The Relationship Between Interalar Width And The Mesiodistal Width Of Upper Central Incisor In Dental Students in Hilla City

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ABSTRACT

background: maxillary central incisors have an important aesthetic effect due to their proportion in the human smile as natural teeth or artificial teeth in Prosthodontics. the study of the relationship between interalar width and mesiodistal width of central incisors is very important, as it is beneficial for clinical purposes.

materials and methods :one hundred subjects (50 male + 50 female) with age rang from 20_24 years old have symmetrical permanent teeth . the measurements are made by using digital caliper that have fine pointed end to fit interdentaly.

results : A Pearson product-moment correlation was conducted to examine the relationships between interalar width(37.596±3.2780 in male and (34.468±2.0597) in female)and mesiodistal width of upper central incisors (8.702±0.5262 in male and (8.380±0.6101 in female)in the dentistry students in hilla city, interalar was strongly positively related to mesiodistal width of upper incisors, $r(100)=0.555$, $p<0.05, r^2=0.30$

conclusion: there is a strong direct proportion relationship between the interalar width and mesiodistal of upper central incisor and there is significant difference in interalar width between male and female.

keywords: interalar width, mesiodistal width.

INTRODUCTION

Mesiodistal tooth width is different between human groups . And this variation is due to the influences of race, genetic, environmental, ethnic, gender and diseases(1) Various types of facial anatomy landmarks which must have an appropriate proportion to the size of the tooth as interalar(2), intercommissural(3), interpupillary(4), intercanthal(5) and bizygomatic width(6).

Maxillary central incisors have an important aesthetics effect due their proportion in the human smile(7) .Poor aesthetics is one of the common reasons why dental patients Request for tooth replacement services and it is Also a well recognized reason for failure of Prosthetic rehabilitation.(8)

Pre-extraction records are valuable guides for teeth selection, and the clues gained from the patient's own natural dentition are reliable aids in achieving a successful, attractive restoration for a patient. The absence of pre-extraction records of natural teeth such as casts, photographs, and radiographs makes correct the selection of anterior teeth difficult. (9)

Review of literature shows that various anatomical measurements have been proposed to aid in the successful selection of maxillary anterior teeth.

George Attokaran et al. 2018 showed that there is a significance relationship between the interalar distance and the mesiodistal width of six maxillary anterior teeth(2).

M Gueye et al. 2014 found a significantly correlation between the distance between canine points and the bizygomatic width and central incisor width(6).

Bahruddin T. and Lenny A. found that there is a significant relationship between interalar width and intercommissural width and mesiodistal width of upper central incisor on Buton Tribe.(3)

K. Al Wazzan. 2001 suggested that intercanthal distance can be used as a preliminary method for determining the width of the maxillary anterior teeth for edentulous patients(5).

MATERIALS AND METHODS

One hundred subjects (50 male +50 female), with age range between 20-24 years old who met the criteria were included in this study which have symmetrical permanent teeth with no history of orthodontic and prosthodontic treatment, no caries or filling in the target teeth, no gingival inflammation or hypertrophy.

The patient was seated at upright position and asked to look straight to be in comfortable rest position.

The measurements are made using digital caliper that have fine-pointed end to fit interdentally. The mesiodistal width of right central incisor were recorded by engage the end point of caliper in the contact point.

The interalar width was determined by measuring the external width of the ala of the nose at the widest point. The recording parts of contact with the outer surface of the alae without applying a pressure.

Result:

table 1 .shows that the average mesiodistal width of upper central incisors in male were 8.702±0.5262 which is higher than female which was 8.380±0.6101mm.

And also show that the average interalar width in male were 37.596±3.2780 mm wider than female which was 34.468±2.0597 mm

Table 1 .Descriptive Statistic.

Variable	Gender	N	Mean± Std.Deviation	Std.Error
Mesiodistal width of central incisor	Male Female	50 50	8.702±0.5262 8.380±0.6101	.0744 .0863
Interalar width	Male female	50 50	37.596±3.2780 34.468±2.0597	.4636 .2913

On table 2 .A Pearson product-moment correlation was conducted to examine the relationships between mesiodistal width of upper central incisors in the dentistry students in Hilla city. the results show that relationship between variables was (0.000) for the entire sample.That was, 0.000<0.05 which means the correlation between two variables were significant and their relationship was in positive direction (r(100)=0.555). r^2=0.30

The tables also showed that male was (0.000) which means 0.000<0.05 and thus the correlation between the two variables were significant and with the positive direction (r(50)=0.476). As for the female it was 0.000 This means that 0.000<0.05 and thus the

correlation between the two variables was significant and its relationship in the positive direction (r(50)=0.593.

Table2. pearson correlation between interalar width and mesiodistal width of maxillary central incisor.

	Pearson correlation (r)	P (value)
Total=100	0.555	0.000
Male=50	0.476	0.000
Female=50	0.593	0.000

table3.show the using of independent Sample t-Test to show the difference in interalar width and mesiodistal width in male and female.

in the table it shown that the mesiodistal width had t = 2.862 and sig =0.06. The mean difference was(0.322)

And the of interalar had t =5.713 with sig =0.000 .And. the mean difference was(3.0128) which show the high difference between male and female

Table 3. Independent Sample t-Test.

Variables	t	Sig.	Mean difference
Mesiodistal width	2.826	0.006	0.322
Interalar width	5.713	0.000	3.128

DISCUSSION

According to the result of this study, there is a strong direct proportion relationship between the interalar width and the mesiodistal width of upper central incisor and this is because nose and teeth evolved from a similar tissue which is derived from the facial processes.(10-12)

During the 6th week, the 2 medial nasal processes merge in the midline to form the intermaxillary segment

This will give rise to the centre of the upper lip, the primary palate, and the part of the alveolar process carrying the incisor teeth.(10-13)

There is a significant difference in interalar width between males and females is due to the fact that: after puberty, for any given body size, males tend to have larger noses because more of the male body is made up of lean muscle tissue that are require more oxygen for its growth and maintenance(14).

And this is due to hormonal advantage of testosterone which has proven anabolic effects, stimulating muscle growth by binding to skeletal fibers and boosting the growth of proteins .

Because women, on average, possess about one-tenth the testosterone levels of men, it makes sense that they'd have more difficulty in developing muscles.(15)

testosterone levels and secondary sex characteristics have been demonstrated in several morphological traits, including male facial features (e.g. broader forehead, chin jaw and nose), (Marečková et al., 2011).(16)

These reasons explain the difference in size of nose between males and females،and thus lead to difference between mesiodistal width of upper centarl incisor between them.

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