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Research Article

Prevalence Of Molar Relation In Primary Dentition In Children In Abha Region, Saudi Arabia

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ABSTRACT

Background: The aim of the study is to know the prevalence of molar relationship in primary dentition in Saudi children.

Materials & Methods: This cross-sectional study aimed to record the molar relationship in 560, 2-6-year-old randomly selected Saudi children and to observe the differences between the age groups. Intra oral examination was done after consent from the parents. Molar relationship was recorded clinically.

Results: 51.26% of the children had a 'flush terminal plane' molar relationship. The proportion of children with distal step molar relationship was significantly lower 35 (6.2%). 42.6% exhibits mesial step molar relation in children.

Conclusions: Flush terminal Plane- the molar relationship is a most common molar relationship, and it also increases with age. Deciduous molar relationship changes as age increases. Least prevalence is distal step molar relationship.

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INTRODUCTION:

The malocclusion has been showed to affects oral health, increased prevalence of dental caries and can cause temperomandibular joint disorders [1]. The reason to develop malocclusion could be genetic or environmental and, or combination of both the factors along with various local factors such as adverse oral habits, tooth anomalies, form and developmental position of teeth can cause malocclusion [2]. Childhood is the mirror in which are reflected the propensities of adulthood. The individual with malocclusion may feel shy in social contacts, may lose career opportunities and might feel shame about their dental appearance [2]. The prevalence of malocclusion varies from country to country and among different age and sex group. Ideal primary dentition is the indicator of the future ideal permanent dentition. Occlusal relationship, spacing and crowding in the primary dentition, and their significance for the development of the permanent dentition have been subjects of discussion for several decades [3-6]. Various functions of the deciduous dentition are to provide mastication as well as to maintain the occlusion and space for the permanent dentition [7].

Terminal planes are the planes found perpendicular to the distal aspect of the primary second upper or lower molar. The position of primary molars will allow us to establish predictive assumptions on the position of the future occlusion of the first permanent molars. The occlusal relationship and spacing in deciduous dentition are known to have a vital bearing on the setting up of the normal occlusal relationship in permanent dentition [8]. The ideal occlusion and spacing in primary dentition act as a mirror for the prevalence of malocclusion in the permanent dentition. The properly placed teeth in the dental arch help in maintaining the better health of the oral cavity and the supporting structures, but also influence the personality of the children. Malocclusion not only compromises maintaining better hygiene and also the health of investing tissue but can also lead to behavioural (psychological) and social problems [9]. Bogue stated that if malocclusion were found in the primary dentition, the same occlusal problems would be expected to occur in the succeeding permanent dentition, and to a more pronounced degree [10]. One important aspect of occlusal development in the primary dentition is the early recognition of incipient occlusal disharmonies which may necessitate orthodontic intervention [4].

MATERIALS AND METHODS

The purpose of this study is to determine the prevalence of molar relation in the primary dentition in children attending the Department of Pediatric Dentistry at College of Dentistry, King Khalid University, Abha, to take the preventive measures to recognize and minimize the potential irregularities in the developing dentofacial complex. 560 children below 6 years were included in the present study by using simple random sampling method. Clinical examination was carried out by examiners by using latex gloves, mouth mirrors and probe to record the molar relationship in the primary dentition. Voluntary informed consent was obtained from the parents before the examination of the child. The study was approved by the Research Committee at the College of Dentistry King Khalid University.

Inclusion criteria [4]

1) The school children below six years of age
2) All deciduous teeth should be present
3) Children should be residing in the geographical area of Abha region of Saudi Arabia.

Exclusion Criteria: children with the absence of primary second molars.

Molar Relationship [4]

a. ***The flush terminal plane*** was recorded when the distal surfaces of primary maxillary and mandibular second molars lied in the same vertical plane.

b. ***Distal-step molar relationship*** was recorded when the distal surface of primary mandibular second molar was distal to the distal surface of the primary maxillary second molar.

c. ***Mesial-step molar relationship:*** recorded when the distal surface of primary mandibular second molar was mesial to the distal surface of the primary maxillary second molar.

RESULTS

A total number of 560 children below six years of age (Table 1) were examined to find out the relationship of crowding, spacing and closed dentition with malocclusion in primary dentition. Out of 560 children, 62% of them were male, and 38% of them were female children as shown in Table 2. The terminal plane relationship is shown in Table 3 and Figure 1.

Table 1: Distribution of children according to age.

No.	Age	Total	Percentage
1	2-3	57	10.2 %
2	3-4	236	42.1 %
3	4-5	165	29.4 %
4	5-6	102	18.2 %

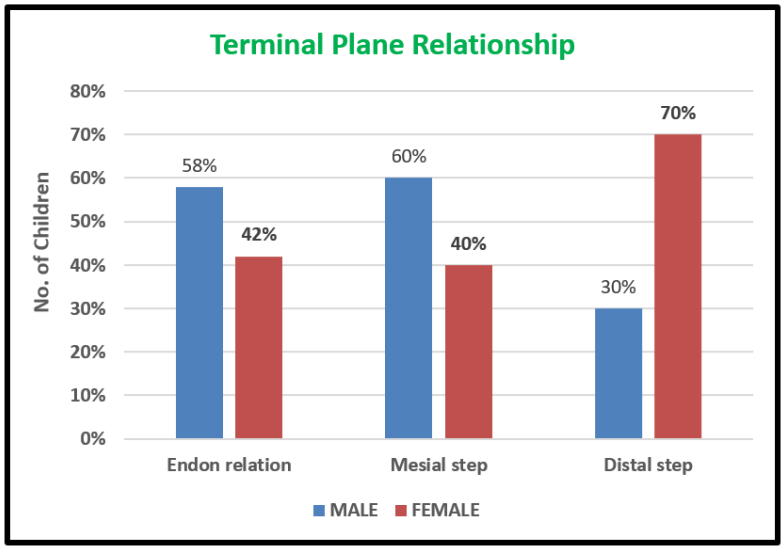
Table 2: Distribution of children according to gender

Male	Percentage	Female	Percentage
347	62%	213	38%

Table 3: Terminal Plane Relationship

Molar relation	Male	Female	Total	Percentage
Flush Terminal Plane	166 (58%)	121 (42%)	287	51.2%
Mesial step	143 (60%)	95 (40%)	238	42.6%
Distal step	11 (30%)	24 (70%)	35	6.2%

Figure 1: *Graphical representation of Terminal Plane Relationship*



DISCUSSION

Malocclusion has not been thoroughly investigated because the related pain and misery are seldom acute. However, malocclusion has a large impact on both individuals and society in terms of discomfort, quality of life, and social and functional limitations. Hence, it is important to determine the prevalence of malocclusion and its occurrence and distribution in a community. Traits of the occlusal relationship in primary dentition can likely serve as a prognosticator for occlusal features in permanent dentition. Farsi [11] conducted a cross-sectional study in Saudi children to know various malocclusion parameters in primary dentition and observed that 80% of children had flush terminal plan molar relation as compared to 51.2% in our study. A cross-sectional study was conducted in 560 Saudi children below 6 years was examined for malocclusion in primary dentition. In our study distal step molar relation 6.2% was observed as compared to the study conducted by Farsi it was 7% [11].

A study conducted to assess the changes in the molar relationship from deciduous to permanent dentition concluded that, a distal step in deciduous dentition ended in a class II molar relationship, 56% of the cases with flush terminal plane resulted in Class I molar relationship and 44% into Class II molar relationship Mesial step in deciduous dentition suggests a greater probability to Class I molar relationship and a lower probability for Class II molar relationship [12]. The terminal relationship patterns seemed to change with age, and this was caused by mesial migration of the mandibular arch and by mesial mandibular shift. The development of malocclusion starts from the primary dentition, so it is very important to know the occlusion in the primary dentition, as well as the changes of occlusal pattern, during the period of deciduous dentition. The results of our study were in accordance to the study done by Nanda et al. reported that 72% of children of the exhibited flush terminal plane rather than mesial step [6]. Otuyemi et al. also reported that 74.5% of Nigerian children had flush terminal [13]. Contrary to results of a study done by Hegde et al. where the mesial step was most common, while the least commonly observed molar relationship was distal step molar relationship [14]. A study by Infante pointed out that the distal step molar relationship decreased with the increase of age [15]. Other studies by Nanda et al. and Ravn indicated that the distal step molar relationship was invariably maintained throughout the primary dentition stage and always transferred unchanged to the permanent dentition [16]. The research done by Ravn was a longitudinal study, to ensure the result was more reliable. About the flush and mesial terminal plane, Onyeasoet et al. found out most of them developed into Angle class I in the permanent dentition [17]. The present study was a cross-sectional study which inevitably imposed limitations on the estimation. Further longitudinal studies are needed to obtain the changes in occlusal pattern from the deciduous dentition to permanent dentition.

CONCLUSION

Occlusion constitutes one of the important objectives of pedodontic treatment whether it is preventive, interceptive, or corrective. The understanding of the anteroposterior changes that occur in the occlusion between the deciduous and permanent dentition is crucial for the clinician involved in early orthodontic treatment. Early intervention and correction of malocclusion were required, so the patients were treated at our Institution. This study provides the information on the prevalence of molar relationship in the primary dentition of the Saudi population. The flush terminal plane molar relation was highest among all the age groups followed by a mesial step and distal step molar relation with no significant difference was noted between male and female children. Hence, determining the malocclusion at its early age and early intervention procedure helps in preventing the problems at a later stage.

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