

**UNIVERSITY OF SCIENCE AND TECHNOLOGY
COLLEGE OF GRADUATE STUDIES AND ACADEMIC
ADVANCEMENT**

Perception of Anterior Occlusion Esthetics Using Aesthetic Component
of the Index of Treatment Need

A cross-sectional study among a Sample of Young Sudanese Adults at
the University of Science and Technology Dental Hospital, Omdurman,
Sudan, 2015

A Thesis

Submitted to the College of Graduate Studies and Academic Advancements
in Partial Fulfillment of the Requirements for the Degree of Master of
Science in Clinical Orthodontics

Prepared By:

Nada Abdelwahab Salih (BDS)

Supervisor By:

Dr. Mohamed A. Elhadi

Abstract

Introduction: The sense of dental beauty varies through various societies crosswise over various populations, regions and countries, a certainty that orthodontists ought to highlight during the time spent during treatment planning. Dental experts ought to consider that possible differences in esthetic perception among them and patients may exist as it will make issues amid the treatment if not appropriately perceived and managed.

Objective: To study the perception of Sudanese population towards different types of anterior occlusion using IOTN-AC

Materials and methods: Nighty-eight clinical dental students, twenty-one orthodontist, one hundred and nine orthodontic patients and three hundred sixty-two general patients participated in this study. Data were collected by filling a questionnaire that has two parts. The first part consisted of questions about their socio-demographic backgrounds. The second part included five photographs with different anterior malocclusion as follows: midline diastema, severe crowding, crossbite, deep bite and open bite with the IOTN-AC as a VAS to rate the malocclusion according to the number of the photograph which most closely matched the attractiveness of the picture.

Results: The IOTN-AC index showed valid and reliable measures as perceived by the orthodontists. The perception of anterior esthetic occlusion varies significantly among the raters' groups. They all agreed in rating the midline diastema as being the most favorable form of attractiveness and cross bite as being the least favorable form of malocclusion. On the contrary, open bite, deep bite and severe crowding categories showed significant differences among the raters' groups.

Results showed no statistical difference between genders in rating different malocclusions except in the severe crowding category among orthodontic patients as female patients showed statistically significant results ($P = 0.04$) when comparing them to males.

Conclusion: Significant differences in anterior esthetic perceptions were found among orthodontists, clinical dental students, orthodontic patients and general dental patients indicating that different views on esthetics could exist between patients' categories that may or may not be based on their dental knowledge background. Gender and level of education was found to be a statistically significant factor pertaining to the perception of anterior esthetic occlusion. In conclusion, patient perception should be given equal importance while planning orthodontic treatment. It is hoped that the results of this study will be beneficial to clinical orthodontic treatment thereby allowing the clinicians to work towards patient expectations.

1. Introduction:

1.1. Background:

Facial and dental attractiveness are strongly related to each other. In the sense that during social interaction the eyes track the mouth as it's the center of communication in the face.⁽¹⁾ The sense of dental beauty varies through various societies crosswise⁽²⁾ over various populations, regions and countries.⁽³⁾ A certainty that orthodontists ought to highlight during the time spent during treatment planning.⁽⁴⁾

Dental experts ought to consider that possible differences in esthetic perception among them and patients may exist as it will make issues amid the treatment if not appropriately perceived and managed.⁽⁵⁾

Historical periods are strongly associated with the judgment of beauty as civilization and modernization made people aware of malocclusion more obvious they tended to seek esthetically pleasant smile suggested by the society and the media.^(6, 7) For example, in the past, diastema was considered as a sign of beauty but nowadays, most patients prefer to close it.⁽³⁾ It is realized that people's main complaint in seeking orthodontic treatment is the esthetic dissatisfaction caused by malocclusion.⁽⁸⁾ Although in itself malocclusion is not considered as a disease or a self-threatening condition rather it is a dental trait.⁽⁹⁾

In 1985, Howells and Shaw ⁽¹⁰⁾ pointed out that standardized dental photographs can be used as a valid representation of dental attractiveness.

The Index of Treatment Need (IOTN) was developed by Brook and Shaw^(11, 12) in the United Kingdom estimating the severity of malocclusion using a scoring system.

It consists of two separate components, a Dental Health Component (DHC) and an Aesthetic Component (AC). The IOTN-AC consists of a 10-point scale illustrated by a series of photographs that were rated for attractiveness ranging from photograph one being the most aesthetic, to number ten, the least aesthetic. Figure (1)

The World Health Organization (WHO) in 1966 outlined the requirements of an index as it essentially has to be reliable and valid to measure what it is meant to measure.⁽¹³⁾ Reliability is the degree of match between the results obtained when an index is applied to the same sample by different examiners or by the same examiner on different occasions.⁽¹⁴⁾ Furthermore, an index is said to be valid if it enables one to accurately measure the material being investigated.^(10, 15, 16)

There is no study that evaluates the perception of the anterior occlusion esthetics among Sudanese population; such a study will be of great value in the process of treatment planning.