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Oral habits in children with cleft lip and palate among South Indian population: A pilot study

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ABSTRACT

Introduction

The development of dental and craniofacial structures in children is significantly influenced by their oral habits. Nonetheless, children affected by orofacial clefts may display distinctive oral behaviors influenced by the intricate interaction of anatomical, physiological, and psychological elements related to their condition. If these habits remain unattended, they may exacerbate the difficulties experienced by children with orofacial clefts, potentially resulting in disruptions to dental and facial growth and compromising the effectiveness of their treatment.

Materials and methods

A cross-sectional study at Saveetha Dental College's orofacial cleft and craniofacial center involved 40 participants. Parents or caretakers voluntarily completed a questionnaire about their children's oral habits. Ethical considerations were followed, and informed consent was obtained. Only completed questionnaires were analyzed using descriptive statistics and SPSS software, ensuring data reliability.

Results

From the results, we can conclude that cleft disorders influenced the prevalence of oral habits, with lower prevalence of thumb sucking and higher prevalence of mouth breathing habits in children with cleft lip and palate.

Discussion and conclusion

This preliminary study aims to offer essential initial insights into the occurrence of oral habits in South Indian children with cleft lip and palate. The results will lay the groundwork for extensive future research, guiding focused interventions to enhance oral health and well-being for these individuals. Ultimately, the study's knowledge may advance clinical practices and improve the quality of life for South Indian children with cleft disorders and beyond.

Keywords: Cleft lip, cleft palate, oral habits

Introduction:

Cleft lip and palate is one of the most prevalent congenital craniofacial malformations affecting newborns globally, with varying incidence rates across different populations(1). Cleft lip and palate are congenital conditions characterized by openings or splits in the upper lip and/or the roof of the mouth (2,3). This condition is characterized by a partial or complete separation of the upper lip with or without involvement of the palate during early fetal development, resulting in functional and aesthetic challenges for affected individuals(4). These conditions occur during early fetal development when the tissues forming the lip and palate do not fully fuse together(5). The severity of cleft lip and palate can vary, ranging from a small notch in the lip to a large gap that extends into the nose and affects the roof of the mouth . The exact cause of cleft lip and palate is not always clear, but it is believed to result from a combination of genetic and environmental factors (6). Factors such as maternal smoking, alcohol consumption, certain medications, and nutritional deficiencies during pregnancy may increase the risk of cleft lip and palate (7).

Despite significant advancements in medical and surgical interventions for Cleft disorders, the impact of this condition on affected children's oral health and habits remains a subject of interest and concern (8). The impact of Cleft lip and palate on a child's oral habits is of importance to understand and address the unique challenges faced by these children (9,10). This pilot study aims to explore the prevalence of oral habits among children with Cleft lip and palate within the South Indian population. Cleft lip and palate can have significant effects on a child's ability to eat, speak, breathe, and socialize (11). Babies born with a cleft lip may have difficulty breastfeeding or bottle-feeding due to the gap in their lip. Similarly, infants with a cleft palate may have trouble feeding and may be at risk of developing ear infections, as the opening in the palate can affect the function of the Eustachian tube, which helps drain fluid from the middle ear (12). Speech development can also be affected by cleft lip and palate (13). The openings in the lip and palate can disrupt the normal flow of air through the mouth, leading to speech difficulties such as nasal sounding speech or difficulty pronouncing certain sounds (14).

Cleft lip and palate can be treated with surgery, usually performed within the first few months of life (15). The goal of surgery is to close the openings in the lip and palate, restore normal function, and improve the appearance of the affected areas (16). In some cases, multiple surgeries may be needed as the child grows to address any remaining issues or to improve the appearance further (17) . In addition to surgery, children with cleft lip and palate may require ongoing care from a team of healthcare professionals, including pediatricians, pediatric dentists, orthodontists, speech therapists, and psychologists (18). This team approach ensures that the child receives comprehensive care to address their specific needs and to support their overall development and well-being (19). While cleft lip and palate can present challenges for affected individuals and their families, early intervention and appropriate treatment can help minimize the impact of these conditions and enable children to lead healthy, fulfilling lives. Support groups and advocacy organizations also play a crucial role in providing resources, information, and emotional support to individuals and families affected by cleft lip and palate.

Oral habits play a crucial role in shaping the dental and craniofacial development of all children(20,21). However, children with orofacial clefts may exhibit unique oral habits due to the complex interplay of anatomical, physiological, and psychological factors associated with their condition. These habits, if left unaddressed, could increase the challenges faced by children with orofacial clefts, potentially leading to dental and facial growth disturbances and compromising their treatment outcomes (22). One prevalent oral habit among this population is thumb sucking. The act of thumb sucking is not uncommon among children in general, but in the context of cleft lip and palate, it takes on added significance. Children with cleft conditions may find solace in thumb sucking, and breaking this habit becomes essential for optimal oral and facial development(23). Identifying the factors that contribute to the persistence of thumb sucking in this demographic is crucial for devising targeted interventions. The consequences of these oral habits extend beyond mere behavioral patterns. They can significantly impact the outcomes of surgical

and orthodontic interventions aimed at correcting cleft lip and palate. For instance, persistent thumb sucking can affect dental occlusion and alignment, compounding the challenges associated with cleft conditions. Additionally, these habits may interfere with speech development, posing further hurdles in effective communication. While extensive research exists on the overall oral health status of children with Cleft disorders, there are only few studies focusing on their oral habits, particularly within the South Indian population. Understanding the frequency, intensity and patterns of oral habits in this specific population can provide valuable insights for developing new interventions and treatment strategies to improve the long-term oral health outcomes of these children. This pilot study is expected to provide valuable preliminary data on the prevalence of oral habits among children with cleft lip and palate in the South Indian population. The findings from this research will help establish a foundation for future large-scale studies and aid in the development of targeted interventions to improve the oral health and overall well-being of orofacial cleft children. Ultimately, the knowledge gained from this study could contribute to better clinical management and enhanced quality of life for children with cleft disorders in the South Indian population and further.

Materials and methods:

In May 2023, a cross-sectional study was undertaken at the Orofacial Cleft and Craniofacial Center within Saveetha Dental College, focusing on patients with orofacial clefts. With a sample size of 40, the study aimed to investigate oral habits among children with these conditions. The participants' parents or caretakers were approached and provided with a questionnaire designed to assess various oral habits exhibited by their children. To adhere to ethical standards, informed consent was obtained from all participants involved in the study. This ensured that they fully understood the purpose and implications of their involvement. The questionnaire, administered to the caretakers or parents, was designed to capture relevant data regarding the types of oral habits present in the children under study.

Only fully completed questionnaires were considered for analysis, with incomplete submissions being excluded from the dataset. This criterion was established to maintain the quality and reliability of the data collected. All responses gathered were meticulously tabulated, allowing for a comprehensive examination of the data.The statistical test used is descriptive statistics. To facilitate analysis, frequency tables were prepared for each question, highlighting the prevalence and distribution of various oral habits among the participants. The utilization of SPSS data analysis software further enhanced the efficiency and accuracy of the data processing and interpretation. Moreover, reliability checks were conducted to ensure the consistency and dependability of the collected data. This step aimed to identify any potential inconsistencies or errors within the dataset, thus strengthening the validity of the study findings. Overall this study demonstrates a thorough and ethical examination of oral habits in children with orofacial clefts. Employing methodology, such as obtaining informed consent, comprehensive data collection, and meticulous analysis, the researchers aimed to provide valuable insights into the prevalence and nature of oral habits among this particular group.

Results:

The study findings provide the prevalence of thumb sucking and open-mouth breathing behaviors among children, highlighting distinct patterns between those with and without cleft disorders. It was observed that among children diagnosed with cleft disorder, a minority, specifically 5%, display a habit of thumb sucking, whereas a significant majority, accounting for 45%, do not exhibit this behavior (figure 1). In contrast, among children without cleft disorder, a notably higher percentage, specifically 22.5%, engage in thumb sucking, while 27.5% do not (figure 1). Furthermore, open-mouth breathing habits within the group of children affected by cleft disorder, the research indicates that 20% of them demonstrate this behavior, while 30% do not have open mouth breathing habit. Conversely, among children without cleft disorder, a smaller proportion, specifically 7.5%, exhibit open-mouth breathing, with a larger majority of 42.5% not manifesting this behavior (figure 2).

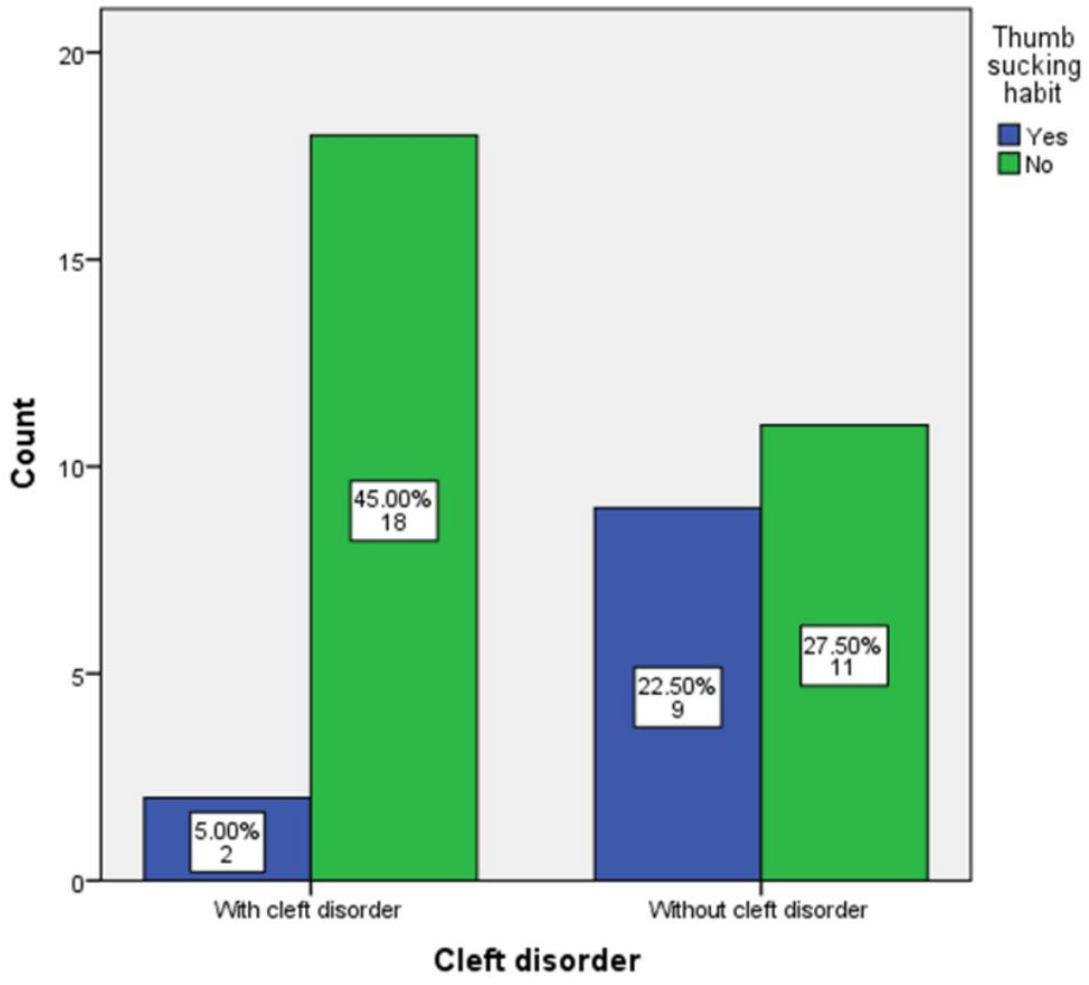

Figure 1: Bar graph showing the correlation between thumb sucking habit and cleft disorder

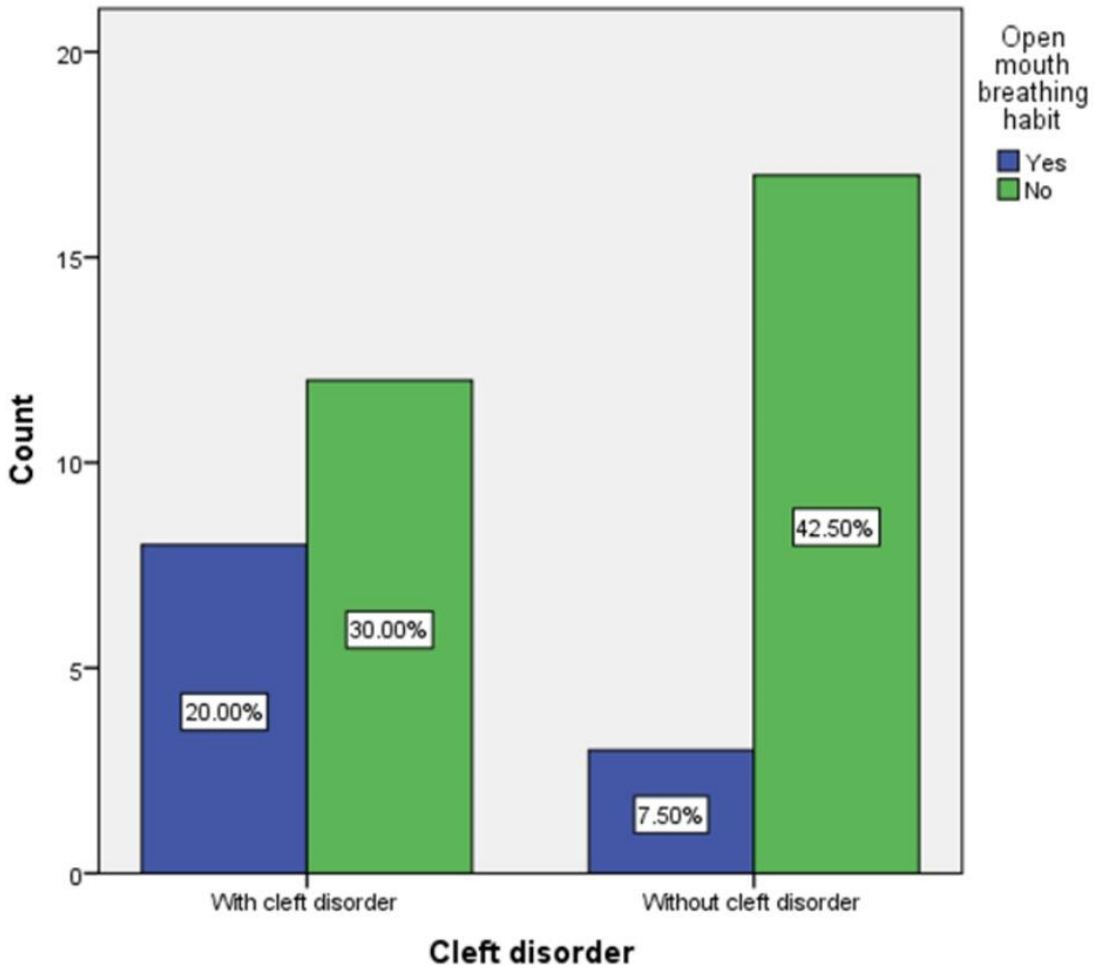

Figure 2: Bar chart showing the correlation between open mouth breathing habit and cleft disorder

Discussion

In research conducted at a craniofacial center in Belgium, children with CL/P showed reduced non-nutritive sucking behaviors but a higher incidence of snoring compared to a control group without CL/P. Our study similarly found that only 5% of children with cleft disorders engaged in thumb sucking, whereas among those without CL/P, a significantly higher proportion, 22.5%, practiced thumb sucking. Another study indicated that the presence of a cleft influenced the prevalence of oral habits, with children with cleft lip and palate showing lower rates of pacifier use but higher rates of other oral habits. Our results also align with this, showing lower prevalence

of thumb sucking among CL/P patients, while 20% of children with CL/P exhibited open mouth breathing compared to 7.5% of those without CL/P.

Children born with cleft lip and palate often encounter distinctive challenges, and understanding the nuances of oral habits in this population is crucial for comprehensive care(24). This discussion explores the various aspects surrounding oral habits in children with cleft lip and palate, addressing prevalence, potential consequences, and intervention strategies. The prevalence of oral habits, such as thumb sucking, tongue thrusting, and mouth breathing, among children with cleft lip and palate is a noteworthy aspect of consideration. These habits can have a compounding effect on the already complex issues associated with cleft conditions(25,26). Research indicates that children with cleft lip and palate may engage in these habits as a coping mechanism, seeking comfort in the face of the challenges posed by their condition. Understanding the prevalence and types of oral habits is a pivotal first step in tailoring effective intervention strategies(25).

Addressing oral habits in children with cleft lip and palate requires a multidimensional approach. Early identification of these habits is vital for timely intervention (27). Orthodontic appliances, behavior modification techniques, and parental counseling are among the strategies employed to mitigate the impact of oral habits (28,29). Orthodontic appliances, such as habit-breaking devices, can assist in breaking thumb sucking patterns, facilitating proper dental alignment (30) (31). Behavioral interventions involve working closely with parents and caregivers to create a supportive environment that encourages the child to overcome these habits. Furthermore, cultural and socio-economic factors play a role in the persistence of oral habits in this population . Cultural beliefs and practices may influence the acceptance or resistance to interventions. Therefore, healthcare professionals must adopt culturally sensitive approaches, collaborating with families and communities to ensure effective and sustainable outcomes. The psychosocial implications of oral habits in children with cleft lip and palate should not be underestimated. Beyond the physical consequences, these habits may impact a child's self-esteem and social interactions. Addressing the psychosocial aspects of care is integral to fostering holistic well-being in these children.

Conclusion:

In conclusion, cleft disorders influenced the prevalence of oral habits, with lower prevalence of thumb sucking and higher prevalence of mouth breathing habits in children with cleft lip and palate. The prevalence of these habits, their potential consequences, and the need for comprehensive interventions highlight the complexity of caring for this unique population. By combining clinical expertise with cultural sensitivity and a focus on psychosocial well-being, healthcare professionals can contribute to improving the overall quality of life for children with cleft lip and palate. Although further research regarding the oral habits in children with CL/P is necessary, cleft teams should give attention to the occurrence of oral habits. Further study can be done with a larger sample size and the type of cleft disorder could be added as a parameter for analyzing the prevalence of oral habits.

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