International Journal of Research in Health and Allied Sciences

Journal home page: www.ijrhas.com

Official Publication of "Society for Scientific Research and Studies" [Regd.]

ISSN: 2455-7803

Original Research

Prevalence of class II malocclusion in a known population and its treatment using myofunctional appliances

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ABSTRACT:

Background: The research had been carried out to evaluate the prevalence of class II malocclusion in a known population and its treatment using myofunctional appliances.**Material and methods:** This research aimed to evaluate the prevalence of class II malocclusion within a specific population and to explore its treatment through the use of myofunctional appliances. A total of 125 individuals participated in the study, all of whom underwent a comprehensive oral clinical examination. Prior to the examination, the participants were informed about the study procedures and were requested to provide written informed consent. Out of the 125 participants, 25 declined to give consent, resulting in their exclusion from the study. The prevalence of class II malocclusion was determined among the remaining 100 subjects, and the results were systematically recorded. Additionally, a treatment plan was developed for those diagnosed with class II malocclusion. Various myofunctional appliances were designed and provided to the patients. Statistical analyses were performed utilizing SPSS software. **Results:** In this study, there were 100 subjects out of which 63 were male and 37 were female. Class II malocclusion was present in 30 subjects out of 100. Hence, the prevalence of class II malocclusion in this study was 30%. Twin block appliance was given in 10 subjects, Jasper Jumper appliance was given in 5 subjects, Herbst appliance was fabricated for 5 subjects, activator was given in 6 patients and Frankel II appliances were given in 4 patients. **Conclusion:** The study revealed that the prevalence of class II malocclusion was 32%. The most frequently utilized appliance among the patients was the activator, with the Twin Block appliance and Jasper Jumper appliance following in usage. Additionally, the Herbst appliance and Frankel II appliance were also employed.

Keywords: Class II Malocclusion, Prevalence, Treatment.

Received: 12 June, 2024 Accepted: 18 June, 2024

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This article may be cited as: Ghuman KS. Prevalence of class II malocclusion in a known population and its treatment using myofunctional appliances. Int J Res Health Allied Sci 2024; 10(5): 4- 6

INTRODUCTION

Malocclusion is increasingly recognized as a manifestation of normal biological variation, with the necessity for treatment often influenced by psychosocial factors as much as by established oral health risks associated with malocclusion. The criteria for identifying individuals who would most benefit from orthodontic intervention remain a subject of debate. This complexity poses challenges for general dentists in determining which patients clearly require orthodontic treatment, given that the conventional route to orthodontic care typically begins in the general dental practice.[1-5]

Various populations have been studied to gather epidemiological data regarding the prevalence of malocclusion. Commonly, these studies employed quantitative measures alongside Angle's classification. Furthermore, treatment-need indices were utilized to assess the necessity for orthodontic care, taking into account aesthetic concerns, the potential for negative impacts on dental health, and deviations from normative occlusion.[6-8]

This research had been carried out to evaluate the prevalence of class II malocclusion in a known population and its treatment using myofunctional appliances.

Material and methods

This study was conducted to assess the prevalence of class II malocclusion in a known population and its treatment using myofunctional appliances. This study was conducted to assess the prevalence of class II malocclusion in a known population and its treatment using myofunctional appliances. There were 125 participants in this study who underwent oral clinical examination. The subjects had been explained about the procedure and were asked for written informed consent. 25 out of 125 subjects did not provide consent and thus they were excluded from the study. the prevalence of class II malocclusion among 100 subjects was assessed and the findings had been tabulated. Also, the treatment plan had been made for the subjects with class II malocclusion. Various myofunctional appliances had been fabricated and given to the patients. Statistical analysis was conducted using SPSS software.

Results

Table 1: Gender-wise distribution of subjects

Gender	Number of subjects	Percentage
Male	63	63
Female	37	37
Total	100	100

In this study, there were 100 subjects out of which 63 were male and 37 were female.

Table 2: Prevalence of class II malocclusion

Prevalence	Number of subjects	Percentage
Absent	70	70
Present	30	30
Total	100	100

Class II malocclusion was present in 30 subjects out of 100. Hence, the prevalence of class II malocclusion in this study was 30%.

Table 3: Treatment of class II malocclusion with myofunctional appliances

Myofunctional appliances	Number of subjects
Twin block appliance	10
Jasper Jumper appliance	05
Herbst appliance	05
Activator	06
Frankel II appliance	04
Total	30

Twin block appliance was given in 10 subjects, Jasper Jumper appliance was given in 5 subjects, Herbst appliance was fabricated for 5 subjects, activator was given in 6 patients and Frankel II appliances were given in 4 patients.

Discussion

Orthodontics represents a specialized branch of dentistry focused on the facial and dental structures, emphasizing the prevention, interception, and correction of malocclusion and related anomalies. Malocclusion is characterized by irregularities in the alignment of teeth or the relationship between dental arches that deviate from normative standards.[9]

Historically, humans have acknowledged the existence of dentofacial issues and the necessity for their treatment for centuries. Epidemiological concepts applicable to health can also be extended to both medical and dental disciplines. In the medical domain, as well as in certain dental conditions such as periodontitis, infections, and dental caries, individuals are typically categorized based on the presence or absence of these issues.[10-12]

However, malocclusion is not classified as a disease and poses challenges in its definition. Various occlusal indices are available to assess occlusal discrepancies.

This research had been carried out to evaluate the prevalence of class II malocclusion in a known population and its treatment using myofunctional appliances.

In this study, there were 100 subjects out of which 63 were male and 37 were female. Class II malocclusion was present in 30 subjects out of 100. Hence, the prevalence of class II malocclusion in this study was 30%. Twin block appliance was given in 10 subjects, Jasper Jumper appliance was given in 5 subjects, Herbst appliance was fabricated for 5 subjects, activator was given in 6 patients and Frankel II appliances were given in 4 patients.

Bilgic F et al.[13] conducted a study to assess the prevalence of malocclusion and the necessity for orthodontic treatment among a substantial cohort of adolescents from Central Anatolia, comparing the findings with those

from adolescents in various European nations. The study comprised 1125 male and 1204 female participants, aged 12 to 16 years, all of whom had no prior history of orthodontic interventions. The occlusal characteristics evaluated included molar relationships, overjet, overbite, dental crowding, midline diastema, posterior crossbite, and scissors bite. The assessment of orthodontic treatment needs was based on the dental health component (DHC) and aesthetic component (AC) of the Index of Orthodontic Treatment Need (IOTN). The findings revealed a significant prevalence of Class I malocclusions at 34.9% and Class II, Division 1 malocclusions at 40.0%. Additionally, the sample exhibited an increase in deep bites (18%) and open bites (14%), as well as an increase in overjet (25.1%) and a reversal of overjet (10%). According to the DHC of the IOTN, 28% of the participants were classified as having a high or very high need for treatment (grades 4 and 5). Conversely, only 16.7% of the individuals were deemed to require orthodontic treatment based on the AC (grades 8-10).
Patel KV et al.[14] conducted a study to assess the prevalence of malocclusion and the necessity for orthodontic intervention among school students aged 13 to 15 in the Mehsana District of Gujarat, utilizing the Index of Orthodontic Treatment Need (IOTN). This descriptive cross-sectional epidemiological survey targeted school children within the specified age range in the Mehsana district, with a sample size of 1,290 participants. The Dental Health Component of the IOTN was employed to determine the normative requirements for orthodontic treatment, while the Aesthetic Component of the IOTN index was used to gauge perceived treatment needs. The findings revealed that 33.7% of the participants exhibited little to no need for treatment, 43.9% demonstrated a moderate need for orthodontic care, and 22.4% were classified as having a severe need for orthodontic treatment. This study serves as a foundational resource for informing public orthodontic and dental services by providing essential data regarding the orthodontic treatment needs of school-aged children.

Conclusion

The study revealed that the prevalence of class II malocclusion was 32%. The most frequently utilized appliance among the patients was the activator, with the Twin Block appliance and Jasper Jumper appliance following in usage. Additionally, the Herbst appliance and Frankel II appliance were also employed.

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