

Interalar and Intercommissural width as Reliable Factor for Selection of Anterior Maxillary Teeth: A Short Study

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Abstract

Purpose: The purpose of this study was to analyze whether there is a consistent relationship between the interalar distance, intercommissural distance and intercanine distance. **Materials and Methods:** Forty individuals were selected who satisfied the inclusion and exclusion criteria. Three parameters such as interalar width, intercanine distance, intercommissural width were measured. The data obtained were statistically analyzed. **Result:** There was significant relation between interalar and intercanine width. There was no significant relation between intercommissural width and intercanine distance. **Conclusion:** Interalar width can be used as a preliminary method for determining the width of the maxillary anterior teeth for edentulous patients.

Keywords: Interalar width, intercommissural width, intercanine distance, maxillary anterior teeth selection.

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INTRODUCTION

The dental profession since many years had suggested different guidelines and criteria for aesthetic selection of teeth and their arrangement. The restoration in the aesthetic region of the edentulous patient has an important psychological effect. Once properly restored, patient self-esteem and self-confidence are often improved, which is the goal of the oral rehabilitation treatment.

When no pre-extraction records are available, selecting the proper anterior teeth size for edentulous patients can be difficult. Therefore several anatomic measurements have been suggested including bizygomatic width, intercommissural width, interalar width, and interpupillary distance for selecting the proper anterior teeth.

The main reason for doing this research is the artificial anterior teeth should be arranged in the same size and shape and also in same position as their natural teeth. This study was conducted to determine the intercommissural width distance and inter-alar width for selection of maxillary anterior teeth.

METHODOLOGY

This study was conducted in the Department of Prosthodontics, Crown and Bridge and Oral Implantology, Faridkot, Punjab, India. A total of 40

edentulous individuals were chosen for this study. The sample selected range in age from 18 to 30 years.

The subjects were selected following the inclusion and exclusion criteria and an informed consent was taken from the subjects. Study is to compare and evaluate the relationship between the interalar width and the intercommissural width to the distance to the intercanine distance.

INCLUSION CRITERIA

- All the selected individuals were above 18 years so that the growth of the face as complete.
- Cases with normal occlusion with full complement of teeth having intact contact.
- No history of Orthodontic treatment.
- No anterior restoration

EXCLUSION CRITERIA

- Individuals with proximal restorations that could grossly affect the width of maxillary anterior teeth.
- Individuals who had spacing or crowding of maxillary anterior teeth were excluded
- Individuals treated orthodontically or proximal stripping were excluded.

- Individuals with developmental anomalies of the maxillary teeth were excluded.

INTERALARAR DISTANCE

Individuals were seated on the dental chair in the relaxed position and they looked straight. To estimate the position of maxillary canine, parallel lines are extended for alae of the nose to the labial surface of

occlusal rim [1]. Interalar distance is measured between the outer surface of the nose by using a Digital Vernier Calliper (Tiny deal, India) without the application of pressure while recording (Figure-1). While recording the patient was asked to hold breath to avoid the change in shape of the nose. Three readings were taken and their mean was calculated [2].



Fig-1: Recording the interalar width at the widest dimension of the nose

INTERCOMMISSURAL DISTANCE

Same procedure was used to determine intercommissural distance. While recording the patient was asked not to smile to avoid the change in shape of

the commissure. Distance was measured by using Digital Vernier Calliper (Tiny deal, India) (Figure-2). Two points were marked at the commissure. Three readings were recorded and their mean was calculated.

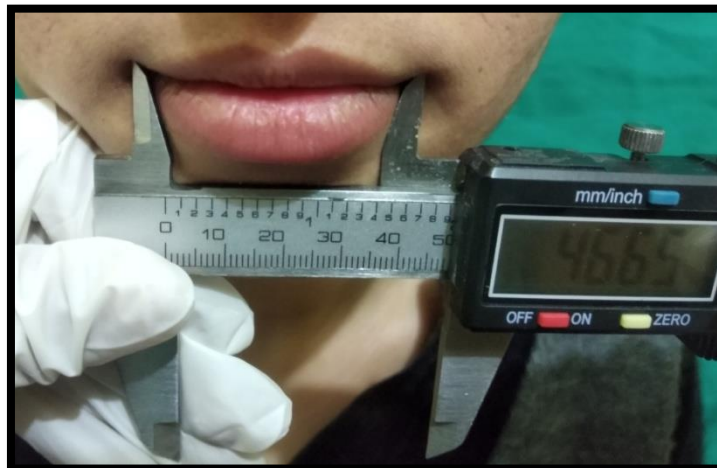


Fig-2: Recording the intercommissural width

INTERCANINE DISTANCE

A perforated stock tray of an appropriate size was selected and an irreversible hydrocolloid (Septodont; Mariflex Alginate) impression material was made. The impression obtained was inspected and washed under running water, disinfected with 2%

glutaldehyde (Septodont) and then poured with Type III stone (Neelkanth Zodenta Pvt.Ltd). To prevent incorporation of air bubbles mechanical vibrator was used to pour the casts. Flexible millimetre ruler was used to measure on curve, inter canine distance (Figure-3) [3].



Fig-3: Recording the intercanine distance

RESULT

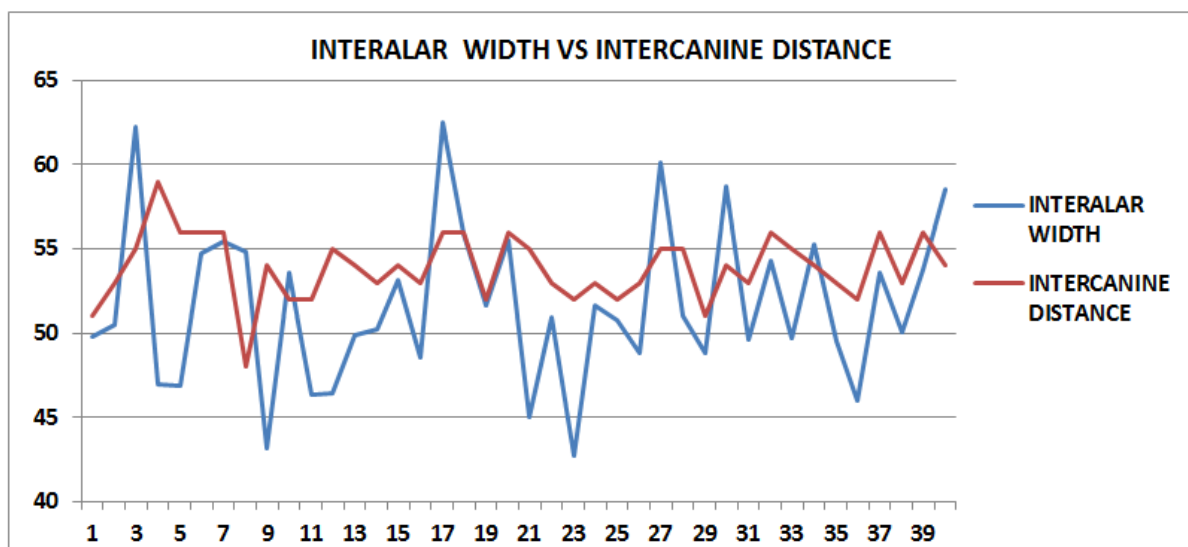
Measurements obtained from the 40 individuals were tabulated. Three different values were obtained from each patient. Mean value of interalar distance, intercommissural and intercanine distance were calculated. The investigated parametric interconnection was analyzed by Pearson's analysis and

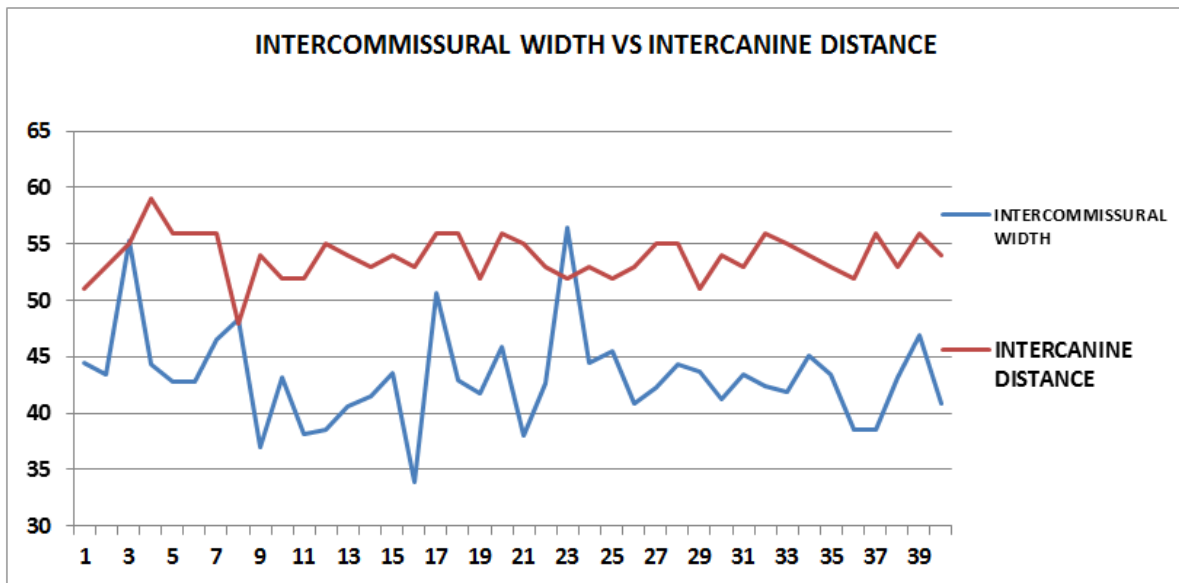
numerically presented by the pearson correlation coefficient. The parameters when compared between intercommissural and intecanine width was found to be statistically not significant ($P = 0.230984$) and when compared between interalar and intecanine width was found to be statistically significant ($P = -0.01452$) as in Table-1.

Table-1: Comparison of the various parameters with gender using Descriptive statistics

PARAMETER	MEAN	SD	PEARSON CORRELATION COEFFICIENT
INTERALAR WIDTH	43.23975	4.307162	-0.01452
INTERCANINE DISTANCE	53.9	1.984556	
INTERCOMMISSURAL WIDTH	51.68	4.741121	0.230984
INTERCANINE DISTANCE	53.9	1.984556	

The mean values for interalar width, intercanine distance and intercommissural width were 43.23 ,53.9 and 51.68 respectively.





DISCUSSION

The teeth also display variance showing individuality in a given dentition. For this reason, when replacing the teeth, dentist, should also consider useful guidelines for creating a pleasing esthetic result. Many techniques exist for the selection anterior teeth selection, but there still exist ambiguity in each technique. This study was done to know the validity of interalar width and intercommissural width as guideline for selection of maxillary anterior teeth. Smith [4] in 1975 conducted a study and concluded that there is an increase in the interalar width with age in both men and women.

Silverman [5] in 1967 found that the distal surface of maxillary canines was ± 4 mm from the commissures.

Al Wazzan *et al.*, [6] conducted a study in 2001 and concluded that no significant correlation between the intercommissural width and maxillary anterior teeth.

Latta G H *et al.*, in 1991 [2] conducted a study on the relationship between the width of the mouth, interalar width, bizygomatic width and interpupillary distance in edentulous patients. The measurements varied widely in each of the anatomic widths and the variations remained when the population was separated into groups by sex and/or race.

Varjao FM & Nogueira SS in 2005 [7] conducted a study on intercommissural width in 4 racial groups as a guide for the selection of maxillary anterior teeth in complete dentures. He concluded that intercommissural width would lead to selection error greater than 4mm.

The Pearson correlation coefficients were relatively small but significant for intercanine and

interalar width. Hence, interalar can be consider an important factor for selection of anterior teeth. However this study was conducted in the particular age group. Further study is required to evaluate by taking gender also as a parameter to compare the clinical finding.

CONCLUSION

One of the difficult aspects in the complete denture fabrication is the selection of maxillary anterior teeth of approximately same size. There is no known data regarding a single aesthetic factor that can be used reliably as an aid for artificial tooth selection. In this study, it can be concluded that interalar width is a good predictor of width of maxillary anterior teeth. However, new technologies have been introduced in dentistry during the last decades. Digital imaging has become a mainstream in the dental practice, and advances in computer technology have provided the dental professional with new tools that allow digitizing, measuring, displaying, and manipulating facial images.

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