Prevalence of Angle Class III Malocclusion In South Indian Urban Population

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ABSTRACT

Aim
The main objective of the study is to find out the prevalence of angle's class III malocclusion in the south India urban population

Method
The study was conducted among south Indian population about 100 subjects, the participants were aged between 18-20 years. Participation of the respondents was voluntary. The study was conducted for 1 months. Anonymity of the participants was maintained.

Result
In the examined population only 2% of the population had class 3 malocclusion. And it has more male (4%) predilection than female (1.3%).

Conclusion
Prevalence of Angle class III malocclusion varies greatly among and within populations.
 In the examined population only 2% of the population had class 3 malocclusion. And it has more male (4%) predilection than female (1.3%).

Keywords - Dental; Malocclusion; Skeletal

INTRODUCTION
The Angle classification has prevailed over the last century as a simple, quantifiable method to test malocclusion prevalence within populations. However, what Angle defined as a "normal occlusion" should, in fact, be considered the "ideal" occlusion given the strict criteria he used in his classification. This ideal occlusion is rather uncommon and has driven researchers to disagree on how much deviation from the ideal should be accepted as normal [1].
Class III malocclusion is skeletally characterized by an overgrowth of the mandible (mandibular prognathism), an undergrowth of the maxilla (maxillary deficiency), or a combination of both[2]. The prevalence of Class III malocclusion has been described between 1%[3,4] to over 10%[5], depending on ethnic background[3], sex[5,6] and age[7]. It has been reported that approximately 75% of Class III cases in male Caucasians have a skeletal origin and are a result of mandibular prognathism or macrognathia[8]. The prevalence of Class III malocclusion among Caucasian people ranges from 0.48% to 4%[3]. But compare to Caucasian people the prevalence of class III malocclusion higher in Japanese population. It rises as high as 10%[9]. Diagnosis and treatment of class III malocclusion are chocked up with contradiction in the type, timing and duration of treatment. To know the exact aetiology of any dentofacial characteristics genetic evaluation is mandatory. The effects of genetic association in orthodontic treatment are poorly understood.
Although there has been extensive literature concerning genetic basis of the dentofacial abnormalities and malocclusions, data provided by these studies were quite sparse[10].

Furthermore, surveys dealing with genetics constituted only the 0.5% of the total in orthodontic journals since 1980's[11].
To date, many investigations have focused largely on treatment modalities and outcomes, with little being accomplished toward an understanding of the aetiology of class III phenotype and potential relationship between the genetic components or how genetic factors may influence the response to treatment[12].
In spite of the continually increasing data on malocclusion prevalence, little has been done to consolidate this information in a comprehensive and critical way [13]. Further; to the best of our knowledge, there has not been a systematic analysis of the prevalence of Angle class III malocclusion among different populations. Meta-analysis is a systematic method that uses statistical techniques for combining results from different studies to obtain a quantitative estimate of the overall effect of a particular intervention or variable on a defined outcome; meta- analysis produces a stronger conclusion than can be provided by any individual study. Although no protocol has been enacted governing the methods of Angle class III malocclusion prevalence studies, a review and meta- analysis of the available literature will be helpful in establishing guidelines for future researchers.

MATERAILS AND METHOD
The study was conducted among south Indian population about 100 peoples , the participants were aged between 18-20 years. Participation of the respondents was voluntary. The study was conducted for 1 months. Anonymity of the participants was maintained

Inclusion criteria
No previous orthodontic treatment done. Permanent dentition present with no remaining deciduous teeth All had their first permanent molars. The criterion was limited to occlusal anterio-posterior (A-P) relationship. The patients not falling under inclusive factors were excluded.

Examination procedure
Each subject was examined by a single examiner with aid of natural light. Torch was used whenever required. Occlusal characteristics were assessed with the help of mouth mirror
Anonymity of the participants was maintained. The values were taken and the values were entered and evaluated using SPSS software and the results were analyzed.

RESULTS
From this study, angle class 3 malocclusion among the south Indian population about 2% of the population has class 3(Table 2, figure 2). In males, out of 25 only one had class 3 malocclusion which makes it 4% in male population. In females, out of 75 only one had class 3 malocclusion which makes it only 1.3% in females population(Table 3 and 4, figure 3). Details about the results are given in tabular form and the analysis of the data is graphically represented.

DISCUSSION
This survey provides the first estimate of prevalence of malocclusion in south Indian population. From this study, angle class 3 malocclusion among the south Indian population about 2% of the population has class 3(Table 2, figure 2). In males, out of 25 only one had class 3 malocclusion which makes it 4% in male population. In females, out of 75 only one had class 3 malocclusion which makes it only 1.3% in females population(Table 3 and 4, figure 3). The large variation in Angle class III malocclusion prevalence rates in this study suggests a high level of variability across geographic regions and races.
From other articles , Chinese and Malaysian groups showed a much higher mean prevalence rate than other racial groups: 15.69% and 16.59%, respectively [14-18]. This is consistent with previous reports of higher rates of Angle class III malocclusion among Asian populations [19,20].
Angle class III malocclusion rates among the three Middle Eastern groups in this study are fairly similar. However, previous studies indicated a wide range of rates from 1.3% in Israeli Arabs [21] to 15.2% in Iranians [21]. Additionally, many different rates appear for Iranians: 2.1%, 7.8%, 9.2%, and 15.2% [22-25] . A study of Turks [26] in 2004 showed a prevalence rate of 11.5%, similar to the 10.30% reported in the 2007 study [27]. However, a 1969 study of Egyptians [28] showed a rate of 4%, which is not concordant with the 11.38% rate reported for the Egyptian population in this study [29]. Agreement of previously reported Angle class III prevalence data appears to be haphazard at best among Middle Eastern populations. Furthermore, major discrepancies appear to exist among populations within individual countries.
Most of the African populations showed a relatively low prevalence, although two populations each showed a much higher rate than the rest [30,31]. Furthermore, the range of rates among the Tanzanian populations varied considerably [31-33] . Previously studies from Kenya, Tanzania, and Nigeria also show a large level of variation in prevalence rates (between 1% and 16.8%)[34,35] This suggests a large amount of local variability within and among African countries.
With respect to the prevalence of class III malocclusion in the Americas, two publications were identified. The first study, reported a prevalence of class III malocclusion of 9.1% among Mexican-American adolescents living in Los Angeles area [36]. This study was excluded as it evaluated a convenience sample. Data from the third National Health and Nutrition Examination Survey (NHANES III) showed that in the United States, only a fraction of a percentage of all adults presented class III. This type of malocclusion was more prevalent in Mexican-Americans and African-Americans compared to Whites [37]. Because this study did not distinguish be-tween subjects that had previous orthodontic treatment, it was also excluded from the final selection.

CONCLUSION
Prevalence of Angle class III malocclusion varies greatly among and within populations.
In the examined population only 2%of the population had class 3 malocclusion. And it has more male(4%) predilection than female(1.3%). A more standardized protocol for reporting malocclusion prevalence data would be helpful in drawing meaningful comparisons across geographic and racial groups in the future.

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TABLES AND GRAPHS

Table 1 - Gender distribution of the study

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	25	25.0	25.0	25.0
	female	75	75.0	75.0	100.0
	Total	100	100.0	100.0	

Table 2 - Prevalence of Class III malocclusion in the present study

|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	present	2	2.0	2.0	2.0
	absent	98	98.0	98.0	100.0
	Total	100	100.0	100.0	

Table 3 and 4 - Gender predilection of Class III malocclusion of the present study

Table 3

		Frequency	Percent	Valid Percent
Valid Males	present	1	4.0	4.0
	absent	24	96.0	96.0
	Total	25	100.0	100.0

Table 4

		Frequency	Percent	Valid Percent
Valid Females	present	1	1.3	1.3
	absent	74	98.7	98.7
	Total	75	100.0	100.0
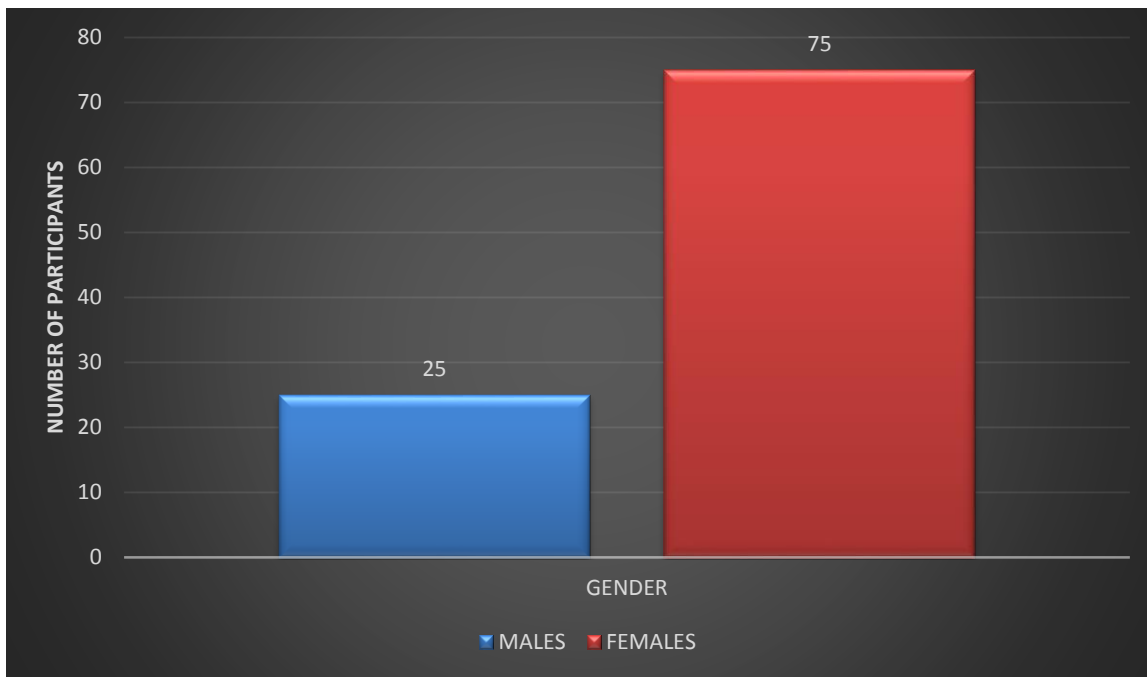
Figure 1: Bar graph depicting gender distribution of the present study. X axis represents the gender and Y axis represents the percentage of the subjects in the present study; 25(25%) males, 75(75%) females.
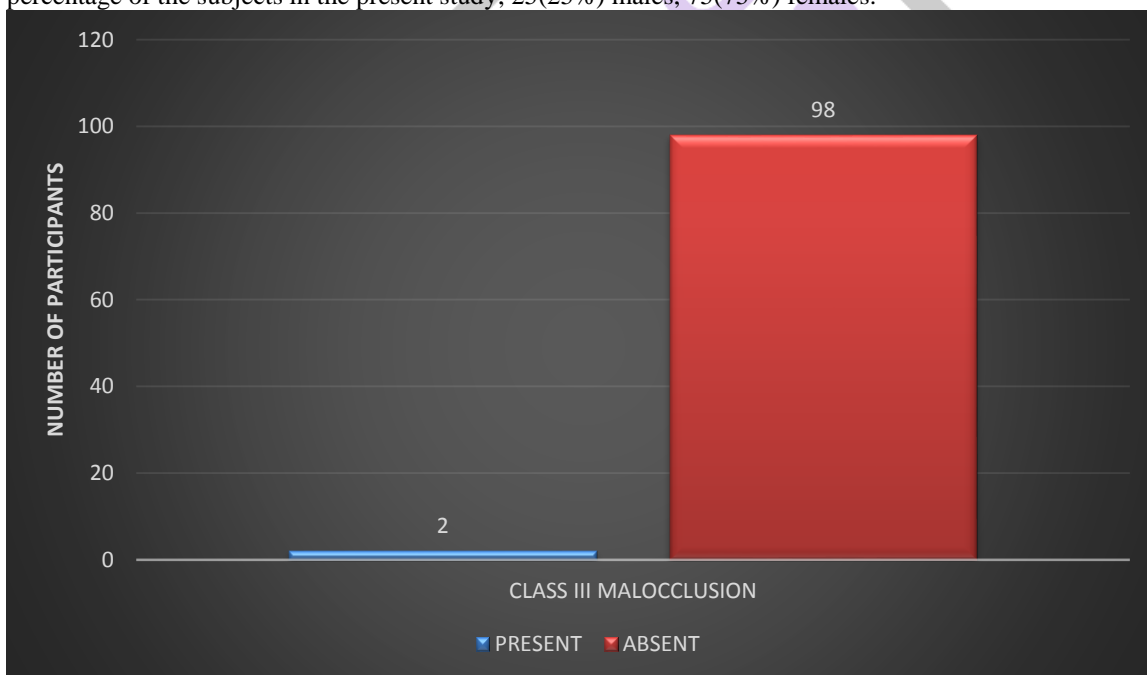
Figure 2: Bar graph depicting the presences of Class III Malocclusion. X axis represents the presences of Class III malocclusion and Y axis represents the percentage of the subjects in the present study; 2(2%) present, 98(98%) absent.

Chart Title

	MALES	FEMALES
PRESENT	4	1.3
ABSENT	96	98.7
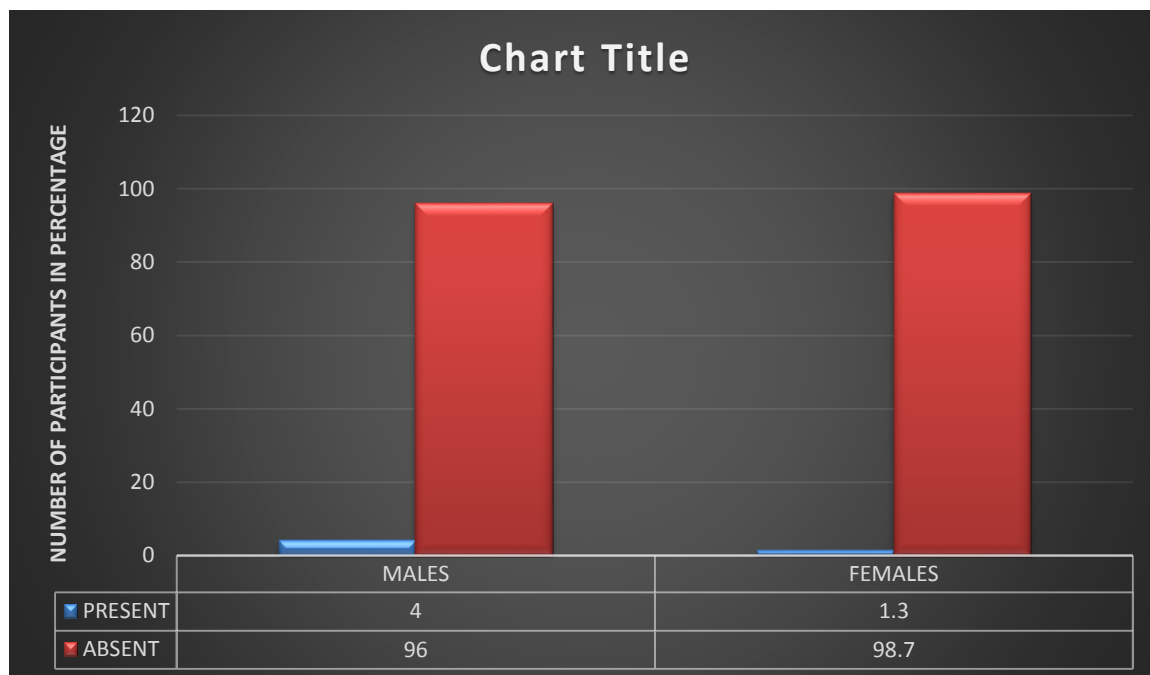
Figure 3 – Bar chart depicting the gender predilection of Class III malocclusion of the present study. X axis represents the gender and Y axis represents the number of participants in percentages. In males 1(4%) had class III malocclusion and in females, 1(1.3%) had class III malocclusion.