Eureka Open Access Journals
Open Access | Peer Reviewed | International Journals | Multidisciplinary Areas

Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)

ISSN 2760-4942 (Online) Volume 2, Issue 2, February 2026

https://eurekaoa.com/index.php/5

FEEDING PRACTICES AS A DETERMINANT OF EARLY CHILDHOOD CARIES: A CLINICAL AND LABORATORY STUDY

Djalilova Fariza Rasuljanovna
Organization: Tashkent State Medical University
Department: Propaedeutic of Orthopedic Dentistry
E-mail: farizadzalilova7@gmail.com

Abstract

Background. Early childhood caries (ECC) remains one of the most prevalent chronic diseases in children worldwide. Feeding practices during infancy play a crucial role in shaping oral homeostasis and caries susceptibility.

Objective. To evaluate the impact of different feeding practices on dental status and caries development in children of early age.

Materials and Methods. A total of 173 children aged 6 months to 6 years with ECC were examined. Participants were stratified by age and feeding practice (breastfeeding, mixed feeding, artificial feeding). Dental status was assessed using caries intensity (dmft index), caries prevalence, caries increment, and oral hygiene indices. Statistical analysis was performed using SPSS software with significance set at $p<0.05$.

Results. Artificial feeding was associated with significantly higher caries intensity and prevalence compared to breastfeeding and mixed feeding. Caries indicators increased with age in all groups; however, the most pronounced progression was observed in artificially fed children.

Conclusion. Feeding practices are a significant determinant of ECC development. Artificial feeding increases caries risk and should be considered when developing individualized preventive strategies.

Eureka Open Access Journals
Open Access | Peer Reviewed | International Journals | Multidisciplinary Areas

Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)

ISSN 2760-4942 (Online) Volume 2, Issue 2, February 2026

https://eurekaoa.com/index.php/5

Keywords: Early childhood caries, feeding practices, breastfeeding, artificial feeding, dental status, prevention.

Introduction

Early childhood caries (ECC) is a multifactorial disease characterized by the rapid destruction of primary teeth during the first years of life. Despite advances in preventive dentistry, ECC continues to affect a substantial proportion of children worldwide, with prevalence rates exceeding 70% in some regions. The disease negatively impacts quality of life, nutrition, speech development, and general health.

The etiology of ECC involves complex interactions between host factors, dietary habits, oral microbiota, and salivary properties. Feeding practices during infancy are increasingly recognized as critical determinants of oral health, influencing enamel maturation, microbial colonization, and salivary composition.

Breastfeeding is generally considered protective due to its immunological components and favorable effects on oral development. In contrast, artificial feeding may alter oral homeostasis, promote cariogenic bacterial growth, and increase exposure to fermentable carbohydrates. However, the relationship between feeding type and ECC remains controversial, with inconsistent findings reported in the literature.

This study aims to provide a comprehensive clinical assessment of the influence of feeding practices on dental status in children of early age, contributing to evidence-based preventive strategies.

Materials and Methods

Study Design and Participants

A prospective clinical study was conducted involving 173 children aged 6 months to 6 years diagnosed with ECC. The study population was recruited from pediatric dental clinics. Written informed consent was obtained from parents or legal guardians.

Eureka Open Access Journals
Open Access | Peer Reviewed | International Journals | Multidisciplinary Areas

Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)

ISSN 2760-4942 (Online) Volume 2, Issue 2, February 2026

https://eurekaoa.com/index.php/5

Group Allocation

Children were divided into three age groups:

- 6 months to 2 years (n=43)
- 2 to 4 years (n=57)
- 4 to 6 years (n=73)

According to feeding practices, participants were classified as:

- Breastfed (n=34; 19.65%)
- Artificially fed (n=32; 18.50%)
- Mixed feeding (n=107; 61.85%)

Dental Examination

Dental examinations were performed under standardized conditions. The following indices were recorded:

- Caries intensity (dmft index);
- Caries prevalence (%);
- Caries increment;
- Oral hygiene index (Fedorov–Volodkina).

Statistical Analysis

Data were analyzed using SPSS 17.0. Results are presented as mean ± standard error. Differences between groups were evaluated using Student's t-test. A p-value <0.05 was considered statistically significant.

Results

Analysis revealed a significant association between feeding practices and dental status. In the youngest age group (6 months to 1 year), dmft values were lowest in breastfed children (2.36±0.12) and highest in artificially fed children (3.91±0.20; $p<0.05$).

Eureka Open Access Journals
Open Access | Peer Reviewed | International Journals | Multidisciplinary Areas

Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)

ISSN 2760-4942 (Online) Volume 2, Issue 2, February 2026

https://eurekaoa.com/index.php/5

Caries prevalence demonstrated a similar pattern. Breastfed children exhibited the lowest prevalence (34.20±1.71%), whereas artificially fed children showed significantly higher rates (69.30±3.47%). Mixed feeding demonstrated intermediate values.

With increasing age, caries intensity and prevalence increased across all feeding groups. However, artificially fed children consistently presented with the most severe carious lesions and poorest oral hygiene scores. The oral hygiene index in artificially fed children reached 3.62±0.18, indicating unsatisfactory hygiene.

Discussion

The findings of this study highlight feeding practices as a major determinant of ECC development. Artificial feeding was associated with higher caries intensity and prevalence, supporting the hypothesis that feeding type influences oral ecological balance.

Possible explanations include differences in carbohydrate exposure, salivary composition, and microbial colonization associated with artificial feeding. The absence of bioactive components present in breast milk may further compromise enamel resistance and immune defense mechanisms.

The observed age-related increase in caries indicators emphasizes the cumulative nature of ECC and underscores the importance of early preventive interventions, particularly for children at increased risk due to feeding practices.

These results are consistent with previous studies reporting a protective role of breastfeeding and an elevated caries risk associated with artificial feeding.

Limitations

The study did not assess socioeconomic factors, dietary patterns beyond feeding type, or fluoride exposure, which may influence caries development. Future longitudinal studies incorporating these variables are warranted.

Eureka Open Access Journals
Open Access | Peer Reviewed | International Journals | Multidisciplinary Areas

Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)

ISSN 2760-4942 (Online) Volume 2, Issue 2, February 2026

https://eurekaoa.com/index.php/5

Conclusion

Feeding practices significantly influence the development of early childhood caries. Artificial feeding is associated with increased caries intensity, prevalence, and poorer oral hygiene. Early identification of high-risk children based on feeding history is essential for the implementation of targeted preventive strategies.

References

1. Djalilova, F. R., & Murtazaev, S. S. (2023). ESTABLISHING THE OPTIMAL TIME FOR SAMPLING SALIVA TO DETERMINE BIO-ELEMENT HOMEOSTASIS OF THE ORAL CAVITY OF EARLY CHILDHOOD. Conferencea, 91-92.
2. INVESTIGATING THE POTENTIAL GENETIC ASSOCIATION OF SALIVARY AND TONGUE MICROBIOTA WITH PERIODONTITIS: A MENDELIAN RANDOMIZATION STUDY. (2026). Eureka Journal of Health Sciences & Medical Innovation, 2(1), 433-442. https://eurekaoa.com/index.php/5/article/view/249
3. Peres MA, Macpherson LMD, Weyant RJ, et al. Oral diseases: a global public health challenge. Lancet. 2020;394(10194):249–260.
4. American Academy of Pediatric Dentistry. Policy on early childhood caries (ECC): classifications, consequences, and preventive strategies. Pediatr Dent. 2020;42(6):17–18.
5. Tham R, Bowatte G, Dharmage SC, et al. Breastfeeding and the risk of dental caries: a systematic review and meta-analysis. Acta Paediatr. 2020;109(9):1735–1745.
6. Cui L, Li X, Tian Y, Bao J, Wang L. Feeding patterns and early childhood caries: a cross-sectional study. BMC Oral Health. 2021;21:184.
7. Du M, Luo Y, Zeng X, et al. Caries prevalence and risk factors among preschool children: a multicenter study. Int Dent J. 2021;71(2):109–116.

Eureka Open Access Journals
Open Access | Peer Reviewed | International Journals | Multidisciplinary Areas

Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)

ISSN 2760-4942 (Online) Volume 2, Issue 2, February 2026

https://eurekaoa.com/index.php/5

8. Moynihan P, Kelly S. Effect on caries of restricting sugars intake: systematic review. J Dent Res. 2021;100(4):349–356.
9. Peres KG, Nascimento GG, Peres MA, et al. Impact of prolonged breastfeeding on dental caries: a population-based study. Community Dent Oral Epidemiol. 2021;49(5):403–411.
10. Cui L, Chen Y, Li X, et al. Association between infant feeding practices and early childhood caries: a systematic review. Eur Arch Paediatr Dent. 2022;23(4):567–578.
11. Folayan MO, El Tantawi M, Oginni A, et al. Feeding practices, oral hygiene, and early childhood caries in preschool children. BMC Oral Health. 2022;22:176.
12. Chen KJ, Gao SS, Duangthip D, et al. Early childhood caries and breastfeeding: evidence and controversies. Int J Paediatr Dent. 2022;32(5):585–594.
13. Chi DL, Hopkins S, O'Brien D, et al. Association between bottle feeding at night and early childhood caries. Pediatrics. 2022;150(1):e2021054379.
14. Pitts NB, Zero DT, Marsh PD, et al. Dental caries. Nat Rev Dis Primers. 2023;9:12.
15. Shi Z, Wang Y, Xing Y, et al. Feeding behaviors and risk of early childhood caries: a meta-analysis. J Oral Rehabil. 2023;50(6):515–526.
16. Li Y, Wang W, Zhang X, et al. Artificial feeding and caries risk in preschool children: a cohort study. Clin Oral Investig. 2023;27(9):4821–4829.
17. WHO. Ending childhood dental caries: WHO implementation manual. Geneva: World Health Organization; 2023.
18. Gao X, Prakash P, Lo ECM. Infant feeding practices and early childhood caries: updated evidence. Community Dent Health. 2024;41(1):12–18.
19. Zeng L, Zeng Y, Zhou Y, et al. Early feeding patterns and oral microbiome development in children with ECC. J Dent Res. 2024;103(2):189–197.

Eureka Open Access Journals
Open Access | Peer Reviewed | International Journals | Multidisciplinary Areas

Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)

ISSN 2760-4942 (Online) Volume 2, Issue 2, February 2026

https://eurekaoa.com/index.php/5

20. Ribeiro CCC, Oliveira Júnior MR, et al. Feeding practices, oral hygiene, and ECC in preschool children. Braz Oral Res. 2024;38:e028.
21. Liu Y, Yu S, Wang X, et al. Early childhood caries and dietary patterns: a longitudinal study. BMC Pediatr. 2025;25:94.
22. Frencken JE, Sharma P, Stenhouse L, et al. Global epidemiology of dental caries in children: update 2025. Int Dent J. 2025;75(1):3–12.