

# Prevalence of Class II Division I Subdivision Malocclusion Amongst School Children in The Chennai City

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## ABSTRACT

This study is to assess the prevalence of class II div 1 subdivision amongst school children of Tamil origin in Chennai city.

The aim of this study is to determine the prevalence and frequency of class II Division 1 Subdivision malocclusions amongst school children in the age group of 13 – 15 years of Tamil origin. The subjects were screened and selected from three zones of Chennai corporation schools i.e, North, Central and South. Intra oral and extra oral examinations were conducted and diagnosis were made by Principal investigators in the Department of Orthodontics and Dentofacial Orthopaedics TNGDC&H, Chennai.

A total of 1585 patients were screened. All subjects had full complement of permanent teeth. Patients with the history of previous orthodontic treatment, presence of carious teeth and extraction of permanent teeth, congenital malformation and systemic diseases were excluded from the study.

Along with the clinical examination of subject dentition in centric occlusion, intra oral and extra oral photographs and lateral cephalometrics, orthopantomography radiographs were taken and study models were prepared to determine the distribution of type 1 type 2 class II div 1 subdivision among the school children with regard to the gender and involvement of the left and right side of the dental arches.

## INTRODUCTION

Malocclusion is defined as a malrelationship between the arches in any of the planes or in which there are anomalies in tooth position beyond the normal limits. Various type of malocclusion had been identified and classified by many<sup>1</sup>. Angle's classification of malocclusion is a universally accepted simple method of describing the pattern of occlusion existing in the population .Angle while classifying the class II Div I malocclusion based on the molar relations, classified the unilateral class II case as subdivision of the affected side. This factor has a significant clinical bearing while treating orthodontic cases. Thus far no study has been done on dental class II Div I cases with moderate crowing or mild to moderate proclination mandible and whose skeletal features are

normal maxilla and mandible to determine the prevalence of dental characteristics of class II subdivision malocclusion in Chennai school children of tamil ethnic origin. There is a definite ethnic trend in the prevalence of type of malocclusion in India from north to south of India which has been documented in dr.o.p.kharbanda book<sup>2</sup>. The prevalence of class II malocclusion in Bangalore and Thiruvananthapuram is reported close to 5% hence it would be worthy to investigate the prevalence of this type of class II subdivision malocclusion in school children in Chennai city<sup>3</sup>. The present trend in health care is strongly towards evidence based treatment i.e., treatment procedures should be chosen on the basis of clear evidence. The epidemiological data of this study will throw more light in planning

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appropriate orthodontic treatment.

### **MATERIALS AND METHOD**

For this study ethical clearance was applied from the institutional ethical committee. The study design was a quantitative, descriptive study. The study group consisted untreated class II div I subdivision malocclusion with a mean age of 13 to 15 yrs who had a full complement of permanent teeth up to the first molars with no previous history of orthodontic treatments and with normal skeletal and facial structures.

A total of around 1585 subjects were screened and selected from various schools in north, south, east and western parts of Chennai. After obtaining prior permission from the education dept. official to conduct the study. Equal number of subjects were selected from four types of institutions.

1. Corporation schools
2. Government schools
3. Government aided schools
4. Private schools

Selected subjects were referred to the Dept. of orthodontics at TNGDC&H. After obtaining the consent, each subject were clinically examined by the investigator at the department of orthodontics TNGDC&H Chennai. All examinations were carried out by a single examiner. The assessment of dental occlusion were arrived by using facial and intra oral photographs, lateral cephalometric, ortho pantomo radiographs and studymodels. Personal datas and informations were obtained directly from the students through the teacher to augment the authenticity of the tamil origin. For data collection, a survey format based on WHO guidelines was developed to record general background information and different variable related to malocclusion.

The Study objectives, method of study, benefits and risks were explained to individuals participating. The consent form was prepared both in English and Tamil. The consent forms were obtained through the respective class teachers from the candidates well before the procedure.

### **INCLUSION CRITERIA**

1. Angle's class II div I subdivision malocclusion
2. Presence of all maxillary and mandible permanent teeth up to the first molars –dental age VI according to occlusal index<sup>4</sup>.
3. Moderate crowding of 3-5 mm in the maxilla dental arch and in the mandibular dental arch according to little's irregularity index<sup>5</sup>.  
0 - Perfect alignment  
1-3 - Minimal irregularity  
4-6 - Moderate irregularity  
7-9 - Severe irregularity  
10 -Very severe irregularity
4. Mild to moderate over jet and overbite (3-5mm).
5. Teeth with no restoration.

### **EXCLUSION CRITERIA**

1. Subjects with dentofacial deformities
2. Caries teeth, hypoplastic, malformed, rotated and missing teeth.
3. Generalized spacing.
4. Medically compromised subjects.
5. Facial trauma
6. Previous history of orthodontic treatment
7. Presence of cross bite or open bite

### **DISCUSSION**

Angle's classification of malocclusion is primarily based on molar relationship. Three main types of malocclusion indentified are class I , class II div 1 , class II div II, class III. Angle while classifying class II div 1 he described the condition where a complete class I molarrelationship on one side of the dental arch with a full to half cusp class II relationship on the other side , which had been identified as class II div I subdivision. Further it has been found to represent with two variants namely, Type 1; class II subdivision malocclusion which is identified by the distal positioning of the mandibular first molar on the class two side, which is considered to be the primary factor in contributing to class II subdivision malocclusion and Type 2 which is identified by mesial

positioning of the maxillary first molar on the class II side and is considered to be a secondary contributor.

Type-1 When the maxillary dental midline is coincident to the facial midline and the mandibular dental midline is deviated.

Type -2 When the mandibular dental midline is coincident to the facial midline and the maxillary dental midline is deviated.

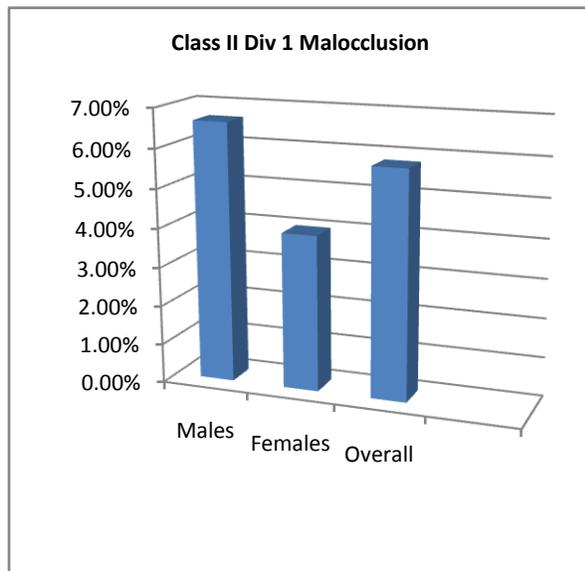
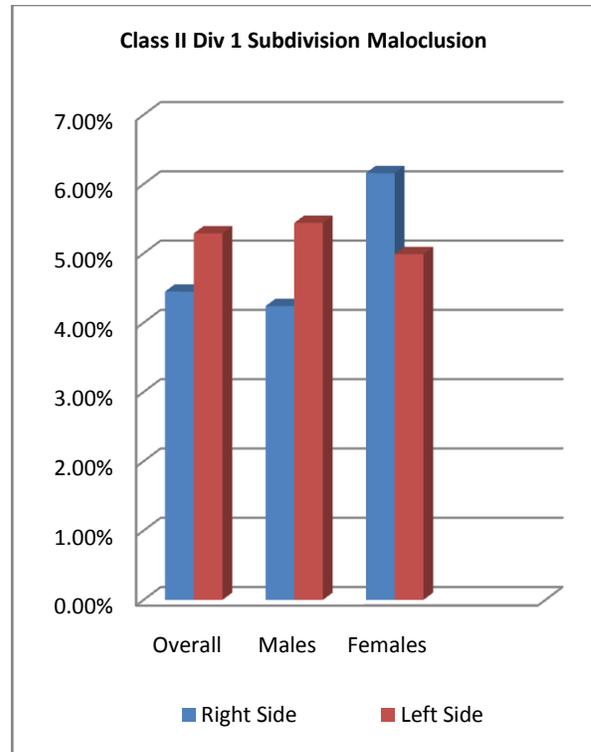
Accordingly, there is an optimal treatment approach for each type of classII subdivision malocclusion that the clinician should consider.

**STATISTICAL ANALYSIS**

Previous studies reported that the prevalence of class II malocclusion in south India is on an average of 4.9%. Hence in this study simple t-test were applied to a sample of 1585 subjects who represent the school students of Tamil ethnicity in chennai.

Distribution of the classII subdivision malocclusion types are expressed in percentages in relation to total sample.

The test of differences between percentages will be used to compare the distribution of types in the sample.



**CONCLUSION**

An overall prevalence of class II div 1 malocclusion within the selected subjects were found to be 15.6% of which 4.47% were females and 11.16% were males. The overall prevalence of C II DivI Subdivision were found to be 9.8% The overall prevalence of class II subdivision on the right side was found to be 4.54% among which 2.9% were males and 1.6% were females. The overall prevalence of class II subdivision on the left side was found to be 5.3% of which 3.7 % were males and 1.57% were females. The prevalence of type 1 and type 2 is found to be 60% and 40% respectively. Type I is found to be prevalent more in boys than girls.

## REFERENCE

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