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Original Article

Dental esthetic impact of malocclusion and orthodontic treatment need based on self-perception among university students

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ARTICLE INFO

Article history:

Received 2 March 2014

Accepted 20 April 2015

Available online 14 May 2015

Keywords:

Aesthetic

Orthodontic Treatment Need

Perception

ABSTRACT

Aims: The objectives of this study were to assess the self-perceived esthetic orthodontic treatment need, to determine esthetic impact of malocclusion and investigate the effect of factors including gender and courses to the need of orthodontic treatment among university students.

Methods: A random study of 275 subjects among 18–25 year old university students from International Medical University (IMU) were evaluated using 2 scales; the Aesthetic Component of Index of Orthodontic Treatment Need (AC) and Oral Aesthetic Subjective Impact Scale (OASIS) and one direct question.

Results: The data were analyzed to evaluate the subjective orthodontic treatment need, aesthetic impact of malocclusion, and perceived orthodontic treatment need.

In the study, 55.7% of the students experienced negative perception and 44.3% have positive self-perception. Female perceived more negative perception (AC-OASIS) as compared to male, 35.3% and 20.4% respectively. The Mann-Whitney U Test was used to compare the total AC-OASIS score between males and females showed positive significance, $p = 0.05$. The comparison between dentistry and non-dentistry students shows no significant difference in perception, $p > 0.05$.

Conclusion: There was no difference in the level of orthodontic treatment need among students from different courses, but impact of malocclusion was higher in females compared to males.

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<http://dx.doi.org/10.1016/j.ijdsr.2015.04.005>

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1. Introduction

Protruding or irregular teeth and malocclusion can cause discrimination, problems with oral function and may increase susceptibility to trauma, periodontal disease and caries.¹ Malocclusion also plays an important role in compounding dental esthetics leading individuals to feel unattractive. Unattractive individuals may view themselves as less effective in social situations.² They may develop a feeling of embarrassment and shame about their dental appearance in social situations and may lose career opportunities.³ Previous studies have reported a majority of the patients are aware that they have dental irregularities and 5% were teased due to dental irregularities.⁴

Study shows that the impact of malocclusion contributes to the need of orthodontic treatment.⁵ Therefore, the objectives of orthodontic treatment are to improve dental occlusion, achieve good functions and aesthetic dentition. The need of orthodontic treatment is to minimize psychosocial problems related to dental and facial appearance.⁶ The conditions that affect dental aesthetics have an influence on the psychological wellbeing and to the social interactions. The perception of dental aesthetic is one of the important reasons for patients to seek orthodontic treatment.^{5,7-10} However, the perception was multi-factorial and it was influenced by gender, cultural and ethnic characteristics, as well as by norms for dental attractiveness.^{2,11,12} Individuals who had high perception in dental esthetic usually had a lower need for orthodontic treatment.²

In Malaysia, Abdullah et al¹³ reported that in 5112 Malaysian children, aged 12-13 years old, 22.8% children were in the treatment need group for grade 8-10 in (AC)IOTN and 30% required definite orthodontic treatment. This measure was not applicable to adult population as most demand of orthodontic treatment is among young adolescent. Flores-Mir et al¹ reported in a study among university students, whereby only 2% of the population perceived the need of orthodontic treatment. Therefore, the adult experienced less impact of malocclusion and the need of orthodontic treatment.¹⁴ It is shown that age plays a significant role towards perception of esthetic and adolescent are more critical about the appearance.¹⁵

Different scales have been used in a previous study to evaluate the need of orthodontic treatment. The scales included are Index of Orthodontic Treatment Need (IOTN),³ the Index of Complexity Outcome and Need (ICON)¹⁶ and the Dental Aesthetic Index (DAI).¹⁷ Oral Aesthetic Subjective Impact Scale (OASIS) also has been used in many studies to evaluate the impact of malocclusion.^{1,12} These scales are important in order to evaluate the potential results and findings that indicate the views of dental esthetic. Therefore, it could potentially be used for dental health planning and estimating the populations that require orthodontic treatment.⁵

In this study, two scales were used, which are Aesthetic Component (AC) of IOTN, Oral Aesthetic Subjective Impact Scale (OASIS) and direct question on orthodontic treatment need. IOTN was developed by Brook and Shaw in 1989 to evaluate the clinical orthodontic treatment need using

normative measures. It was reflected to the need of orthodontic treatment based on professional view.³ This scale then adapted by Mandall et al¹² at the same time developed the OASIS score for self-determination of the grade of concern about the arrangement of anterior teeth. The scale was combined with Aesthetic Component IOTN to reflect the individual perception. This combination reported that it has positive relationship and a reliable indicator to measure self-perception.¹

The significance of using the scale in this study is to measure perceptions of dental esthetic impact of malocclusion and need of orthodontic treatment need based on patients' perceptions.^{7,18-20} There are very few studies done in Malaysia among 18-25 year old university students to determine the esthetic impact of malocclusion and treatment need. Thus, the objectives of this study are to assess the self-perceived esthetic orthodontic treatment need, to determine esthetic impact of malocclusion and investigate the effect of factors including gender and course to the need of orthodontic treatment in university.

2. Materials and methods

A cross-sectional study was carried out in International Medical University (IMU) after getting clearance from the university ethics committee. Prior to the main study, a pilot study was conducted on 21 subjects to validate the questionnaire. The results of pilot study showed that majority of the students did not perceive the need of orthodontic treatment and less than half of the students experienced negative impact of malocclusion.

The sample size for the study was determined based on 35.3% prevalence of need of orthodontic treatment from National Health Survey⁵ done in Malaysia and maximum tolerable error of 5% with a statistical power of 90% from a total population of 2937 students (dentistry students = 123 students) in IMU. The minimum sample was determined as 229 students. In order to compensate for possible losses during data collection data was raised by 10% totaling minimum of 252 students as final sample.

Subjects were randomly selected from the attendance list that involves dentistry and other non-dentistry classes. The selection involves with continuously picking the 5th student from the class attendance lists from different cohorts. The next candidate was selected if the 5th student doesn't satisfy the inclusion or exclusion criteria. The inclusion criteria were, IMU students in the age group of 18-25 years. The students that are currently undergoing orthodontic treatment and had completed orthodontic treatment were excluded from the study.

The data collection was based on the questionnaire of subjective criteria regarding the esthetic impact of malocclusion and need of orthodontic treatment. Each subject received a self-explanatory questionnaire, informed consent and study information sheet that take less than 5 min to fill up. The form was collected immediately after the participant finished answering the questions.

The questionnaire contained two parts. In part 1, details about basic information related to age, gender, course and any

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