



Journal Homepage: - www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/10207

DOI URL: <http://dx.doi.org/10.21474/IJAR01/10207>



RESEARCH ARTICLE

SMILE ANALYSIS OF MALE STUDENTS AT ALFARABI COLLEGE OF DENTISTRY & NURSING (WIDTH/LENGTH OF MAXILLARY CENTRAL INCISOR)

Dr. Tariq Mohammed Balhareth¹, Dr. Ahmed Dakhel Alanazi¹, Dr. Fakhry Z. Abu Ramadan¹ and Dr. Ahmed M. Elmarakby²

1. General Practitioner Dentist.
2. Assistant Professor in the Department of Restorative Dental Sciences, Al-Farabi colleges for Dentistry and Nursing, Riyadh, Kingdom of Saudi Arabia and Lecturer of Operative Dentistry Department, Faculty of Dental Medicine, Al-Azhar University, Assiute Branch, Egypt.

Manuscript Info

Manuscript History

Received: 10 October 2019

Final Accepted: 12 November 2019

Published: December 2019

Key words:-

Anterior Teeth, Esthetics, Gold Standard

Abstract

Maxillary central incisors are of critical value in esthetics of the smile. Width –Length ratio may play a role during restoration or Prosthetic replacement of this teeth.

Objective: To investigate and analyze width/length of clinical crown of the central incisors of male students at Alfarabi College of Dentistry and Nursing, and find out the degree of existence of Gold standard.

Methodology: The clinical crown width and length of maxillary left and right central incisors (CI) was measured using caliper directly from the student, mean is calculated, and the ratio of the width to the length was calculated and tabulated.

Results: 67 male students participating in the study, the mean value of W/L was 77.25% \pm 9.38. Number of the students that their W/L was within the optimal gold standard (66- 85%) = 45 students, 22 out of them was within the ideal range (75-80%). 14 students were above the optimal ratio, while 8 students were below the optimal ratio.

Conclusions: Within the limitations of the present study, the width - length ratio of the clinical crown of the central incisor for 67% of the participated students was within the gold standard.

Copy Right, IJAR, 2019,. All rights reserved.

Introduction:-

Esthetics is an individual and subjective concept. Each person has a particular way to self-assess his/her own appearance and the beauty of other persons ⁽¹⁾. Esthetics is often the main complaint in the dental office and patients usually evaluate treatment results based on the positive changes in their smile ⁽²⁾. Best of all, smiles help you feel good about yourself. Your smile is your most important social bonding gesture, and your most important professional announcement – it tells others who you are. In short, your smile sells you! One of the important aspects of dento-labial esthetics is the size and form of maxillary anterior teeth. For better esthetic results maxillary, anterior teeth should be restored with optimal dento-labial relationship and in harmony with overall facial appearance. The definition of ideal tooth dimensions, however, remains a difficult task due to individual variations and proximal/incisal tooth wear. To provide “magic numbers” for the clinician, mathematic theorems such as the “golden proportion” ^(3,4), the “golden percentage” ⁽⁵⁾ and “golden standard” ^(6,7) have been proposed. width/length ratios of normal clinical crowns seem to represent the most stable reference; a homogeneous ratio

Corresponding Author:- Ahmed M. Elmarakby

Address:- Assistant Professor in the Department of Restorative Dental Sciences, Al-Farabi colleges for Dentistry and Nursing, Riyadh, Saudi Arabia and Lecturer of Operative Dentistry Department, Faculty of Dental Medicine, Al-Azhar University, Assiute Branch, Egypt.

(81%) was found by Sterrett et al. ⁽⁸⁾ for the 3 anterior maxillary tooth groups. In restoration of the central incisors incisors, the natural look of anterior teeth and their esthetics can be associated with these dimensions^(8, 9, 10) Because these dimensions can change between different geographical regions and also between sexes, it should be evaluated in each country. Therefore, due to inconsistencies in width-to-length ratios and the lack of information in Saudi community, this study was conducted. Its goal was to determine the width-to-length ratio of clinical crown of maxillary central incisor teeth in male students at Alfarabi College of Dentistry and Nursing, Riyadh- KSA.

Methodology:-

Morphologic study on maxillary central incisors was carried out on male students at Alfarabi Colleges of Dentistry and Nursing – Riyadh –KSA.

The inclusion criteria were:

1. All maxillary and mandibular anterior should be present.
2. No gingival or periodontal conditions or therapy that would undermine healthy tooth – tissue relationship.
3. Inter dental spacing or crowding should be absent.
4. No restored anterior teeth should be present.
5. No history of orthodontic treatment.

The exclusion criteria were:

1. Evidence of gingival alteration or irregularities.
2. Apparent loss of tooth structure due to attrition, fracture, caries, previous restoration or crown.

The total number of the students participated in the study was 67, Before enrollment, all students were explained the objectives of the study and invited to participate by signing an informed consent. (fig.1)

Measurements were taken with a caliper (fig. 2) The width was recorded by measuring the maximum distance between the mesial and distal contact points on the tooth on the line perpendicular to long axis (fig.3)

Consent to Participate in a Research Study		
Dear Colleague,		
Could you please spare us a few minutes of your time to take part in our study which aims to evaluate and analysis smile of male students at Alfarabi Colleges of Dentistry & Nursing.		
You will be asked for some personal data, in addition to give us permission to make direct measurements of some teeth to be used in our study, that may be useful for members of dental health care team.		
Any published data will not identify any one individual, and researchers are obligated to protect your privacy and not disclose your personal information.		
Your signature below means that you have read the above information about this research and have had a chance to ask questions to help you understand how your information will be used.		
By signing this form, I confirm that this study has been fully explained to me and all my questions have been answered to my satisfaction and agreed to participate in this research.		
Name of the Participant		Signature & Date
Age:	Nationality:	Gender:
Right central incisor: width.....		Length.....
Left central incisor: width.....		Length.....
Research title: <i>Smile analysis of male students at Alfarabi College of Dentistry & Nursing.</i>		
Name of the Researcher/s		Signature & Date
.....	
.....	



(Figure 2)



(Figure 3)

Length was recorded as the longest distance from cervical gingival margins to incisal edge of the tooth on a line parallel to long axis. (fig. 3) The width to length ratio was then obtained by dividing the width by the length of the clinical crown of maxillary central incisors. The calculated values were tabulated, descriptive statistics was used to analyze data with SPSS statistical package (version 15), and compared with the golden standard.

Results:-

67 male students were participated in the study, their ages was between (21- 29 years) , the mean value of W/L ratio was $77.25\% \pm 9.38$. Minimum W/L ratio was 55%, and the maximum was 100%. (Table 1) Number of the students that their W/L ratio of maxillary central incisor was within the optimal gold standard (66- 85%) was 45students, 22 out of them was within the ideal range (75-80%). 14 students were above the optimal ratio, while 8 students were below the optimal ratio.(Fig. 4)

The nationalities of the participated students was as following: 49 Saudi , 12 Syrian, 5 Palestinian, and 1 Egyptian.

Table 1:- Descriptive Statistics.

	N. of students	Minimum	Maximum	Mean	Std. Deviation
W/ L	67	55%	100%	77.25%	± 9.38

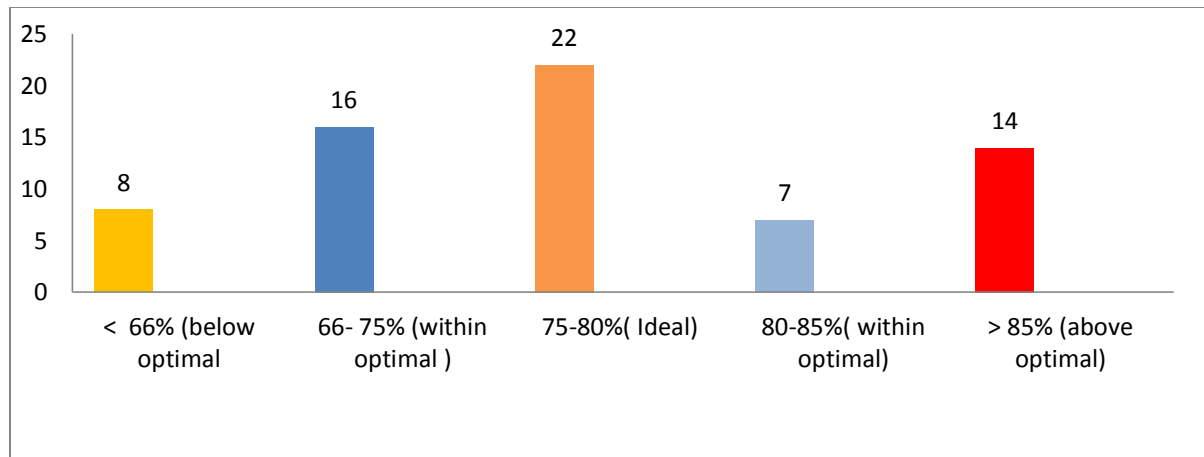


Figure 4:- grouping of the student's W/L ratio of the central incisor in relation to the gold standard.

Discussion:-

The importance of considering the relation between the width and length for each tooth is clinically relevant since it allows for the calculation of length loss based on the existing width, which usually remains stable.⁽¹¹⁾ The size and morphology of maxillary central incisors are the key determinants in esthetically accepted cases, in spite of the artistic sense of dentists can be useful in restorations, but presenting these dental ratios by a scientific research, helps this field.⁽⁸⁾ The upper central incisors in particular are the key determinants in evaluating anterior dental aesthetics as was mentioned in dental literatures.^(3,12,13)

This study aimed to find out the width-height ratio of maxillary central incisor in a group of Saudi community male students, at Alfarabi Colleges For dentistry and Nursing- Riyadh City. In the present study the maxillary central incisors Width –Length ratio mean was $77.25\% \pm 9.83\%$ with a minimum of 55% and a maximum of 100%. The results are different in comparison to the mean noted in dental literatures. In some researches, the ratio were reported 86% for maxillary central incisors⁽¹⁴⁾ In another research on 82 subjects, the width-to-length ratio was 85% for central incisors in male subjects,⁽⁸⁾ this incompatibility with the previous researches, may be due to the differences in the nationality or ethnic of the participating subjects. Another reason may be attributed to the method of measurement which was done directly to the clinical crown from the patient mouth in our study, while the other studies the measurement was done on stone cast after pouring an impression for the teeth, or measuring extracted teeth. In spite of this incompatibility, the greatest number of the participant in our study (45 students) their ratio was within the optimal gold standard of W/L which is considered good as a component of smile as mentioned in dental literature⁽⁶⁻⁸⁾. In addition to 22 of these students was within the ideal range of W/L ratio (75-85%) which is considered excellent parameter for esthetic smile as recommended in a study conducted by Cooper et al in 2012⁽¹⁵⁾.

Limitations of the current study that may affected the results:

Small size of the sample, diversity of the nationality, male gender only.

Conclusions:-

Within the limitations of the present study, the width - length ratio of the clinical crown of the central incisor for 67% of the participated students was within the gold standard.

References:-

1. Czarnecki ST, Nanda RS, Currier GF. Perceptions of a balanced facial profile. Am J Orthod Dentofacial Orthop 1993; 104:180-187.
2. İşıksal E, Hazar S, Akyalçın S. Smile esthetics: perception and comparison of treated and untreated smiles. Am J Orthod Dentofacial Orthop 2006; 129:8-16.
3. Lombardi RE. The principles of visual perception and their clinical application to denture esthetics. J Prosthet Dent 1973; 29:358-82.
4. Levin EI. Dental esthetics and the golden proportion. J Prosthet Dent 1978; 40:244-52.
5. Snow SR. Esthetic smile analysis of maxillary anterior tooth width: the golden percentage. J Esthet Dent 1999; 11:177-84.

6. 6- Wolfart S, Quass AC, Freitag S, Kropp P, Greber W, Kern M. Subjective and objective perception of upper incisors. *J Oral Rehabil* 2006; 33:489-95.
7. 7- Wolfart S, Thormann H, Freitag S, Kern M. Assessment of dental appearance following changes in incisor proportions. *Eur J Oral Sci* 2005; 113:159-65.
8. 8- Sterrett JD, Oliver T, Robinson F, Fortson W, Knaak B, Russell CM. Width/length ratios of normal clinical crowns of the maxillary anterior dentition in man. *J Clin Periodontol* 1999; 26:153-7.
9. 9- Magne P, Gallucci GO, Belser UC. Anatomic crown width/length ratios of unworn and worn maxillary teeth in white subjects. *J Prosthet Dent* 2003;89:453-61.
10. 10- Ali Fayyad M, Jamani KD, Agrabawi J. Geometric and mathematical proportions and their relations to maxillary anterior teeth. *J Contemp Dent Pract* 2006;7:62-70.
11. 11- Orozco-Varo A, Arroyo-Cruz G, Martínez-de-Fuentes R, Jiménez-Castellanos E. Biometric analysis of the clinical crown and the width/length ratio in the maxillary anterior region. *J Prosthet Dent*. 2015;113(6):565–70.
12. 12- Goldstein RE. *Change your smile*. 3rd edn. Chicago: Quintessence;1997.
13. 13- Rosenstiel SF, Ward DH, Rashid RG. Dentists' preferences of anterior tooth proportion – a web-based study. *J Prosthodont*. 2000;9:123–136.
14. 14- Heymann HO, Swift Jr EJ, Ritter AV. *Sturdevant's art & science of operative dentistry*: Elsevier Health Sciences; 2014.
15. 15- Cooper GE, Tredwin CJ, Cooper NT, Petrie A, Gill DS. The influence of maxillary central incisor height-to-width ratio on perceived smile aesthetics. *Br Dent J*. 2012;212(12):589–99.