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RESEARCH ARTICLE

PREVALENCE OF MALOCCLUSION IN CHILDREN WITH MIXED DENTITION IN VISNAGAR: A CROSS-SECTIONAL RETROSPECTIVE STUDY

{PREVALENCE OF MALOCCLUSION IN MIXED DENTITION PHASE}

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Abstract

Background: Malocclusion is currently understudied in the literature in Visnagar town of Gujarat; Therefore, thecurrent research aimed to ascertain the prevalence of malocclusion and its various paradigms among children with mixed dentition of age between 6-14 years.

Aim: To establish the Prevalence of various aspects of malocclusion amidst children ages, 6-14 years who visited the department of Pediatric dentistry - A Retrospective Study.

Methodology: A Retrospective, Cross-Sectional study among children aged 6-14 years was conducted for the duration of 2020-22. The data was gathered in terms of intraoral photographs of children with mixed dentition phases. Out of the total 350 patient photographs assessed, 150 adhered to the conditions for inclusion. Various Occlusal traits like molar relations, midline shift, open bite, crossbite, and scissor bite were evaluated. The Association of age and gender specificity of various occlusal traits was assessed and tabulated.

Results: Class 1 malocclusion was most prevalent among children (66.3%) followed by End on the relation (22%), Class 2 division 1 (7.3%), Class 3 (3.3%), and least seen was Class 2 division 2 (0.6%). Crossbite prevalence was 17.3%, among which the most commonly seen was Anterior single teeth crossbite (58%) and the least observed was unilateral segmental crossbite (4%). Reverse overjet and Overbite observed were 4% and 2% respectively

Conclusion: Early diagnosis of developing malocclusion would facilitate appropriate interception in mixed dentition with better outcomes.

Introduction:-

It has long been recognized how important aesthetics and beauty are in modern culture. People with healthy teeth are deemed to be more socially appealing than those with malocclusions across a variety of personal traits. (1) Even though the majority of them can be avoided, millions of people globally struggle with Oro dental issues. Among them is malocclusion. Malocclusion, which may or may not be linked to pathological conditions, is a morphological variation rather than an illness. (2) Malocclusions, also known as tooth occlusion issues, are caused by the orofacial adaptability to a variety of etiological factors. As a consequence, there may be changes in speech, mastication,

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swallowing, TMJ dysfunction, and/or orofacial pain in addition to aesthetic issues. (3) Malocclusion may be a result of environmental or genetically determined factors, or more pervasively by a confluence of inherited and environmental variables (multifactor). Malocclusion can result from a variety of local variables, including poor oral habits and deviations in the number, morphology, and developmental orientations of teeth. (4)

Many health-related and dental illnesses are being battled to extinction in developing nations like India. (2) 19% of the world's youth reside in India. More than a third of the population, or roughly 440 million (40%) of India's overall population, is under the age of 18, and approximately 26 million infants are born there annually. (4)Children are the country's future, and a healthy, safe, educated, and well-developed kid population is essential to ensuring that future generations of citizens who will contribute to the economy and welfare of the nation are raised in that nation. (4)As it may affect how well children eat, smile, talk, and interact with others, oral health is essential for a high quality of life. In addition to being essential in social interaction, facial appearance impacts self-esteem and emotional health. (5) The suitable manpower required in orthodontics can be established by determining the occlusal issue, its prevalence, and the requirement for treatment. (1)An increased understanding of the function of the deciduous dentition in determining permanent tooth position and occlusion has resulted from the transition of discrepancies from the deciduous to permanent dentition. (6)

With increasing interest in the early detection and treatment of malocclusion, it would be beneficial to collect data and analyze them at younger age levels, as there were deficient studies in the Visnagar Area of Gujarat, therefore, the study aimed to determine the pattern of individual traits of malocclusion, including sagittal molar relationship, deep bite, crossbite, midline shift of upper and lower jaws in 6–13-year-old children- a Retrospective study.

Materials and Method:-

This Retrospective cross-sectional study was conducted in the Department of Pediatric and Preventive Dentistry,Visnagar, Gujarat in which patients who visited the department between 2020- 2022 were assessed using photographic data. Ethical approval and permission for access to data were obtained from the Institutional Ethics Committee (IEC) (2021/03)and college authorities respectively. CONSORT guidelines were followed during the whole study.

Inclusion Criteria:
Patients having mixed dentition with photographic data available were selected for the study.

Exclusion Criteria:
Primary and Permanent dentition patients were excluded from the study.

Sample size:
A convenience sample of 350 children's photographic data was assessed, among which 150 were included in the study and met the inclusion criteria.

Verbal consent of the included participants was taken to assess their oral health status

Results:-

A total of 150 children's photographic data (79 Male, 71 Female) with a mean age of 9 years was included in the study.

Class 1 malocclusion was most prevalent among children (66.3%) followed by the end on relation (22%), class 2 division 1 (7.3%), class 3 (3.3%), and least seen class 2 division 2 (0.6%). (Figure:1)

Crossbite prevalence observed was 17.3% in total among which the most commonly seen was Anterior single teeth crossbite (58%) and the least observed was unilateral segmental crossbite (4%). (Figure:2) Reverse overjet and Overbite observed were 4% and 2% respectively. There was no major gender predilection seen in any of the features.

Figure1:- Prevalence of Dental Malocclusion.

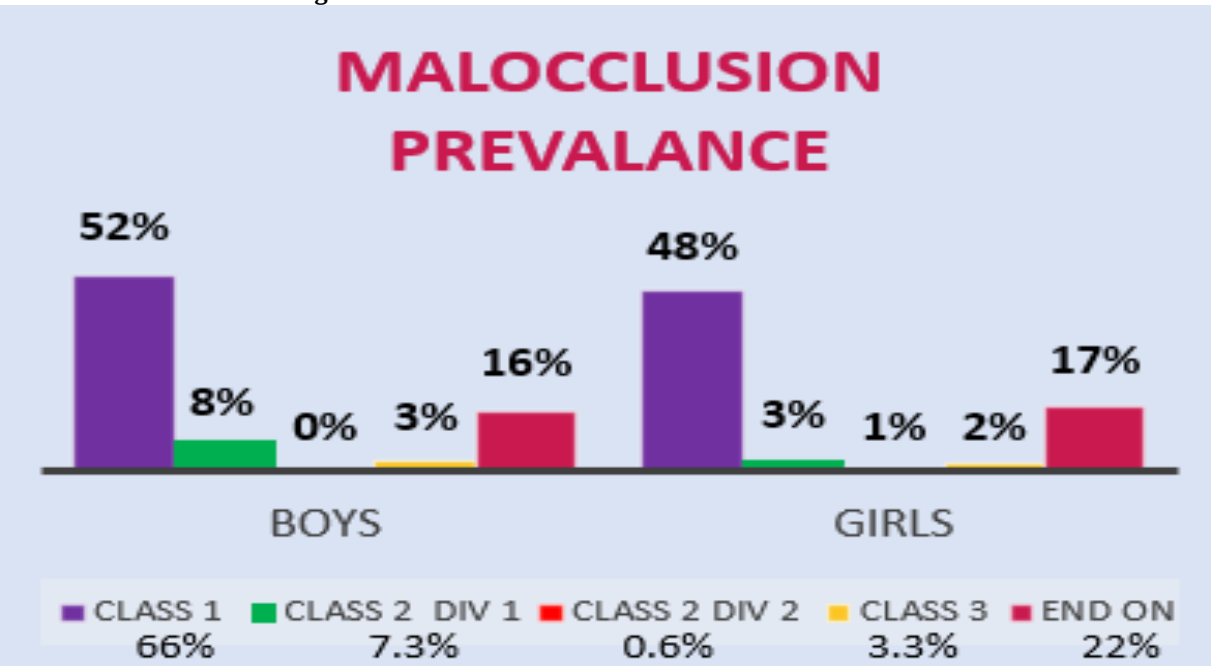
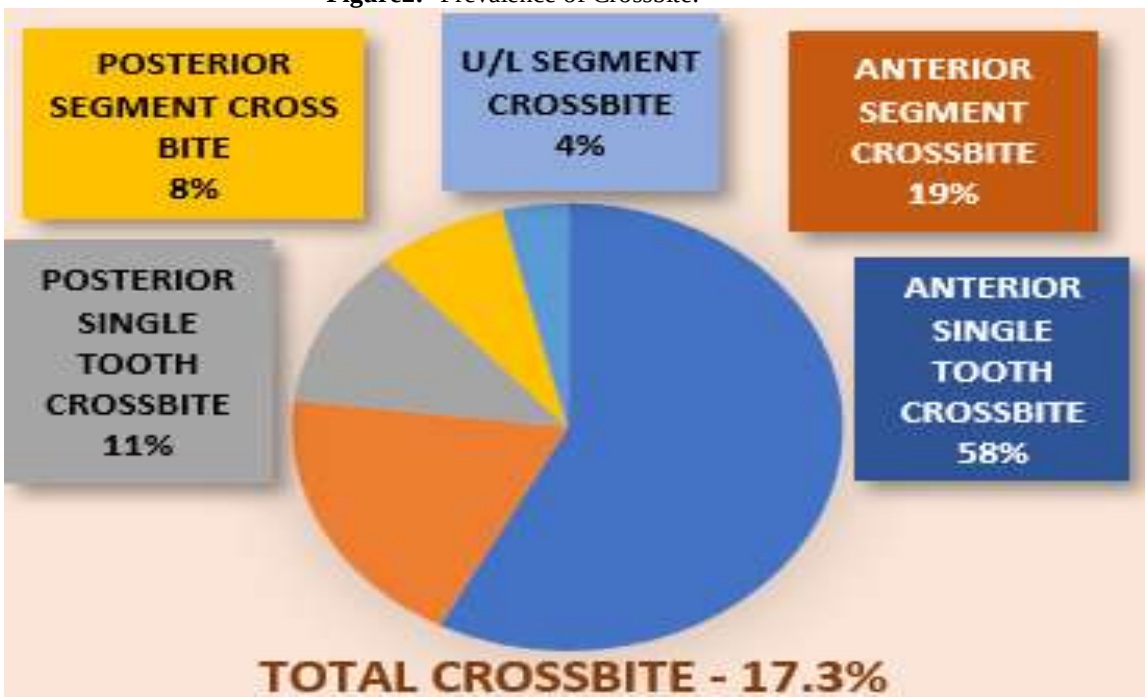


Figure2:- Prevalence of Crossbite.



Discussion:-

This photographic data-based retrospective study investigated the malocclusion patterns among 6-14-year-old children in Visnagar, Gujarat.When comparing the results of various studies, care should be taken because the prevalence of malocclusions differs depending on the assessment techniques, racial disparities, and the chronological age of the population. (7) In the mixed dentition period, the global distributions of Class I, Class II, and Class III were 72.74%, 23.11%, and 3.98%, respectively. (8) Malocclusion prevalence has been found to vary among regional populations, as well as among different genders and age groups. (9)

The prevalence of Class 1 found in some of the previous studies was less when compared to observed in Visnagar, i.e by Rao DB et al (23.1%) in Udipi, Karnataka, R Muppa et al (14.34%) in Andra Pradesh, Guaba K et al (14.4%) in Ambala, Haryana and (34.9%)in Central Turkey, according to Gelgör et al. (2,10)

Prevalence of class 2 in our study was 7.9% which was higher when compared to earlier studies by Disha et al (11) (3.9%) in DavangeereTamilNadu, Dhar V, et al (1.9%) in Jaipur Rajasthan (12), Kharbanda et al (6%) (13) in Delhi,Rao DB et al (4.5%) (14) in Karnataka, and Mtaya M at al (4.4%) in Tanzanian population.

There was an increased value of anterior segment crossbite seen in the Visnagar region when compared to other studies like S Sundareshwaran et al(33.3%) in South India, Alhaija et al (6.8%) in North Jordan (15), Battaglia et al (4.8%) in Italy (16), and Lanteri et al (8.48%) in Milan, Italy (17).

The Prevalence study informs the orthodontist of the value of interceptive treatment to lessen the risk of malocclusion as age rises. (18) A small sample size and observer bias were the study's limitations; additional research can be done in the region to support the baseline study.

Conclusion:-

In this retrospective, preliminary, hospital-based study, the frequency of Angle's Class I, Class II, and Class III malocclusion was found to be 72.74%, 23.11%, and 3.98%, respectively. The crossbite prevalence observed was 17.3%. The finding of this study will provide baseline data for implementing early interceptive treatment for the elimination of factors inhibiting dental arch development as well as skeletal jaw growth.

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