

relieve colic. However, we need to bear in mind that these are gradual changes, as mentioned in our article.

In agreement with Cunha et al., we believe that it is crucial to promote actions to encourage pacifier nonuse, as well as pro-breastfeeding actions, within counseling practices, which do not impose such practices or make women feel guilty, but actually respect their individuality and provide relevant information to help them make informed decisions about their children's care. That is to say that professionals and mother-child health policy-makers cannot play a neutral or passive role on the use of pacifiers, a practice associated with multiple negative outcomes on the nursing infant's health and nutrition.

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Giuliana M. Parizoto

Mestre. Enfermeira, Banco de Leite de Bauru, Secretaria Municipal de Saúde de Bauru, Bauru, SP, Brazil.

Cristina M. G. de L. Parada

Livre-docente. Professora adjunta, Departamento de Enfermagem, Faculdade de Medicina de Botucatu, Universidade Estadual Paulista (UNESP), Botucatu, SP, Brazil.

Sônia I. Venâncio

Doutora. Pediatra, Instituto de Saúde, Secretaria de Estado da Saúde de São Paulo, São Paulo, SP, Brazil.

Maria Antonieta de B. L. Carvalhaes

Doutora. Professora assistente, Departamento de Enfermagem, Faculdade de Medicina de Botucatu, UNESP, Botucatu, SP, Brazil. E-mail: carvalha@fmb.unesp.br

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Breastfeeding and early childhood caries: a myth that survives

Dear Editor,

The review article by Losso et al., which was recently published in this well respected journal, had the objective of informing the readers about the risk factors for caries in patients younger than 6 years old.¹ Having read the manuscript with special interest, since one of our studies is cited among the references,² we would like to make some remarks about it.

Our first comment is about the use of the term caries for this age group. The term early childhood caries (ECC), adopted by the American Academy of Pediatric Dentistry (AAPD), is aimed at emphasizing the presence of caries in deciduous teeth during the first 6 years of life. The translation of the term into Portuguese (*cárie precoce na infância*) used by Losso et al.,¹ as well as other Brazilian authors, is inappropriate, can cause confusion regarding its correct meaning, and is not related to the concept proposed by the AAPD. Since the adjective *precoce* means something that is premature, taking place before the normal time or occurring before the expected age, the use of the term *cárie precoce na infância* causes the misunderstanding that caries in the primary dentition is a disease that develops at a younger age than usual. Confusion is provoked by the meaning of the term early childhood, which designates the phase of human development encompassing the first years of life, that is, related to infants and preschoolers. Therefore, the term *cárie do lactente e do pré-escolar* (CLPE), used for the first time in Portuguese in our article,² is the most exact and appropriate translation because it defines the presence of this pathology in children up to 6 years old in an unmistakable manner.

The second important aspect is that Losso et al. stated that our study would have reported conflicting information about the cariogenicity of maternal milk.¹ Such statement is not correct, and the main conclusion of our study was not mentioned by these authors. In our review of the literature on the relationship between breastfeeding and ECC, we concluded that there is no evidence supporting the association between breastfeeding and development of caries. We also added that this relationship is complex and can be confounded by many variables, mainly infection with *Streptococcus mutans*, enamel hypoplasia, sugar intake, in its different forms, and social conditions, represented by parents' educational level and socioeconomic status.² We are proud to inform that our study has been recently considered by White³ as one of the five studies showing relevant scientific evidence on the association between breastfeeding and ECC. In this study, White³ clearly mentioned our conclusion and listed the possible limitations of our critical review. The author concluded that, due to the well-established benefits of breastfeeding and the lack of consistent evidence of its association with the occurrence of ECC, dentists should support the current recommendations of breastfeeding. The author also recommends that good dental hygiene practices should be emphasized after the eruption of the first tooth and that parents should be instructed to reduce the frequency of

the consumption of food and beverages containing sugar by infants and preschoolers.³

Our third comment is related to the great concern of Losso et al. in emphasizing the fact that the AAPD does not recommend breastfeeding on demand after the eruption of the first deciduous tooth. Although the authors included the literature published during the past 25 years in their review article, they did not consider the current scientific evidence that is not in agreement with this recommendation, including many of the references cited in our study² and in White's³ article. In addition, we detected an important and basic misconception in the article by Losso et al. with regards to the study by Plutzer & Spencer,⁴ which compromises their recommendations about breastfeeding. According to Losso et al., Plutzer & Spencer's findings support the AAPD recommendations.⁴ However, when analyzing this study,⁴ we detected an important misinterpretation. Plutzer & Spencer tested the effectiveness of an oral health promotion program in nulliparas with the purpose of reducing the prevalence of ECC in their children at 18 months. The authors found that the children whose mothers were provided with information on oral health during pregnancy and when their children were 6 and 12 months old had a four-fold decrease in the prevalence of ECC. Plutzer & Spencer did not mention the AAPD recommendations in their study.⁴ On the contrary, the nutritional recommendations adopted by these authors were based on the official recommendations of the Australian government, which stimulate breastfeeding up to 1 year at least and do not suggest any type of restriction due to its low prevalence at 6 months (approximately 20%).⁵

Furthermore, another recent study has confirmed that maternal milk, in addition to not being cariogenic, is a protective factor against the occurrence of caries.⁶ Niemi et al. demonstrated that human milk components are able to inhibit adhesion of *S. mutans* to hydroxyapatite crystals in vitro.⁶

Based on the current scientific evidence, which supports the fact that maternal milk is not cariogenic, we disagree with the conclusions of Losso et al.¹ regarding any restrictions to breastfeeding due to pediatric oral health.

These authors' point of view is in directly agreement with other information reported in our critical review: in spite of the fact that there is not scientific evidence confirming the association between breastfeeding and caries, many health professionals still do not believe that the human milk is not cariogenic, perpetuating the myth originated from this association.

We would like to emphasize the fact that our comments do not intend to deny the merit of the article as a whole and we hope we could contribute to this discussion.

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Nilza M. E. Ribeiro

Cirurgiã-dentista, odontopediatra. Mestranda, Saúde da Criança, Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), Porto Alegre, RS, Brazil. E-mail: anraquel@terra.com.br

Manoel A. S. Ribeiro

Pediatra, neonatologista. Mestre em Pediatria, PUCRS, Porto Alegre, RS, Brazil.

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Authors' reply

Dear Editor,

Initially, we would like to thank Ribeiro & Ribeiro for the attentive reading of our article entitled "Severe early childhood caries: an integral approach"¹ and for their comments. Our study is a broad approach of caries in childhood, including information on its prevalence, risk factors for its development, clinical aspects, local and systemic consequences, and prevention. Therefore, we did not intend to provide an exhaustive analysis of each topic approached in the article.

Regarding the terminology used, several different terms have been adopted throughout the years in the international literature to designate this topic.² Although the suggestion of the term *cárie do lactente e do pré-escolar* can be considered valid and interesting, the terms *cárie precoce na infância* and *cárie de acometimento precoce* are well-established in the Portuguese language and are used in dentistry articles in Brazil, being the most commonly adopted by dentists.²

We absolutely did not intend to reduce mothers' motivation to breastfeed. On the contrary, we understand that it is a responsibility of the dentist to stimulate this practice, since, in addition to the undeniable benefits for the child's physical and psychological health, breastfeeding favors normal face growth and prevents the development of abnormal swallowing and malocclusions.³

We reviewed the paragraph of our article where we cite your excellent review of the literature⁴ and in which we used the phrase "conflicting information on the cariogenicity of breastfeeding."¹ Regarding this phrase, we would like to clarify that it was a reference to your comment "The obtained results often are contradictory and the findings were not always reproduced,"⁴ what can be found in the original articles cited in your review article. We agree that you concluded that "there is no scientific

evidence that confirms that breast milk is associated with caries development. This relationship is complex and contains several confounding variables.⁴ In agreement with that, Valaitis et al.,⁵ in a systematic review on the association between breastfeeding and early childhood caries, concluded that "the evidence does not suggest a consistent and strong association between breastfeeding and the development of ECC"⁵ and that "women should be encouraged to continue breastfeeding as long as they wish."⁵ However, these authors also stated that the lack of methodological consistency of the 28 studies reviewed and included in their analysis make it difficult to draw conclusions; in addition, the three experimental studies showing the best methodology suggested an association between breastfeeding and early childhood caries.

One of the recommendations of the American Academy of Pediatric Dentistry (AAPD) for the prevention of early childhood caries is avoiding breastfeeding on demand at night after teeth eruption. In our paragraph there was a typing mistake and the term "at night" was not included, changing the meaning of the sentence. Dentists stimulate exclusive breastfeeding until the child is 6 months old. At about this age there is introduction of varied food and the deciduous teeth start to erupt. During this phase, children are not being exclusively breastfed and other foods are added to their diet until they are completely weaned at 2 years old or older. The rest of the sentence reinforces the importance of oral hygiene after the child is breastfed and before going to bed. Once more, we are thankful for the attentive reading, which provided us with the opportunity of debating and correcting this recommendation.

Both human and bovine milk really have components that protect dental enamel. However, the dental bacteria biofilm can metabolize lactose and thus present cariogenic properties when the contact time is prolonged and when frequency is high (more than six times a day).³ During sleep there is reduction in the salivary flow and frequency of swallowing, favoring the presence of residual milk in the mouth. The decrease in the salivary flow causes the reduction of the buffer capacity of saliva, which is a natural protector of dental structures. Furthermore, we should consider that, after breastfeeding during sleep, parents have greater difficulty in performing the child's dental hygiene. The combination of these factors can make the oral environment more conducive to the development of dental caries. It is recommended that oral hygiene should be performed after breastfeeding.³ It is important to highlight here that, depending on the experimental conditions of different researches, it is possible to find studies that suggest the presence of protective factors in breast milk,⁶ whereas other studies suggest that maternal milk has cariogenic potential.⁷

Due to the multifactorial etiology of caries, there is always an association of risk factors, and there will be an association relation instead of a cause-effect relation. Health promotion actions including distal factors of association certainly have stronger impact on the population. However, the participation of behavioral factors in the development of caries cannot be denied. Nutritional counseling will always be part of the list of prevention measures.

As we mentioned in our article, Plutzer & Spencer⁸ conducted a motivational program beginning during pregnancy and reinforced when the child turned 6 and 12 months that presented caries reduction when compared to the control

group that participated in the program only in the beginning of the study. We do not believe that this is a contradiction in comparison with the more detailed description provided by Ribeiro & Ribeiro. We believe that these findings⁸ can support the AAPD recommendation with regard to early dental visit, since it can favor the prevention of dental caries.

We are thankful for the opportunity of publishing our study and comments in this excellent journal. Highly important topics, such as caries, the most common chronic disease in childhood, evidence the need of promoting integration among health professionals who work with children, which was the main objective of our article.

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Estela M. Losso

Doutora. Odontopediatria, cirurgiã-dentista. Professora, Mestrado em Odontologia Clínica, Universidade Positivo, Curitiba, PR, Brazil. E-mail: emlosso@up.edu.br

Maria Cristina R. Tavares

Mestre, Saúde Coletiva. Cirurgiã-dentista. Professora, Saúde Coletiva e Odontologia da Infância, Universidade Positivo, Curitiba, PR, Brazil.

Juliana Y. B. da Silva

Mestre. Odontopediatria, cirurgiã-dentista. Estágio Avançado, Disciplina de Odontologia da Infância, Universidade Positivo, Curitiba, PR, Brazil.

Cícero de A. Urban

Médico. Professor, Graduação e Pós-Graduação em Medicina, Universidade Positivo, Curitiba, PR, Brazil.

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