

## REVIEW ARTICLE

# Impact of Breastfeeding on Children's Teeth and Health within the First 12 Months of Life

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## ABSTRACT

Due to benefits of breast feeding WHO and American Academy of Pediatrics also recommended it for at least 6 months of age. Breast milk contains sugars and it may be cariogenic but it is also referred to the potential risk of early childhood caries. Many studies and reviews showed the relationship between breast feeding and early childhood caries. It is always shown two school of thoughts in which one suggest that breast feeding may promote dental caries, while other have not found an association.

**Keywords:** Deciduous teeth, Eruption time, Eruption trend, Breast-feeding, Feeding

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## INTRODUCTION

Adequate nutrition during infancy and early childhood is very essential for growth, health and development of children. Poor nutrition causes increment in the illness which is responsible for one-third of the estimated 9.5 million deaths that occurred worldwide in 2006 in children <5 years of age.<sup>1</sup> The first two years of life is a critical period for children's maximum growth and development through optimum feeding which is achieved by both breast-feeding and complementary feeding.<sup>2</sup> Breastfeeding provides an ideal food for the growth, health, and development of infants and the most natural way of feeding them in all traditions.<sup>3</sup> Breast milk contains virtually all the nutrients, antibodies

and anti-oxidants an infant needs to thrive for the first six months of life.<sup>4</sup> Breast milk is ideally suited for the human infant. Infants have been breast-fed since the beginning of humanity but throughout most of the second half of the 20th century, initiation and duration of breast-feeding declined in the developed countries due to acquisition of wealth, urbanization and marketing of breast milk substitutes. This decline was followed in many developing countries by urban educated well to do mothers with shorter periods of total breast-feeding which was followed by others from lower socioeconomic levels and by some rural mothers.<sup>5</sup> Early nutritional deficits are linked to long term impairment of growth and health i.e., stunting. Studies showed a number of cases of greatest risk of nutritional deficiencies and growth retardation which usually occurs in children aged 3-15 months and is associated with poor breastfeeding and complementary breast feeding practices.<sup>6</sup>

## DISCUSSION

Breast milk can arguably be described as the best source of nutrition for a newborn child. It is an integral part of the reproductive process with important implications for the health of the mother.<sup>7</sup> Human milk is the most appropriate of all available types of milk that is uniquely adapted for infant nutrition as its components consistently adapt to the child's need and environmental challenges.<sup>8</sup> Breast milk contains virtually all the nutrients, antibodies and anti-oxidants an infant needs to thrive for the first six months of life.<sup>9</sup>

Studies by Abiona and Ahn and Maclean have reported that exclusive BF can have a significant impact on the weight of a child only between birth and 6 months with exclusively breastfed children gaining more weight than those not exclusively breastfed.<sup>10</sup>

Exclusive breastfeeding (EBF) refers to the exclusive intake of breast milk or expressed breast milk by an infant without the addition of any other liquids or solids, with the exception of oral drops, or syrups containing vitamins, mineral supplements or medicines.<sup>11</sup>

According to Nigeria Demographic Health Survey 2008, Exclusive breast-feeding in the first 6 months of life has been shown to have many advantages including decreased infant mortality. Which is estimated at 75/1,000 live birth [The high and unacceptable rate of infant mortality has been attributed to common causes that include preventable diseases such as anaemia, diarrhoea and malnutrition].<sup>12</sup>

In one study Pickering and Kohl, 1986; and Takala et al., 1989 states that breast milk also decreases the risks of infection by reducing the exposure of a child to enteropathogens that may contaminate other food formulae.<sup>13</sup> In 1998 Morrow-Tlucak et al. states the other health benefits that include the enhancement of cognitive development.<sup>14</sup> Chua et al., in 1994 said BF increases the level of oxytocin in the blood resulting in less post-partum bleeding and more rapid uterine involution in the children's mothers,<sup>15</sup> It also enhances early return to pre-pregnant weight<sup>16</sup>, delays resumption of ovulation with increased child spacing [Gray et al., 1990; Kennedy and Visness, 1992; Dewey et al., 1993],<sup>16,17,18</sup> reduces tendencies for hip fracture [Cumming and Klineberg, 1992; Melton et al, 1993]<sup>19,20</sup> and decreases the risk of ovarian cancer [Rosenblatt and Thomas, 1993]<sup>21</sup> and premenopausal breast cancer [new comb 1994].<sup>22</sup>

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### Breast feeding and dental caries

Duration of breast feeding and the risk of dental caries shows that breast feeding for longer than 6-7 months may increase the risk of dental caries due to early eruption of primary teeth which starts around 6 months.<sup>23</sup> Lower central incisors usually begin to erupt around 6 months followed by upper central incisors. These teeth would be present if mothers continue to breastfeed after 6 months and the chances of initiation of caries would most likely be occurs by exposure to breast milk, especially if breast feeding is frequent. Thus, for studies on early childhood caries, breast feeding and, the duration and possibly the sequence of teeth eruption may be another factor to consider.<sup>24</sup>

In a study by Kramer et al.,<sup>25</sup> the comparison was between 3 months of exclusive breast feeding versus 6 months, whereas in a study by Nunes et al.,<sup>26</sup> the comparison was between

less than 12 months of breast feeding versus more than 12 months. Iida et al.<sup>27</sup> used several assessments of breast feeding including durations of full breast feeding and exclusive breast feeding and found that history of breast feeding (never vs ever) was not associated with early childhood caries among children between the ages of 2 and 5, A study by Chaffee et al.<sup>28</sup> showed that breast feeding for up to 24 months was associated with elevated risk of dental caries at 38 months. A study by Westover et al.<sup>19</sup> showed that BF contributes an important influence on the thrust and growth of the mandible.<sup>29</sup>

### Socioeconomic conditions

Education, especially at a higher level, is an enhancer for better care-giving for the children as was reported by Rogers and Young.<sup>30</sup> Most of the mothers were housewives 69%, the rest were engaged in different income generating activities. This was similar to the 70% figure reported by Omer *et al.*<sup>31</sup> for the urban economically privileged well educated families in but much lower than the 82.5% reported by Harounet *al.* Fathers' level of education was similar to that of the mothers, that is, highly educated. Father's education is an important determinant of household wealth and is believed to affect child health indirectly through its effect on household income.<sup>28</sup>

### Initiation of breast-feeding

Breast feeding (BF) immediately after birth allows the child the benefit of colostrum. (It releases the hormone oxytocin which assists in the involution of the uterus and aids in the cessation of bleeding as the delay or abstinence from breast-feeding results in increased postpartum bleeding.<sup>30</sup>

### Prolonged breast-feeding

Duration of BF was mostly (70.2%) for 19-24 months which could possibly be due to the higher level of education. In addition, breast milk provides extra amounts of vitamin A, calcium, and riboflavin.<sup>21</sup> Prolonged BF reduces childhood illness<sup>18</sup>; specifically diarrhea as it lowers its episodes reduces its severity<sup>10</sup> and its impact on growth.<sup>14</sup> Breast milk also prevents dehydration and provides vital nutrients required for recovery<sup>30</sup> improves cognitive outcome and may influence the immune system development.<sup>25</sup> The major reason cited for stopping BF was a new pregnancy (49.4%).

### Effects of exclusive breast-feeding on infant's growth during 24 months

EBFD children growth was better than those who were not EBFD in terms of weight and length gain. This is in agreement with Cohen C.<sup>25</sup> who reported that EBFD for 6 months resulted in weight gain and that cessation between 4-6 months confers no advantage on growth.<sup>16</sup> It is also in accordance with Dnayade et al. that EBFD infants for 6 months had mean weight above those EBFD to 4-6 or <4 months and that EBFD supported adequate growth for the first 6 months.

## CONCLUSION

Mothers are strongly advised to exclusively breastfeed for 6 months without offering even water and to extend the duration of breast-feeding for 24 months. Better personal hygiene and general sanitation to reduce the incidence of infections.

## REFERENCES

- Bell, J.G., C.I. Keen and B. Lonnerdal, 1987. Effect of infant cereals in zinc and copper absorption during weaning. *Am. J. Clin. Dis. Child.*, 131: 1128-1132.
- Black, R.E., I.H. Allen, Z.A. Bhutta, L.E. Caulfield M. de Onis, M. Ezzati, C. Mathews and J. Rivera, 2008. Maternal and child under nutrition: global and regional exposures and health consequences. *Lancet*, 371: 243-60.
- Bhuiya, A., B. Wojtyniak, S. D'Sonza and S. Zimicki, 1986. Socio-economic determinants of child nutritional status: boys versus girls. *Food Nutr. Bull.*, 8: 3-7.
- Otaigbe BE, Alikor EAD, Nkanginieme KEO. Growth pattern of exclusively breastfed infants in the first six months of life: A study of babies delivered at the University of Port Harcourt Teaching Hospital, River State, Nigeria. *Nig J Med* 2005;14:137-45.
- Labbok M. Breastfeeding: a woman's reproductive right. *Int J GynaecolObstet* 2006;94:277-86.
- Bhuiya, A., B. Wojtyniak, S. D'Sonza and S. Zimicki, 1986. Socio-economic determinants of child nutritional status: boys versus girls. *Food Nutr. Bull.*, 8: 3-7.
- Bhargava, A., 2006. Econometrics statistics and computational approaches in food and health science, Singapore: World scientific.
- Otaigbe BE, Alikor EAD, Nkanginieme KEO. Growth pattern of exclusively breastfed infants in the first six months of life: A study of babies delivered at the University of Port Harcourt Teaching Hospital, River State, Nigeria. *Nig J Med* 2005;14:137-45.
- Labbok M. Breastfeeding: a woman's reproductive right. *Int J GynaecolObstet* 2006;94:277-86.
- Okechukwu AA, Otokpa GA. Pattern of growth of exclusively breastfed infants born at the University of Abuja Teaching Hospital, Gwagwalada, Nigeria. *Mary Slessor J Med* 2008; 8:34-41.
- Abiona TC. Growth patterns of exclusively breastfed infants in Ife Central Local Government Area, Osun State: implications for timing of complimentary feeding. Dissertation submitted.
- Innocenti Declaration on the Protection, Promotion and Support of Breastfeeding. WHO/UNICEF policymakers' meeting on "Breastfeeding in the 1990s: A Global Initiative." SpedaledegliInnocenti, Florence, Italy, 30 July-1 August, 1990.
- National Population Council, Nigeria, Page 118, November 2009.
- Pickering LK, Kohl S. Human milk humoral immunity and infant defence mechanisms. In: Howell RR, Moriss RH Jr, Pickering LK (eds). *Human milk in infant nutrition and health*. Springfield, Illinois, Thomas 1986.
- Morrow-Tlucak M, Haude RH, Ernhart CB. Breastfeeding and cognitive development in the first 2 years of life. *SocSci Med* 1998; 26: 635-639.
- Chua S, Arulkumaran S, Lim I, Selamat N, Ratnam SS. Influence of breastfeeding and nipple stimulation on postpartum uterine activity. *Br J ObstetGynaecol* 1994; 101: 804-805
- Dewey KG, Heinig MJ, Nommen LA. Maternal weight-loss patterns during prolonged lactation. *Am J ClinNutr.* 1993;58:162-166
- Gray RH, Campbell OM, Apelo R et al. Risk of ovulation during lactation. *Lancet* 1990; 335: 25-29
- Kennedy KI, Visness CM. Contraceptive efficacy of lactational amenorrhoea. *Lancet* 1992; 339: 227-230
- Cumming RG, Klineberg RJ. Breastfeeding and other reproductive factors and the risk of hip fractures in elderly women. *Int J Epidemiol* 1992; 22: 684-691
- Melton LJ, Bryant SC, Wahner HW et al. Influence of breastfeeding and other reproductive factors on bone mass later in life. *Osteoporos* 1993; 3: 76-83
- Rosenblatt KA, Thomas DB. WHO collaborative study on neoplasia and steroid contraceptives. *Int J Epidemiol* 1993; 22: 192-197
- Newcomb PA, Storer BE, Longnecker MP et al. Lactation and reduced risk of premenopausal breast cancer. *N Engl J Med* 1994; 330: 81-87
- American Academy on Pediatric Dentistry Council on Clinical Affairs. Policy on dietary recommendations for infants, children, and adolescents. *Pediatr Dent* 2008;30(7 Suppl):47-8.
- Japanese Society of Pediatric Dentistry. Tokyo, 2011 (cited 10 Jul 2013).
- Kramer MS, Matush L, Bogdanovich N, et al. Health and development outcomes in 6.5-y-old children breastfed exclusively for 3 or 6 mo. *Am J ClinNutr* 2009;90:1070-4.
- Nunes AM, Alves CM, Borba de Araujo F, et al. Association between prolonged breast-feeding and early childhood caries: a hierarchical approach. *Community Dent Oral Epidemiol* 2012;40:542-9.
- Iida H, Auinger P, Billings RJ, et al. Association between infant breastfeeding and early childhood caries in the United States. *Pediatrics* 2007;120:e944-52.
- Chaffee BW, Feldens CA, Vitolo MR. Association of long-duration breastfeeding and dental caries estimated with marginal structural models. *Ann Epidemiol* 2014;24:448-54.
- Westover KM, DiLoreto MK, Shearer TR. The relationship of breastfeeding to oral development and dental concerns. *ASDC J Dent Child.* 1989;56:140-143
- Rogers, B. and N. Young. The importance of women's involvement in economic activities in the improvement of child nutrition and health. *Food Nutr. Bull.*, 1988;10:33-41.