ORIGINAL RESEARCH

Assessment of prevalence of midline diastema and different pattern of orthodontic malocclusion among young adults of known population

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ABSTRACT:
Background: The present study was conducted to assess midline diastema and pattern of malocclusion in young adults. **Materials & Methods:** 60 young adults age ranged 10- 18 years of both genders were recruited. Type of malocclusion according to Angle's classification was done. Midline diastema prevalence was recorded. **Results:** Age group 10-12 years had 18, 13-15 years had 27 and 16-18 years had 15 patients respectively. The number of patients having midline diastema in age group 10-12 years were 4, 13- 15 years age group were 8 and 16-18 years were 2. Class I malocclusion was seen in 20, class II div I in 28, class II div II in 8 and class III in 4 patients. **Conclusion:** High prevalence of midline diastema in 13-15 years age group and most commonly occurring malocclusion was class II div I.
Key words: Midline diastema, Malocclusion, Class II

INTRODUCTION

A space between adjacent teeth is called a "diastema". Midline diastemata (or diastemas) occur in approximately 98% of 6 years old, 49% of 11 years old and 7% of 12– 18 years old. In most children, the medial erupting path of the maxillary lateral incisors and maxillary canines, as described by Broadbent results in normal closure of this space.[1] In some individuals however, the diastema does not close spontaneously. The continuing presence of a diastema between the maxillary central incisors in adults often is considered an esthetic or malocclusion problem.[2]Enlarged labial frena have been blamed for the majority of persistent diastemas, but the etiologic role of this structure is now understood to influence only a small proportion of cases. Other etiologies associated with diastema include oral habits, muscular imbalances, physical impediments, abnormal maxillary arch structure, and various dental anomalies.[3]

The prevalence of malocclusion has increased in recent decades, and it is considered one of the most common dental problems together with dental caries, gingival disease, and dental fluorosis. Malocclusion patterns vary in different populations due to the variations in the genetic and environmental influences.[4] Occlusion is the relationship among all the components of masticatory system in their function, parafunction and dysfunction. Edward H, Angle defined occlusion as a normal relation of occlusal inclined planes of the teeth when jaws are closed. Whereas, occlusion which is aesthetically and functionally not acceptable is referred to as malocclusion.[5] The present study was conducted to assess midline diastema and pattern of malocclusion in young adults.

MATERIALS & METHODS

This study was conducted in the department of Orthodontics on 60 young adults age ranged 10- 18

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years of both genders. Data such as name, age, gender etc. was recorded. A thorough oral examination was done with mouth mirror and explorer. Type of malocclusion according to Angle's classification was done. Results were tabulated and subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I shows that age group 10-12 years had 18, 13-15 years had 27 and 16-18 years had 15 patients. The difference was significant (P< 0.05). Table II shows that midline diastema in age group 10-12 years had 4, 13- 15 years had 8 and 16-18 years had 2. The difference was significant (P< 0.05). Table III, graph I shows that class I malocclusion was seen in 20, class II div I in 28, class II div II in 8 and class III in 4 patients. The difference was significant (P< 0.05).

Table I Distribution of patients

Age group (Years)	Number	P value
10-12	18	0.05
13-15	27	
16-18	15	

Table II Prevalence of midline diastema

Age group (Years)	Midline diastema	P value
10-12	4	0.01
13-15	8	
16-18	2	

Table III Pattern of malocclusion

Malocclusion	Number	P value
Class I	20	0.05
Class II div I	28	
Class II div II	8	
Class III	4	

DISCUSSION

Dental malocclusion is present in all societies but its prevalence varies. The demand for orthodontic treatment is increasing in modern era. The demand of orthodontic treatment is increasing as patients are concerned about their esthetics.[6] Therefore, it is essential to assess the epidemiological data on the pattern of malocclusion. In many countries, study of the prevalence and pattern of malocclusion had been included in National Health surveys in order to receive valuable information to plan and train the manpower and treatment facilities in orthodontic specialty. The presence of a diastema between the teeth is a common feature of the anterior dentition that remains until the completion of the permanent dentition.[7] Carefully developed diagnoses and advanced planning enable the identification of the most appropriate treatment to address the needs of each individual patient. An effective diastema treatment requires the correct diagnosis of its etiology and an intervention that is relevant to that specific etiology, including medical and dental histories, radiographic and clinical examinations, and possibly toothsize evaluations.[8]The present study was conducted to assess midline diastema and pattern of malocclusion in young adults.

In present study, age group 10-12 years had 18, 13-15 years had 27and 16-18 years had 15 patients. Shaj et al[9]included 156 patients (59 females, 97 males). Angle's classification was used to assess the molar relationship. Chief complaints, crowding, spacing, overjet, overbite, crossbite, scissorbite, openbite, dental anomalies and supernumerary tooth were recorded. Study demonstrated that Angle's Class I malocclusion was seen to be most prevalent (61.5%). Class II malocclusion was seen in 11.5% of the patients and class III was seen in 14.2%. Upper and lower arch spacing was seen to be more prevalent in Class I malocclusion. However, this was not statistically significant.

Graph I Pattern of malocclusion
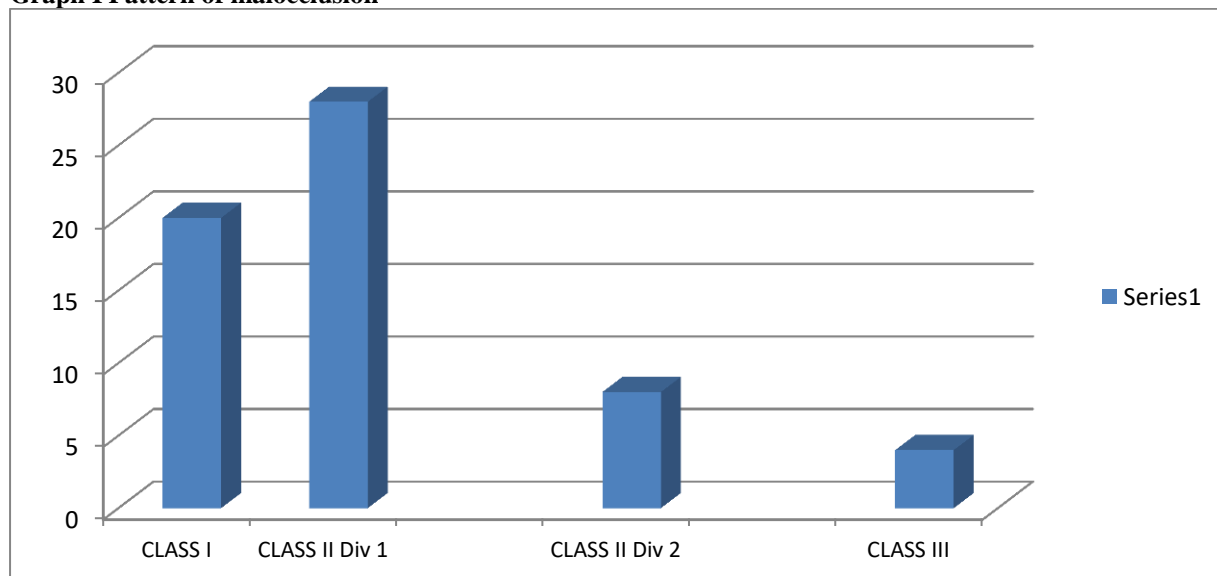
We found that midline diastema in age group 10-12 years had 4, 13- 15 years had 8 and 16-18 years had 2.The midline diastema has a multifactorial etiology. In addition to the labial frenulum, microdontia, mesiodens, peg-shaped lateral incisors, lateral incisor agenesis, cysts in the midline region, habits such as finger sucking, tongue thrusting and/or lip sucking, dental malformations, genetics, maxillary incisor proclination, dental-skeletal discrepancies, and imperfect coalescence of the interdental septum should be considered as factors that can cause diastema.[10]

We observed that class I malocclusion was seen in 20, class I div I in 28, class II div II in 8 and class III in 4 patients.Gul-e-Erum and Fida[11]found the prevalence of Class II malocclusion (70.5%) and increased overjet (75%) were higher followed by Class I and Class III malocclusion respectively. This could be due to difference in sample size and racial predisposition to certain malocclusion. Albarakati and Sahar[12] foundclass I malocclusion was more prevalent in Saudi female population followed by Class III malocclusion while Class I malocclusion followed by Class II malocclusion was more prevalent in this study. Age range between 12 to 17 years (41.6%) showed highest frequency of malocclusion followed by adults and then younger children.

CONCLUSION
Authors found high prevalence of midline diastema in 13-15 years age group and most commonly occurring malocclusion was class II div I.

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