

Prevalence of malocclusion with child eating patterns in children with mixed dentition: an observational study

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BACKGROUND

Breastfeeding contributes to the proper development of orofacial structures, influencing not only the correct position of the incisors, but also the sagittal vertical relationship between the mandible, maxilla and upper cranial base (1, 2). During breastfeeding, the muscles responsible for chewing, such as the masseter and temporal muscles, are activated, creating positive motor patterns that facilitate the chewing process in the future (1, 2). Facial growth is accentuated during the deciduous dentition, with an even greater increase in length during the mixed dentition phase (3). Between the ages of 4 and 12, the length of the face doubles in relation to its width (3). These ages coincide with a critical period of dentofacial development; harmful habits during this phase can compromise orofacial and neuromuscular balance, which can lead to changes in facial growth and the development of malocclusion (3, 4). Although non-nutritive sucking behaviours are considered normal in infants and young children, prolonged non-nutritive sucking habits have been associated with decreased maxillary arch width, increased overjet, decreased overbite, anterior open bite, and posterior crossbite (5).

MATERIAL AND METHODS

This cross-sectional observational study was conducted on children attending the Egas Moniz Dental Clinic (Almada, Portugal) between January and May 2025. Prior to child inclusion, the parents/legal guardians signed the consent form and answered a self-reported questionnaire regarding the child on sociodemographic, nutritional, and non-nutritional habits during the child's first two years of life and oral hygiene habits. Clinically, occlusion was diagnosed based on Angle's classification, overjet, overbite, crossbite, open bite, scissor bite, dental crowding and diastemas all on the sagittal, vertical and transverse planes of reference.

RESULTS

111 participants were included in the study, with a majority being female (50.5%), Caucasian (66.7%), and Portuguese (80.2%). Among the participants, the average age was 11 years. A significant proportion, 67.6%, reported brushing their teeth twice daily, while only 45% frequently used dental floss. Of the participants, 82.9% had been breastfed, with the majority with a duration between 1-24 months. 58.6% used a pacifier, and out of those participants 40% continued its use until the age of two. Additionally, 15.3% of the children had a history of thumb sucking, with 5.4% persisting in this habit at the time of observation. The prevalence of malocclusion was 72.1%, with class II malocclusion being the most prevalent (33.3%), comprising 19.8% division 1 and 5.4% division 2, and 8.1% regular class II, followed by an anterior crossbite at 20.7%.

CONCLUSION

This observational study demonstrates that sucking habits have an influence on the development of more occlusions. The main result of this study points to a potential protective role of breastfeeding when not associated with deleterious habits. This is in agreement with scientific evidence and highlights the detrimental impact of non-nutritional sucking habits on the development of orofacial structures. The clinical relevance of this study is significant, since malloclussions often have a negative impact on quality of life and oral health.

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