



PREVALENCE OF SPACED AND CLOSED DENTITION AND ITS RELATION TO MALOCCLUSION IN PRIMARY AND PERMANENT DENTITION AMONG CHILDREN OF SOUTH INDIAN POPULATION

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Abstract:

The primary dentition is an important indicator of the permanent dentition. Absence of spaces in the primary dentition indicates that some malocclusion might appear in the future permanent dentition. Very little information is available about spacing in the primary and permanent dentition and its relationship to malocclusion among the south Indian child population. Hence this study was conducted in order to assess the link between spacing in the primary and permanent dentition and its relation to malocclusion in children of south Indian origin.

Key Words: Spaced Dentition, Closed Dentition, Malocclusion & South Indian Population

Introduction:

An ideal primary dentition is an indicator of future ideal permanent dentition ⁽¹⁾. Physiological spaces are commonly found in primary dentition. These spaces are important for the alignment of permanent teeth. Absence of these spaces leads to malocclusion in the erupting permanent dentition. Normal occlusion in primary teeth has the following characteristics: spacing between anterior teeth, low over jet and overbite, flush terminal plane molar relation and ovoid arch form characteristics ^[2,3] Deviations from these characteristics in the primary dentition could result in improper occlusion of the permanent dentition. This study was done in order to assess the relationship of spaced and closed dentition with malocclusion in relation to primary and permanent dentition, in children below 6 years of age.

Materials and Methods: 985 schoolchildren below six years of age having all deciduous teeth were examined for spacing and closed dentition in relation to primary dentition.

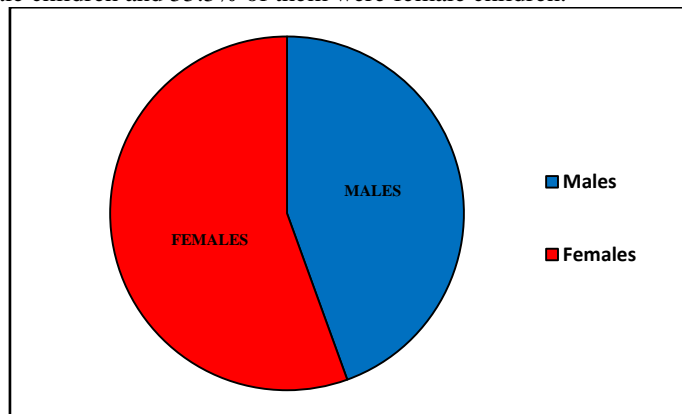
Inclusion Criteria:

- ✓ Schoolchildren below 6 years of age
- ✓ All deciduous teeth should be present
- ✓ Presence of spacing and closed dentition assessed
- ✓ Other abnormalities like presence of nonvital teeth, supernumerary/ supplemental teeth, fusion, missing teeth, submerged teeth, rampant caries and nursing bottle caries.

Exclusion Criteria: Eruption of any permanent first molar or incisor tooth not taken as subject.

Results:

Sample Size: A total number of 985 schoolchildren below 6 years of age were taken for the study to find out the relationship of spacing and closed dentition with malocclusion in primary dentition. Out of 985 children, 44.5% of them were male children and 55.5% of them were female children.

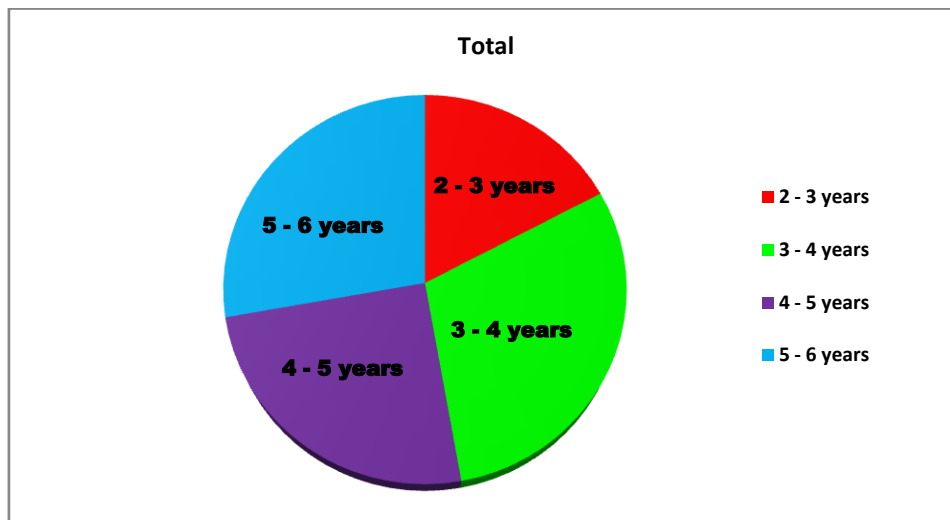


Males	Females	Total
438	547	985

Distribution of Sample According to Sex:

Age Distribution: The age distribution of the 985 children is as follows

Age Group	Males	Females	Total
2 – 3 Years	78	92	170
3 – 4 Years	134	161	295
4 – 5 Years	112	134	246
5 – 6 Years	114	160	274

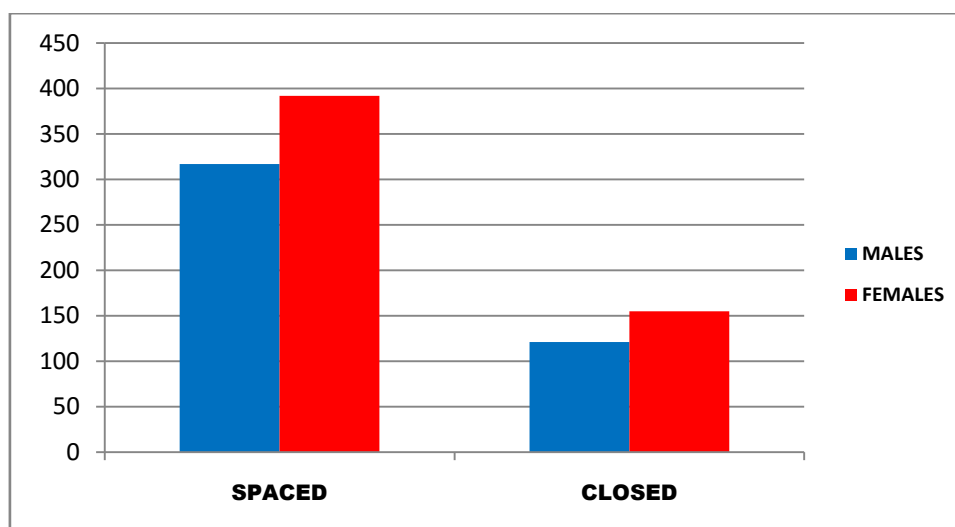


Age Distribution of 985 Children:

- ✓ 17.25% were of 2 to 3 years
- ✓ 29.94% were of 3 to 4 years
- ✓ 24.97% were of 4 to 5 years
- ✓ 27.82% were of 5 to 6 years

Alignment: 71.98% of children had spaced dentition and 28.02% of children had closed dentition respectively.

	Spaced		Closed		
Males	Females	Total	Males	Females	Total
317	392	709	121	155	276



Distribution of Alignment

Discussion:

The presence of spaced and closed dentition in primary dentition and its role in the establishment of the permanent dentition is a subject that has been widely discussed. Numerous studies have been conducted in

relation to the primary dentition of school children ⁽⁴⁾⁽⁵⁾. Bishara et al reported that the maxillary and mandibular intercanine and intermolar widths significantly increase between 3 and 5 years of age. The subjects in this study were limited to those below 6 years of age ⁽⁶⁾. Suma Vinay et al studied the primary dentition of 1000 children, 2 to 6 years of age from Bengaluru and reported that spacing was greater in males⁽⁷⁾, which is similar to our study where 72.4% of the males surveyed had spacing in their primary dentition. They also reported that spaced dentition was more common than closed dentition ⁽²⁾. Joshi and Makhija studied primary dentition of 100 children in Gujarat and reported that spaced dentition was more common than closed type of dentition ⁽⁸⁾. Alexander and Prabhu reported that 75% of south Indians had both physiologic and primate spaces in both arches ⁽¹⁾. Absence of these spaces indicates disproportion between jaw/tooth sizes. Dong-Hyuk et al showed that in both sexes spacing in the primary dentition occurred more frequently in the maxilla than in the mandible ⁽⁸⁾. Leighton's hypothesis suggests that there should be at least 6mm of space between mandibular teeth to prevent crowding in the permanent dentition. The results of our study show that 71.98% of children had spacing in their dentition while 28.02% had closed dentition. Our findings are similar to those of Suma Vinay et al who reported that out of the 1000 schoolchildren surveyed for their study, 81% of the children had spaced dentition while only 19% of the children surveyed had closed dentition ⁽⁷⁾. We can therefore conclude that spaced dentition is more commonly observed than closed dentition among children. The children with spacing in their dentition have less chance of developing malocclusion in their permanent dentition while the children with closed dentition have increased chances of developing malocclusion. Our study also showed that spaced dentition is seen more commonly in males than in females.

Conclusion:

This study provides information on prevalence of spaced and closed dentition in the primary dentition of schoolchildren between 2 to 6 years of age. Spaced dentition was more common than closed dentition. Spaced dentition is seen more in male children compared to female children. This shows that females are more susceptible to development of malocclusion in permanent dentition when compared to males.

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