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ORIGINAL ARTICLE

The subjective orthodontic treatment need assessed with the aesthetic component of the Index of Orthodontic Treatment Need



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Abstract Objective: The objective of this research was to evaluate the subjective orthodontic treatment with the aesthetic component (AC) of the Index of Orthodontic Treatment Need among a sample of Yemeni population.

Materials and methods: The investigation was carried out in Sana'a city, a total of 368 participants were randomly selected from a list of 1376 university students excluding dentistry students, among them 165 responded (92 females and 73 males) based on a questionnaire. The questionnaire checked items concerning the subjective assessment of dental appearance, demand for orthodontic treatment, and any functional disorders (speech, mastication, muscular pain). For statistical analysis chi-square test was used. A probability at the 5% level or less ($P < 0.05$) was considered statistically significant.

Results: Overall, 96.4% of the sample classified themselves in the 'no treatment need' category, 3% classified themselves in the 'great treatment need' category. Satisfaction with dental aesthetics was expressed by 65.5% of respondents. Out of the total sample, 41.8% said that they should have orthodontic treatment, the sex distribution was significantly different (chi-square = 4.279, $df = 3$, $P = 0.001$).

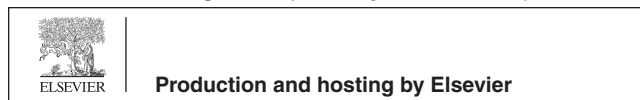
Conclusion: According to the AC of IOTN, almost 3.6% of the evaluated Yemeni subjects had a 'borderline need' to a 'great need' for orthodontic treatment. If the answers of those who said that they should have orthodontic treatment are considered, the need would increase to two-fifth (41.8%) of the sample.

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1. Introduction

The demand for orthodontic treatment is increasing in Yemen as in the other countries. In Yemen there are many dental colleges that provide orthodontic treatment. Beside these universities, there are many dentists working in different cities of Yemen.

We cannot underestimate the individuals' concern for their own dental appearance as it represents a decisive factor in the demand for treatment and assessment of treatment goals. Patients' perceptions of orthodontic treatment cannot be under-assessed, as it is the patients who obtain treatment and need to gain satisfaction from improved aesthetics and function.¹ In addition, desire for orthodontic treatment is primarily influenced by demand and not always by need.²

Subjective perceptions play an important role in orthodontics, especially as the delineation between an acceptable and unacceptable occlusion is influenced by idiosyncratic judgments and therefore may differ considerably according to the aesthetic standards of the person and the respective societal norms.³

Orthodontic problems are usually not associated with high mortality or morbidity; hence, they tend to be overlooked by most health professionals as less important. However, studies show that malocclusion has a significant impact on the psycho-social health of the affected individual.^{4,5}

Many studies in this field concluded that the desire to improve appearance is the most important motive for seeking treatment,⁶⁻¹⁰ while other studies concentrated on the effect of malocclusion on functions like speech and mastication.¹¹⁻¹³

Subjective orthodontic treatment need was affected by many individual factors. Cultural, educational, gender differences, or access to orthodontic treatment all influenced patients' subjective needs.¹⁴

The Index of Orthodontic Treatment Need (IOTN) is a scoring system that ranks malocclusion based on occlusal traits for oral health and aesthetic impairment.¹⁵ The aesthetic component (AC) of the IOTN has commonly been used to evaluate treatment need on aesthetic grounds assessed by dentists (operator-rated) or patients (self-rated).^{16,17}

The aesthetic component consists of a 10-grade scale illustrated by numbered colour intra-oral photographs. The photographs represent three treatment categories: 'no treatment need' (grades 1-4), 'borderline treatment need' (grades 5-7), and 'great treatment need' (grades 8-10).¹⁵

Yemen is a country in the Arabian Peninsula in Southwest Asia and is part of the Middle East. However, very little work has been done in Yemen 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.

2. Materials and methods

This study was approved by the Research Ethics Committee, Faculty of Dentistry, Sana'a University, Yemen.

A total of 368 participants were randomly selected from a list of 1376 university students excluding dentistry students, those willing to participate were only included, among them 165 responded.

2.1. Questionnaire design

The questionnaire was written in Arabic and English and was composed of three sections:

- The first section included basic demographic information, including age and gender.
- In the second part, dental aesthetics was assessed using the IOTN AC (Brook and Shaw¹⁵). The subjects were presented with 10 black and white photographs of anterior teeth displaying varying degrees of malocclusion, and were asked to indicate which photograph most closely resembled their own dentition (Fig. 1).
- The third part consisted of eight questions related to the subjective assessment of aesthetics and attitude to orthodontic treatment.

The subjective assessment of aesthetics and attitude to orthodontic treatment.

1. Do you think healthy and well-arranged teeth are important for your appearance?
Yes No

2. Are you satisfied with your dental aesthetics?
Yes No

3. Is there anything you would like to change about your teeth?
Yes No

4. If yes, What would you like to change?
Colour Size Arrangement Others

5. Do you have any trouble with speaking, chewing, facial muscle pains caused by teeth arrangement?
Yes No

6. Do you think you should have orthodontic treatment?
Yes No

7. Has anyone ever suggested orthodontic treatment to you?
Yes No

8. If you are in need of treatment, what might prevent you from doing so:

Traditional factor Financial factors Social factors Other

2.2. Statistical analysis

The statistical package for the social sciences 13.0, IBM Corporation, New York, NY, was used for statistical analysis and the level of significance was set at 0.05 ($P < 0.05$). The following tests were performed:

1. Classification of data and calculation of frequencies for non-parametric variables.
2. Comparisons of the two aggregated samples were made using the chi-square test (for determining differences between frequencies of yes/no).
3. A chi-square test was applied to evaluate any significant differences between two independent samples (analysis of sex differences, comparison of aesthetic component distribution with satisfaction with dental aesthetics and with desire for treatment).

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