

## Original Research

### Assessment of prevalence of midline diastema in a known population

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#### ABSTRACT

**Background:** The present study was conducted to assess midline diastema in known population. **Materials & Methods:** 148 young adults age ranged 12- 18 years of both genders were enrolled subjects. A thorough oral examination was done. The prevalence of midline diastema was recorded. **Results:** Age group 12-13 years had 38, 14-15 years had 68 and 16-18 years had 42 patients. The difference was significant ( $P < 0.05$ ). Midline diastema in age group 12-13 years had 10, 14- 15 years had 15 and 16-18 years had 4. The difference was significant ( $P < 0.05$ ). **Conclusion:** The prevalence of midline diastema was 19.6%. Highest rate was observed in age group 14-15 years old.

**Key words:** Midline diastema, Malocclusion, Orthodontics.

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#### INTRODUCTION

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.<sup>1</sup> Malocclusion patterns vary in different populations due to the variations in the genetic and environmental influences. Occlusion is the relationship among all the components of masticatory system in their function, parafunction and dysfunction.<sup>2</sup>

Maxillary midline diastema (MMD) appears during the eruption of permanent incisors and the prevalence declines sharply as a result of closure of the gap after the eruption of the permanent canines. Many intraoral abnormalities, environmental and hereditary factors have been associated with the etiology of MMD.<sup>3</sup> Irregularity in size, shape and position of incisors can cause disruption of dental arch continuity in the anterior segment leading to diastemas. The presence

of a high attached labial frenum is more often capable of preventing maxillary central incisors approximation, resulting in an abnormally wide MMD.<sup>4</sup> The presence of a supernumerary tooth in the pre-maxilla region can interrupt the normal eruption of incisors leading to MMD.<sup>5</sup> The present study was conducted to assess midline diastema in known population

#### MATERIALS & METHODS

This study was conducted on 148 young adults age ranged 12- 18 years of both genders. Written consent was obtained from all enrolled subjects. Approval for the study was taken from ethical approval committee. Data such as name, age, gender etc. was recorded. A thorough oral examination was done. The prevalence of midline diastema was recorded. Results were tabulated and subjected to statistical analysis. P value less than 0.05 was considered significant.

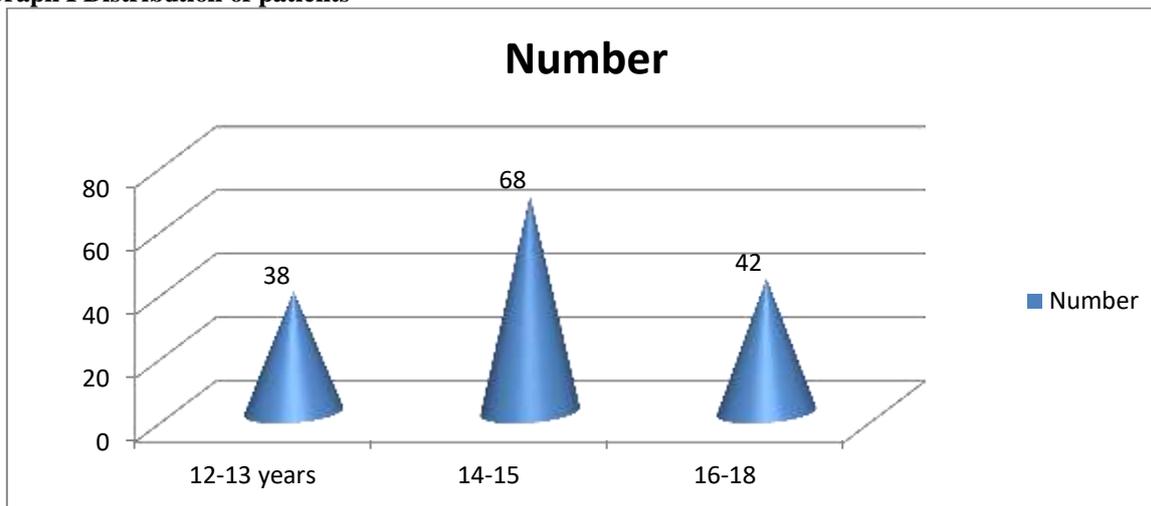
**RESULTS**

**Table I Distribution of patients**

Age group (Years)	Number	P value
12-13	38	0.05
14-15	68	
16-18	42	

Table I, graph I shows that age group 12-13 years had 38, 14-15 years had 68 and 16-18 years had 42 patients. The difference was significant (P< 0.05).

**Graph I Distribution of patients**

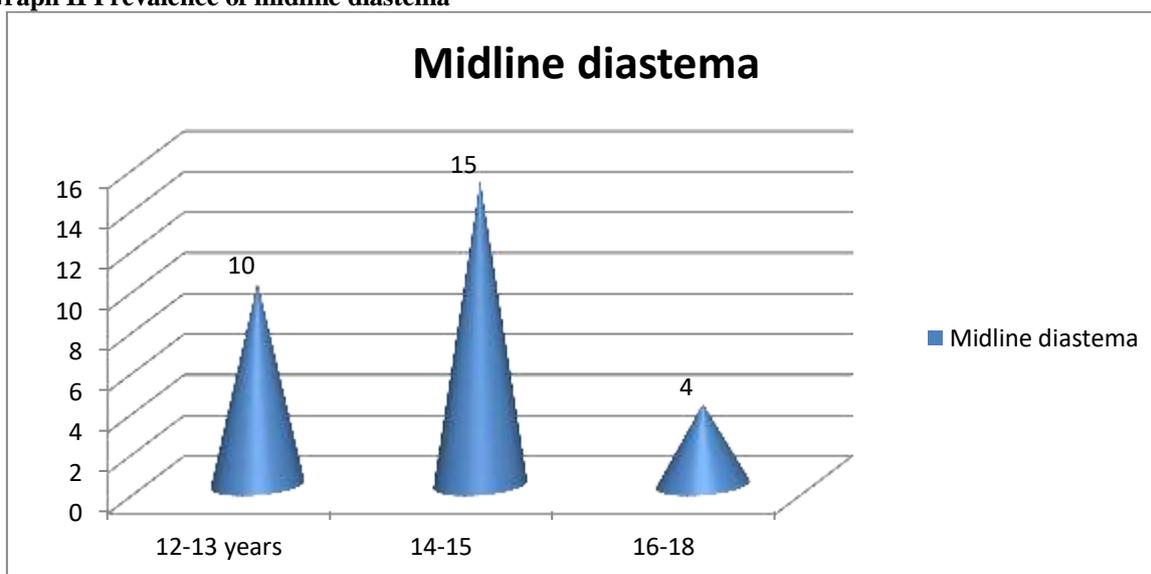


**Table II Prevalence of midline diastema**

Age group (Years)	Midline diastema	P value
12-13	10	0.01
14-15	15	
16-18	4	

Table II, graph II shows that midline diastema in age group 12-13 years had 10, 14- 15 years had 15 and 16-18 years had 4. The difference was significant (P< 0.05).

**Graph II Prevalence of midline diastema**



## DISCUSSION

Diastema, which means interval in Greek, is a gap or space between two or more consecutive teeth. It occurs more frequently in the median plane of the maxillary arch between the two central incisors and hence called the median, central or midline diastema. 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.<sup>6</sup> Carefully developed diagnoses and advanced planning enable the identification of the most appropriate treatment to address the needs of each individual patient.<sup>7</sup> 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 tooth size evaluations.<sup>8</sup> The present study was conducted to assess midline diastema in known population.

In present study, age group 12-13 years had 38, 14-15 years had 68 and 16-18 years had 42 patients. Luqman et al<sup>9</sup> in their study 200 patients between the ages of 13 and 40 years were examined to determine the existence, degree and etiology of maxillary midline diastema. The study sample consisted of 158 (79%) males and 42 (21%) females. Diastema was observed in 23% of the study sample with width ranging between 0.5 – 4 mm. Generalized spacing (39%) was the most common causative factor. Sexual dimorphism was more in favor of males (25%) than females (14%). Significant number of the patients (78%) had at least one other member of their family with diastema, mostly brother or sister. 43% of them considered diastema to be an esthetic problem, however, all wanted to undergo treatment to close the gap in the future.

We found that midline diastema in age group 12-13 years had 10, 14- 15 years had 15 and 16-18 years had 4. Gul-e-Erum and Fida<sup>10</sup> 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.

Nainar et al<sup>11</sup> in a cross-sectional study of midline diastemas, 9,774 patients aged 13-35 years were screened. True midline diastema was defined as one without periodontal/periapical involvement and with the presence of all anterior teeth in the arch. Sample purification resulted in a research sample of 166 patients with true midline diastemas. The incidence of true maxillary midline diastema (160/9774-1.6%) was greater than that of true mandibular midline diastemas (31/9774-0.3%). No direct etiologic factor for the midline diastemas was noted. Spacing in the anterior region was the most significant factor associated with the midline diastema. Shaj et al<sup>12</sup> included 156 patients (59 females, 97 males). Angle's classification

was used to assess the molar relationship. Chief complaints, crowding, spacing, overjet, overbite, crossbite, scissor bite, open bite, 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.

## CONCLUSION

Authors found that the prevalence of midline diastema was 19.6%. Highest rate was observed in age group 14-15 years old.

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