

ASSOCIATION OF ORAL HABITS, MOUTH BREATHING AND DENTAL MALOCCLUSION AMONG PRESCHOOLERS

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Abstract: Oral habits ought to be of primary clinical concern to orthodontists as they may cause malocclusion and interfere with the treatment progress. Generally, habit control should be achieved earlier to correct malocclusion in an effort to eliminate any etiologic factors in development and maintenance of the malocclusion. It is well important for the clinician to understand that habit breaking treatment may need prolonged treatment time because habits may have been present for long periods of time and may be associated with underlying psychological problems.

Introduction- Thumb sucking, tongue thrust swallowing, and mouth breathing are potential risk factors for development of malocclusion. The ratio of oral habits, mouth breathing and malocclusion is an important issue in view of prevention and early treatment. While oral habits can interfere with the position of the teeth and normal pattern of skeletal growth. The aim of this study is to assess the association between oral habits and malocclusion.

Materials and methods- Case records were collected from the dental archives of patient management system software patterned by Saveetha dental college. All paediatric patients in a specific time period were involved in the study. Chi - square test was preferred using SPSS software version 20.

Results- The analysis showed that the most prevalent gender is Male common age group is 5 -10 years and common oral habits is lip biting. The study shows no significant correlation age - habits $p=0.800$

Conclusion- Within the limits more prevalent in the 5 to 10 age group - more prevalent in Male children and the reason for malocclusion is lip biting.

Keywords: Children, Malocclusion, Mouth breathing, Oral habits

INTRODUCTION

Malocclusion is common in children and prevalence in different age groups from 20% to 93%. [1-4]. Most epidemiological studies of occlusion traits are concentrated on the Permanent dentition. [5]. Studies assessing the deciduous and mixed dentition stages, when interceptive treatment prescribed, are much less common. Malocclusion is a developmental condition signifying a mal-relationship between the arches. The factors responsible for malocclusion include genetic and environmental factors, or a combination of both along with various local factors such as adverse or deleterious oral habits and anomalies in number, shape, and developmental position of teeth and dentition. [6] Nevertheless some studies reported that as yearly as 3 years of age prevalence of malocclusion is high as 70% - 82%. [3,7,8]. Among preschool children, the most common conditions are anterior open bite, excessive over- jet, class II malocclusion and posterior crossbite. [3,7,9,10]. It still debated whether oral habits and mouth breathing have a role in the etiopathogenesis of malocclusion Beyond the controversy, whenever these problems are found in association with malocclusion, it is considerable importance for prognosis and they must be eliminated in order to ensure a functional environment adequate for physiological growth.

If some neuromuscular activists are developed to compensate for dentoalveolar or Skeletal alteration, others have an etiological role[11,12]. Improper oral habits can't interfere not only with the position of the teeth, but especially with the normal skeletal growth pattern. Some studies have shown that many environmental factors cause malocclusion [13,14] including eating habits especially the current trend in consuming foods of soft consistency with reduction of masticatory forces, non nutritive sucking, pacifier sucking and finger sucking and early wearing.[15]. Pacifier sucking, baby bottle sucking and especially finger sucking frequently causes protrusion of the upper incisors and premaxilla, atypical swallowing[16,17], anterior open bite and posterior cross bite.[18,19] The posterior crossbite is due to low position of the tongue due to sucking, with lack of thrust of the tongue on the palate and increased activity of the muscles of the cheeks that causes an alteration of muscle pressure on the upper teeth and arch. Since oral habits like digit sucking, tongue thrust swallowing and mouth breathing are modifiable factors, reliable data and knowledge of how such behaviours contribute to malocclusion is important for its cessation and prevention.

Oral habits are one of the causes of malocclusion in a growing child. Deleterious oral habits represent a serious public health issue. Paediatric dental care is influenced by pedodontic triangle.[25] Deleterious oral habits are one of the most frequent factors identified by orthodontists that affect the normal growth and development of muscles and jaw bones during childhood and adolescence. These harmful oral habits represent the primary cause for malocclusion. Early detection and elimination of the habit will go along a way in reducing and eliminating the incidence of malocclusion.[20]. Oral health plays a very important role in the general well-being of individuals, and parents' behavior and attitudes influence the oral health of their children.[26] The purpose of the study was to determine the association between oral habits and malocclusion among preschoolers. Efficient plaque control is essential for maintaining good gingival and periodontal health, prevention of dental caries and to preserve the oral health.[27]. Furthermore, there are frequent medical and social problems related to tiredness due to lack of sleep, which is interrupted for mouth breathing and frequent sleep apnea, such as attention deficit disorder and hyperactivity. It is therefore appropriate to verify the existence of a significant association between habits, mouth breathing and malocclusion and if children with these habits have characteristics of malocclusion worse than those of the general population, when found oral habits and mouth breathing are risk factors for malocclusion that need to be corrected early.

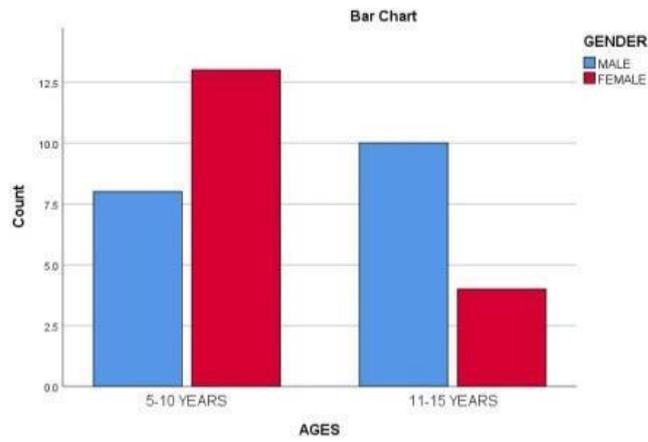
MATERIALS AND METHODS:

This study is done under a University setting. The similar characteristics of the study is that it is done with available data under similar ethnicity. Records of the children who visited Saveetha dental college, Chennai were evaluated between June 2019-March 2020. This study was approved by the institutional ethics board. Two reviewers were involved in this study. Total sample size included was all the paediatric patients in a specified time period between the age group of 5 - 12 years. To minimise the sampling bias, all available data was included with a sorting process of removing double entries. Internal validity of the study was patients with oral habits, mouth breathing and malocclusion and external validity was defined age group. Data collection was done from the dental archives of patients management software system patterned by Saveetha dental college, Chennai. The data was obtained from treatment records under the category of habits breaker given for children with oral habits and malocclusion and data was tabulated. Data was verified by one external reviewer. The data was then exported to SPSS and variables identified.

Chi square test was performed on data using SPSS version 20. Age, gender and ethnicity were considered as independent variables. Patients with oral habits and malocclusion as dependent variables. Type of analysis done was correlation analysis.

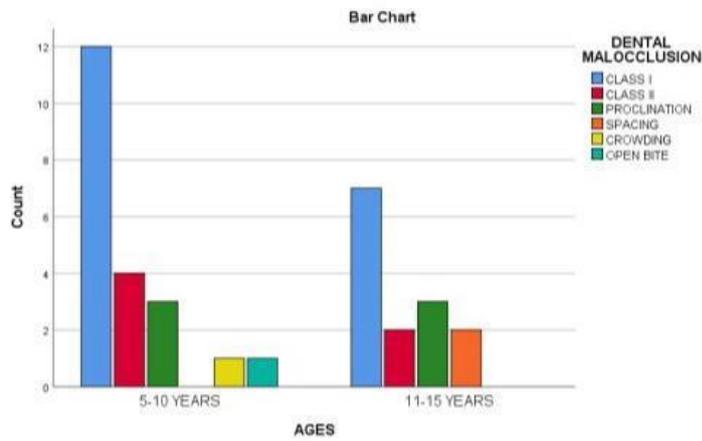
RESULTS:

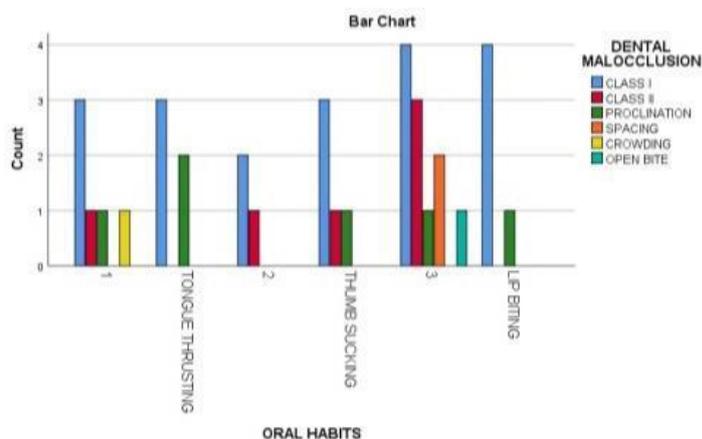
The data collected from the patient management software was tabulated in SPSS and the descriptive analysis was obtained. Based on age and gender there were 8 male patients under the age group of 5 -10 years and 13 female and 10 male patients under the 11-15 years of age group and 4 female patients on 11-25 years of age group. Based on oral habits and dental malocclusion there were 11 tongue thrusting cases, 8 thumb sucking and 16 lip biting cases. The frequencies in this study are depicted in table and graphical representation. Chi square test was done between oral habits and malocclusion. Results showed negative correlation $p= 0.800$



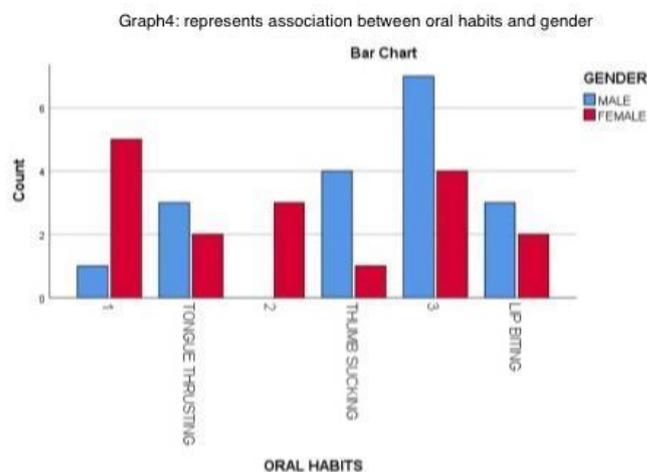
Graph -1: represents association between age and gender

Graph2: represents the association between age and malocclusion





Graph3:represents association between oral habits and malocclusion



Graph4: represents association between oral habits and gender

DISCUSSION:

Many authors have written about the relationship between oral habits and malocclusion. Oral habits are respective behaviours in the oral cavity that result in loss of tooth structure and include digit sucking. Lip biting and sucking, self injuries habits and tongue thrusting.[21]. Their effect is dependent on the nature, onset and duration of habits, leading to an imbalance between external and internal muscle. Tongue thrusting - an abnormal tongue position with deviation from normal swallowing pattern and mouth breathing may be associated with anterior open bite, protrusion of maxillary incisors.[22]. Several factors account for persistence of infantile swallowing patterns in the etiology of open bite as well as in the relapse of treated open bite patients.

Mouth breathing - the presence of obstruction of the airways, especially at the level of nose and pharynx forces the patient to breathe through the mouth.[23] They are usually associated with various symptoms: lack of nasal airflow, sneezing, itching, running nose clear but also snoring (OSAS). Mouth breathing due to airway obstruction leads to postural changes such as lip incompetence, low position of the tongue in the mouth floor and increased vertical facial height for clockwise rotation of the jaw. The findings of a study done by Warren et al. (2002) indicated that longer the duration of the NNSH, higher was the prevalence of malocclusion in children with mixed dentition. However, the present study did not show a statistically significant association of duration of sucking and malocclusion. This can be attributed to the smaller sample size and poor memory of the parents on the exact duration of sucking. A study by Antony Et al shows a result of 92% of the participants are aware of the oral habits practiced by their children. 61% of the participants' children have mal alignment of the front tooth which is caused as a result of thumb sucking and usage of a pacifier. 78% of the participants also intend to prevent their child from the habit of thumb sucking. [24] Mouth-breathing children have significantly reduced inter-molar width, palatal volume, and surface, and substantially increased palatal height, leading to different developmental patterns of the palatal morphology. Continuous mouth breathing results not only morphological deformations but also poor learning outcomes. Mouth breathing habits are frequently associated with orthodontic problems. In the nasal area, the lack of ventilation leads to an underdevelopment of the maxilla: lateral and sometimes anterior cross bites appear. In the buccal area, the need of maintaining the mouth opened induces a new postural position of the mandible which alters the pattern of growth of the mandible ("long face"). The functional context of the buccal praxis is also altered: low or protruded tongue, deviant swallowing, troubles of speech. The treatment of this pathological context needs a pluridisciplinary approach where the otorhinolaryngologist, the dentist, the orthodontist and the speech pathologist have to play an important role. In the orthodontic fields, we have to carry

out an orthopedic treatment (rapid maxillary expansion, facial masks) to normalize the growth of the maxilla before the orthodontic treatment.

CONCLUSION:

Oral habits and mouth breathing have a role in the etiopathogenesis of malocclusion and their association is confirmed herein. There was a significant association between tongue thrust, lip biting and thumb sucking. Lip biting is more likely to be a contributing factor for anterior open bite and proclination.

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