. Han H, Davidson WM. A useful insight into 2 occlusal indexes: HLD (Md) and HLD (CalMod). Am J Orthod Dentofacial Orthop 2001; 120: 247-53
7. Bashir U. An index study of orthodontic treatment need (IOTN) at de’Montmorency College of Dentistry, Lahore. CPSP Dissertation 2000

ANNEXURE I

Aesthetic assessment

Ten pictures ranking dental attractiveness

Photographs represent three treatment categories;

Grades 8-10 indicate definite orthodontic treatment need.
Grades 5-7 indicate moderate need of orthodontic treatment.
Grades 1-4 indicate no/ slight orthodontic treatment need.