



Morphological Characteristics of Primary Dentition in 3 -5yr Old School Going Children of Chidambaram and Srinagarin Posterior Teeth

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Abstract:

Introduction: The present study was conducted to provide the normative data on the mesio-distal and bucco-lingual crown measurements in posterior teeth in 3 – 5yr old school going children between Chidambaram and Srinagar.

Material and methods: In this study two hundred children were randomly selected from the population of Chidambaram and Srinagar schools based on the inclusion criteria during initial dental screening. During the second visit maxillary and mandibular impressions were made by principal examiner with alginate [neocolloid] in the room provided by the school authorities. In the present study a digital caliper was used to measure the mesiodistal and the bucco-lingual dimensions of the teeth. Measurement of following five teeth on each side in both the dental arches was recorded in the Performa along with their name, age and sex.

Results: The present investigation found that male teeth were larger than female in both group one and group two except for lower lateral incisors. It is the y – chromosome that seems to contribute in the size of the teeth by controlling the thickness of dentine, whereas x – chromosome seems to be responsible for modulating thickness of enamel. The sexual dimorphism in the tooth morphology is also attributable to the presence of relatively more dentine of the crowns of male teeth. The tooth dimensions were larger for Srinagar children [North] compared to Chidambaram children [South].

Conclusion: These data about the sizes of primary teeth can be used in treatment planning regarding space management, operative dentistry and management of malocclusion. Tooth size discrepancies between maxillary and mandibular teeth may be an important factor in the cause of malocclusions. Also tooth size standards based on odontometric investigation can be used in age and sex determination and identification of sex takes precedence over age. This identification of gender using odontometric techniques is of interest in case of major catastrophes when bodies are often damaged beyond recognition.

Keywords: primary dentition, posterior teeth, Mesiodistal and Buccolingual.

I. INTRODUCTION

The most essential criteria to diagnose a case is to know the mesiodistal width of the tooth¹. Dental arch development and the relationship of arches to one another also depends on the mesiodistal width of the tooth.² Thus space necessary to allow proper alignment of the teeth within the dental arches is sum of all the mesio distal width of teeth to fit in that arch. Mesio distal crown width and occlusion in deciduous dentition play a significant role in determining space of occlusion in permanent dentition. The size of the tooth is believed to be determined by genetic factors. The relationship between tooth size and dental crowding is reported as being important factor in clinical practice³. Now it is widely accepted that genetic and the environmental factors affect the tooth dimension. As compared to other ethnic groups, very fewer studies on measurements have been made in India.² The present study was conducted to provide the normative data on the mesio-distal and bucco-lingual crown measurements in in posterior teeth in 3 – 5yr old school going children between Chidambaram and Srinagar.

II. MATERIAL AND METHODS

The present study was planned in the department of Pedodontics and Preventive Dentistry, Rajah Muthiah Dental College and Hospital, Annamalai University to compare the morphological characteristics of primary dentition in children

of Chidambaram and Srinagar. In this study 200 children were randomly selected from the population of Chidambaram and Srinagar schools based on the inclusion criteria. Among these 100 children were selected from Chidambaram and 100 children from Srinagar ranging from 3 – 5yrs age group. 4 schools in Chidambaram and 6 schools in Srinagar were included in this study. Informed consent was obtained from the parents, school authorities and was approved by Dean, Rajah Muthiah Dental College and Hospital.

Inclusion criteria:

- Children with complete set of the deciduous dentition.
- Age of the children between 3 – 5yrs.
 - No restoration of any kind present.
 - No obvious loss of the tooth material mesio-distally or bucco lingually as a result of carious tooth loss or excessive tooth wear.
 - Only fully erupted deciduous teeth were measured.
 - No congenital absent or deformed teeth were present.
 - All the children who fulfilled the inclusion criteria were identified during the initial dental screening and were recorded. During the second visit maxillary and mandibular impressions were made by principal examiner with alginate [neocolloid] in the room provided by the school authorities. The impressions were washed with water and models were poured with dental plaster immediately.

• A digital caliper was used to measure the mesiodistal and the buccolingual dimensions of the teeth. Measurement of following 5 teeth on each side in both the dental arches was recorded in the performa along with their name, age and sex. The teeth measured were then statistically analysed.

III. RESULTS

The bucco-lingual dimension of molars was more for group 2 than group -1. There was no significant difference in the mesio-distal dimension of molars between male and female of group - 1.

The mesio-distal dimension of 1st primary molar was more for males compared to females in group-1. The bucco-lingual dimension of molars was more for males compared to females in group -1. There no significant difference in the buccolingual dimension of molars between males and females in group -1.

The bucco-lingual dimension of 2nd primary molar was more for males compared to females in group-2. There was no significant difference in the bucco-lingual dimension of molars between males and females in group - 2.

IV. DISCUSSION

Dimensions of molars

1. Lower first molars

The **bucco-lingual dimension of lower first molars** was more in group-2 [7.4mm] compared to group-1 [7.1mm]. There was no significant difference in the bucco-lingual dimension of lower first molars of male and female children in group-1, and male and female of group-2. These results of group 2 were similar to Yoshikazu. Kitagawa [2002]⁴ in Medieval sample [7.1mm] and Modern Japanese [7.2mm]

2. Lower second molars

The **bucco-lingual dimension of lower second molars** was more in group-2 [9.1mm] compared to group-1 [8.9mm]. There was no significant difference in the bucco-lingual dimension of lower second molars of male children [10.1mm] and female children [9.8mm] of group-1, and male [9.1mm] and female [9.1mm] of group-2. These results of group 2 were similar to Hung Huey Tsai [2001]⁵ of Taiwan population in which male [9.2mm] were more than female [8.9mm]. These results of group 2 were similar to Yoshikazu. Kitagawa [2002]⁴ of medieval sample [9mm], Edo sample [9.2mm] and Modern Japanese sample [9.2mm].

3. Upper first molars

The bucco-lingual dimension of upper first molar was more in male children was [8.6mm] compared to female children was [8.2mm] in group-1. These results of male in group 1 were similar to Yoshikazu. Kitagawa [2002]⁴ of Medieval sample [8.6mm]

4. Upper second molars

The bucco-lingual dimension of upper second molar was more in male children was [9.9mm] compared to female children was [9.5mm] in group-1. The bucco-lingual dimension of upper second molar was more in male children was [9.98mm] compared to female children [9.6mm] in group-2. These results of male in group-1 were similar to Yoshikazu. Kitagawa [2002]⁴ in Medieval sample [9.9mm].

V. CONCLUSIONS

These data about the sizes of primary teeth can be used in treatment planning regarding space management, operative dentistry and management of malocclusion.⁶ Tooth size discrepancies between maxillary and mandibular teeth may be an important factor in the cause of malocclusions⁷. Also tooth size standards based on odontometric investigation can be used in age and sex determination and identification of sex takes precedence over age⁸. This identification of gender using odontometric techniques is of interest in case of major catastrophes when bodies are often damaged beyond recognition.

VI. REFERENCES

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