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PREVALENCE AND CAUSES OF MALOCCLUSION AMONG ADOLESCENTS

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Abstract: Malocclusion is a widespread dental issue among adolescents that can affect oral health, function, and aesthetics. During adolescence, the dentofacial system undergoes significant growth and development, making it particularly sensitive to genetic, environmental, and behavioral influences. This study investigates the prevalence of malocclusion in adolescent populations and identifies the main contributing factors, including hereditary predisposition, oral habits such as thumb sucking, premature loss of primary teeth, and functional disturbances like mouth breathing. Early identification of these factors is crucial for planning preventive measures and timely orthodontic treatment, which can improve both oral health outcomes and quality of life.

Key words: malocclusion, adolescents, dental arch anomalies, orthodontics, prevalence, etiological factors

Introduction

Malocclusion, or the misalignment of teeth and incorrect relationship between dental arches, is one of the most prevalent dental problems observed among adolescents worldwide. This condition not only affects oral health but also has significant implications for facial aesthetics, masticatory function, speech development, and psychological well-being. Adolescence is a critical period for craniofacial growth and dental development, during which genetic, environmental, and behavioral factors interact to shape the final form of the dentofacial system.

The prevalence of malocclusion varies significantly across different populations and age groups, influenced by factors such as hereditary traits, early loss of primary teeth, prolonged habits like thumb sucking or pacifier use, mouth breathing, and abnormal swallowing patterns. Socioeconomic status, access to dental care, and cultural practices also contribute to differences in malocclusion rates. Early identification of these risk factors is essential for timely preventive and interceptive orthodontic interventions, which can reduce the severity of malocclusion, improve oral function, and enhance self-esteem among adolescents.

Despite advances in dental care and increased awareness of oral health, malocclusion remains a common concern, highlighting the need for epidemiological studies to determine its prevalence and main causative factors in specific populations. Understanding these aspects can help clinicians, educators, and policymakers develop targeted prevention programs and improve the overall oral health of adolescents.

Literature Review

Malocclusion is a common dental condition among adolescents, and understanding its prevalence and underlying causes is essential for effective prevention and treatment. According to Proffit, Fields, and Sarver (2019) in Contemporary Orthodontics, malocclusion arises from a combination of genetic, environmental, and behavioral factors[1]. The authors emphasize that hereditary traits play a significant role in the alignment of teeth and formation of dental arches.

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In addition, premature loss of primary teeth, prolonged oral habits such as thumb sucking or extended use of pacifiers, and mouth breathing can significantly contribute to the development of malocclusion during adolescence. The book provides detailed insights into the classification of malocclusion and highlights the importance of early diagnosis and orthodontic intervention to prevent more severe dental and facial abnormalities.

Similarly, Thilander and Pena (2001), in their epidemiological study Prevalence of Malocclusion in Adolescents: A Cross-Sectional Study published in the European Journal of Orthodontics, analyzed the occurrence of malocclusion among adolescent populations[2]. Their findings indicate that a considerable proportion of adolescents exhibit various forms of dental misalignment, with genetic predisposition being the most influential factor. Moreover, environmental influences, such as early tooth loss, harmful oral habits, and craniofacial developmental anomalies, were shown to increase the risk of malocclusion. The study underlines the necessity of preventive programs and early orthodontic assessment to address these risk factors and improve oral health outcomes among adolescents.

Together, these studies highlight that malocclusion in adolescence is a multifactorial condition influenced by both inherent and external factors. Early recognition of causative factors and timely orthodontic management are crucial not only for functional and aesthetic purposes but also for the psychological well-being of adolescents.

Analysis and Results

The analysis of adolescent malocclusion shows that this condition is highly prevalent and influenced by multiple factors. Based on reviewed literature and observational studies, the prevalence of malocclusion among adolescents ranges from 40% to 70%[3], depending on the population and diagnostic criteria used. Among the most common types are crowding of teeth, overbite, and crossbite, with crowding frequently observed in both the upper and lower dental arches.

Genetic predisposition plays a critical role in the development of malocclusion. Adolescents whose parents had misaligned teeth are significantly more likely to exhibit similar dental irregularities. Environmental and behavioral factors also contribute substantially. For instance, prolonged thumb sucking, extended use of pacifiers, and mouth breathing have been consistently associated with anterior open bites and altered jaw growth. Early loss of primary teeth without timely intervention often leads to shifting of permanent teeth, resulting in crowding and occlusal discrepancies[4]

The results indicate that early detection of malocclusion is essential for minimizing severe dental and facial abnormalities. Adolescents who received preventive guidance and timely orthodontic treatment demonstrated lower rates of severe malocclusion compared to those without early intervention. Additionally, the analysis highlights that public awareness, regular dental check-ups, and parental education are crucial for reducing the incidence of malocclusion and promoting oral health in adolescent populations.

In summary, malocclusion among adolescents is a multifactorial condition. Genetic, environmental, and behavioral influences interact to determine its severity and prevalence. The findings emphasize the importance of early diagnosis, preventive measures, and individualized orthodontic treatment to improve both functional and aesthetic outcomes, as well as psychological well-being.

Conclusion

Malocclusion is a prevalent dental condition among adolescents that can significantly impact oral health, facial aesthetics, and overall quality of life. The analysis demonstrates that malocclusion is a multifactorial condition resulting from the interaction of genetic,

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environmental, and behavioral factors. Genetic predisposition, early loss of primary teeth, harmful oral habits, and functional disturbances such as mouth breathing are among the main contributors to misaligned dental arches.

Early detection, preventive strategies, and timely orthodontic interventions are essential for reducing the severity of malocclusion and preventing long-term complications. Public awareness programs, regular dental check-ups, and parental guidance play a critical role in minimizing risk factors and promoting oral health in adolescent populations. Addressing malocclusion during adolescence not only improves functional and aesthetic outcomes but also enhances psychological well-being and social confidence.

Overall, a comprehensive approach combining education, early diagnosis, and individualized orthodontic care is necessary to effectively manage malocclusion and support the oral health of adolescents.

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