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Malocclusion And Deleterious Oral Habits In South Indian Adolscent Population: A Correlation Study

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ABSTRACT: Aim: ***Purpose of the study was to judge the prevalence of malocclusion and associated predisposing deleterious oral habits in South Indian teen population.***
Methodology: ***Prevalence of malocclusion and treatment need was assessed using the Dental Aesthetic Index (DAI) among a sample of 1000, 12 and 15-year-old school children in prominent South Indian cities, who received no treatment before or during the study. Subjects were also assessed for deleterious oral habits. For statistical analysis, Chi-square test was wont to test the correlation of habits with mean DAI score and malocclusion traits.*** ***Results:*** ***Mean DAI score was 26.81±5.25. Nearly 52% of the study sample presented with malocclusion, starting from 'definite' to 'handicapping' supported the DAI scores. The prevalence of varied deleterious oral habits was 21.2%. About 35% of youngsters with any oral habit developed malocclusion as compared to those with none habit (P value=0.014). Tongue thrusting, mouth breathing and thumb sucking habits had a major impact on malocclusion.Conclusion: It was evident from the results of our study that presence of malocclusion directly depends upon the presence of deleterious oral habits in general.***
Keywords Adolescents, oral habits, Dental Aesthetic Index, malocclusion.

1. INTRODUCTION

Malocclusion may be defined as an irregular placement of the teeth or abnormal positioning of both the arches beyond the range of what's known to be as normal. Malocclusion is one in all the foremost common oral problems, along with tooth decay, gingival disease, and fluorosis.[1] in line with the globe Health Organization, the most dental problems should be subjected to periodic epidemiological surveys. Knowledge of a population's epidemiological situation is important for planning and providing prevention and treatment services.[2] The reasons to develop malocclusion can be genetic or environmental, and/or a mixture of both

the factors, together with various local factors like adverse oral habits, tooth anomalies, and form and developmental position of teeth, can cause malocclusion. The prevalence of malocclusion varies from country to country and among different age and sex group.[3] Globally, epidemiological studies on malocclusion show the prevalence ranging between 39% and 93%.[4] The prevalence of malocclusion in India varies from 19.6% to 90%.[5] The high prevalence of malocclusion implies that public health efforts are required in and of itself conditions affect negatively the individual's quality of life, particularly just in case of youngsters and adolescents, who are sensitive about their appearance.[6] Caries and premature loss of primary teeth are considered predisposing factors for occlusal and space discrepancies within the mixed and permanent dentitions.[7] decay is that the other most typical oral disease irrespective of the very fact that it's preventable.[8] Since its etiology is complex and there are several unexplained interactions among unknown confounders and risk factors, it's the foremost prevalent oral pathological state worldwide.[9] Few abnormal oral habits function at the subconscious level the patient is usually ignorant of its existence.[10] the information of prevalence and causes of malocclusion can help formulate strategies for prevention, interception, and corrective treatment. in sight of monetary restraints because of high prices of orthodontic services and lack of public funded dental treatment programs in developing countries, like India, it becomes increasingly important to acknowledge treatment need in line with severity and to seek out modifiable factors which will be targeted to decrease or eliminate malocclusion through preventive and interceptive orthodontics. Oral habits should be of primary clinical concern to orthodontists as they will cause malocclusion and interfere with the treatment progress. Generally, habit control should be achieved earlier to correction of the malocclusion in a shot to eliminate any etiologic factors in development and maintenance of the malocclusion. it's well important for the clinician to know that habit breaking treatment may have prolonged treatment time because habits may be present for long periods of your time and will be related to underlying psychological problems. Variety of studies are applied to work out the prevalence of oral habits in India by Nidhi Pruthi (25.2%), Kharbanda [11] (25.5%), Shetty [12] (29.7%). The prevalence of oral habits and malocclusion were also determined by Nidhi Pruthi [13](28.8%), Shetty [14] (28.95%), Sinn J. Minor 15 (23%).

2. AIM OF THE STUDY

Purpose of the study was to evaluate the prevalence of malocclusion and associated predisposing deleterious oral habits in South Indian teen population.

3. METHODOLOGY

The present cross-sectional study was allotted among a sample of 12 and 15-year-old school going children in prominent south Indian cities. For obtaining the desired sample size, seven government and five private schools were selected randomly and every one children aged 12 and 15 years within the selected schools were surveyed. The sample size was computed on the idea of prevalence rate of malocclusion within the region available from the National oral health survey and Fluoride Mapping, 2002-2003, Children with any history of treatment or undergoing treatment at the time of examination were excluded from the study. one trained examiner applied all the examinations within the respective schools to avoid inter-examiner variations. Intra-examiner reproducibility resolve using Kappa-statistic by randomly selecting five students on each examination day from among those examined the previous day and re-examining the subsequent day. Data regarding general information including name, age, gender, style of school the kid attended (i.e. government or private), and history of treatment was obtained through an interview with the participating subjects.

Deleterious oral habits were assessed by self-reporting of the themes through a face-to-face interview. the themes were assessed for thumb sucking, lip biting, grinding of teeth, tongue thrusting, mouth breathing, and other habits including pen/pencil or nail biting, tongue

thrusting. Malocclusion and treatment Need were assessed using the Dental Aesthetic Index (DAI) consistent with the tactic recommended by WHO.[16] All examinations were conducted at the respective schools under natural day light illumination, using mouth mirror and also the WHO standard periodontal probe (CPI probe). the info was analysed using Statistical Package for Social Sciences (SPSS) package, version 25.0. Statistical tests used were Chi-square test for comparing categorical variables and to check the effect of habits on DAI score and malocclusion traits. A P value of ≤ 0.05 was measured as statistically noteworthy.

4. RESULTS

The mean DAI score of this study group was 26.81±5.25. Prevalence of malocclusion and treatment need per the severity levels as measured by the DAI was 52%. Amongst these 28.3% had certain malocclusion (DAI score 26-30), 14.7% had severe malocclusion (DAI score 31-35), and 9.7% had debilitating malocclusion (DAI score≥36). (Table 1) The distribution of deleterious oral habits among children having some reasonably malocclusion was found to be 35% compared to 16.5% in children having no malocclusion (P=0.014). Results showed that mouth breathing habit prominently affected presence of crowding in incisal segments (P=0.022). Tongue-thrusting habit was significantly related to spacing within the incisal segments (P=0.014), midline diastema (P=0.010), reverse overjet (P<0.001), anterior open bite (P<0.001) Thumb suckers significantly related to increased maxillary overjet (P=0.015) and midline diastema (P=0.025). (Table 2)

Table 1- Frequency distribution of malocclusion traits according to Dental Aesthetic Index components and age

DAI component	12 years	15 years	*P* value*
Missing teeth ≥1	2.3	3.9	0.152
Crowding (incisal segments) 1-2	73.0	75.9	0.291
Spacing (incisal segments) 1-2	30.6	26.5	0.163
Diastema (mm) ≥1	17.0	11.3	0.012
Anterior maxillary irregularity ≥1 (mm)	77.0	75.2	0.505
Anterior mandibular irregularity ≥1 (mm)	68.1	64.9	0.275
Open‑bite (mm) ≥1	2.7	7.8	0.000

**P values from Chi‑square test, P value≤0.05 is considered statistically significant, DAI – Dental Aesthetic Index*

Table 2- Age and gender‑wise distribution of subjects according to mean Dental Aesthetic Index score

Age	Gender	Mean DAI score	Standard deviation	*P* value
12 years	Male	27.3	5.47	0.287
	Female	26.57	4.86	
	Total	27.04	5.27	
15 years	Male	26.62	5.07	0.569

	Female	26.52	5.46	
	Total	26.58	5.23	

P value≤0.05 is considered statistically significant, DAI – Dental Aesthetic Index

5. DISCUSSION

Oral habits like finger and thumb sucking, lip sucking, mouth breathing, nail biting (onicofagy) then on can happen temporarily; however these habits, when excessive or continued, can cause poor dental health or malocclusion. Lagana et al. studied the prevalence of malocclusions, oral habits and also the need for treatment in an exceedingly sample of 7- to 15-year-old Albanese schoolchildren and stated that oral habits were present in 80.6% of their subjects.[17] Cavalcanti et al. also established that there was a direct association between harmful oral habits and malocclusion.[18] However, Luzzi et al. reported that no statistically significant associations may well be detected between the non-nutritive sucking habits and malocclusion.[19] R Muppa et al. in his study notes anterior crowding in 27.37% students, deep bite in 20.5%, Class I in 14.34%, Class II in 9.95%, Class III in 5.33%, anterior spacing in 12.9%, anterior cross bite in 4.98% and open bite in 4.62% students. He observed that malocclusion is usually related to periodontitis and temporomandibular disorders and plays a very important role within the overall oral health of a private.[20] Suma S et al. associated the prevalence and complexity of malocclusion between the urban and rural children of Nalgonda district and noted that the prevalence of malocclusion was higher in females (21.8%) than males (13.2%) and more in urban (20.8%) than in rural areas (14.9%). He attributed this to socio-economic variations and different dietary habits.[21] Jacob PP in his study reported the prevalence of malocclusion as 49.2% in Thiruvananthapuram. Class I malocclusion was seen in 44%, Class II in 4.9% and Class III was seen in 0.3% of the study sample.[22] Radha Krisna G et al. observed the prevalence of malocclusion in teeth in Chennai as 62.5% out of which 81% had Class I malocclusion, 15.3 available Class II, only 3 available Class III and 47.2% had crowding.[20] Joseph John in an exceedingly similar study reported that 56.3% had no malocclusion, 25.1% had an exact malocclusion, 12.1% had a severe malocclusion and 6.2% had a handicapping malocclusion and concluded that the requirement to implement preventive and interceptive orthodontic care is of utmost importance to boost the aesthetic perception and social event.[23-25] In the present study, it absolutely was found that fifty subjects had seeked treatment, which constituted 4.7% of the study group, like that reported by another authors.[26] This clearly indicates underutilization of orthodontic services, and also a big disparity was noted between the govt. and personal school students within the utilization of orthodontic services. this might be thanks to low awareness of oral health problems and fewer importance of dental aesthetics among the kids belonging to government schools and their parents, similarly because the unaffordability of orthodontic services by the bulk. Among the varied habits it absolutely was found that other habits including habit of pen/pencil/nail biting were most prevalent (12.0%), followed by tongue thrusting affecting 6.3% of the population. kind of like other studies, [27] the malocclusion traits as assessed by the DAI components showed that the population studied during this research had more problems with crowding distribution than with extra space. Crowding of teeth and dental irregularities within the anterior maxillary and mandibular segments were the foremost frequent traits observed. within the present study, a major increase was observed within the frequency of open bite from 2.7% to 7.8% and from 12 to fifteen years age. this can be like that reported by Thilander et al.,[28] and Sidlauskas et al.[29] The mean DAI score for the evaluated young adults (26.81) lies within the range reported by other authors from other parts of the planet. No significant difference was observed for the mean DAI score between boys and girls, though girls had a rather lower score at 12 years age as compared to boys. this can be comparable the reports of Otuyemi et al., and Onyeaso and Sanu which didn't find any

significant sex differences within the mean DAI score of Nigerian children. [30] With the results of this study, emphasis should air planning for oral health promotion in schools, as early as a mixed dentition stage. Furthermore, teachers and fogeys should be made alert to malocclusion and cavity, and encourage healthy lifestyles. in an exceedingly country like India, which lacks public resources for oral health care, a national oral health policy that emphasizes on prevention would be beneficial.

6. CONCLUSION

Malocclusion still remains a heavy problem in India thanks to its high prevalence and incidence. It was evident from the results of our study that presence of malocclusion directly depends upon the presence of deleterious oral habits in general. There was high prevalence of malocclusion (52%). Abnormal oral habits, particularly mouth breathing and tongue thrusting had a big impact on malocclusion, leading to higher frequency of crowding in anterior teeth, open bite, and spacing.

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