Breastfeeding and adult intelligence

Cesar Victora and colleagues1 use a robust method to show an association between the duration of breastfeeding and adult intelligence, educational attainment, and professional success. However, some potentially important confounders are overlooked. These confounders include the birth interval between children and family size.

It is well established that breastfeeding increases the interval between siblings.2–4 Direct evidence from the UK National Child Development Study,5 which included 17,419 participants, showed that increasing birth interval was associated with increasing childhood intelligence as measured by intelligence quotient (IQ). This association was independent of birth order, number of siblings, social class, and maternal or paternal education level. Indeed, the older the children the more demonstrable the effect.2 Hence, increasing birth interval had a much stronger positive effect on intelligence at age 16 years than in early childhood. This lends support to the notion that the effect of birth interval not only is inversely associated with IQ but that it is the effect of birth interval not lactation per se that affects adult outcomes. Wagner and colleagues6 in their early review in 1985 also found short sibling spacing to have a deleterious effect on intelligence.

Several mechanisms have been proposed. Due to a greater birth interval, children who are breastfed will enjoy a greater period of exclusive parental attention as either the only child or youngest child. This exclusivity might have an effect on intelligence. It has been consistently observed that the eldest child in a family tends to have the highest IQ when compared with his or her siblings.7 One proposed explanation is parental attention.7 A truncated birth interval has been linked to several adverse outcomes with regard to child, maternal, and even sibling morbidity and mortality.2,6 These outcomes might have ramifications for adult performance in the outcome measures observed.

Mothers who breastfeed tend to have smaller families,8,9 and children from small families tend to outperform those from large families on IQ testing.10 This family size effect is strong. The superior intelligence of the eldest child observed has been suggested to be merely an artefact of the effect of family size.1,3 One hypothesis posits that parents have finite resources, as children all vie for this valuable commodity. The greater the family size, the less is distributed to each child, which might influence adult intelligence. This is the resource dilution hypothesis.1 A short birth interval would tend to exaggerate this phenomenon. The confluence theory claims that in large families, with a greater number of children, there are a greater number of immature interactions, leading effectively to a so-called intellectual dilution.

Twin studies are intriguing. Meta-analyses and national studies consistently show that twins tend to have lower IQs than singleton siblings.8,11 These findings support the resource dilution and confluence models as well as my current sibling interval postulate. In the study by Victora and colleagues,1 the effects noted might be the result of breastfed childhood receiving special and exclusive attention, as the youngest and most altricial member of the family, for a greater period before the arrival of the next child. Indeed it is generally accepted that the purpose of the contraceptive effect of lactation is to preserve an adequate birth interval.1 Breastfeeding has undoubted benefits and should be singularly encouraged and promoted.12 It is part of a nexus of factors that might contribute to adult intelligence. However, the mechanism by which this contribution occurs might not be a direct effect of lactation or the contents of breastmilk.

I declare no competing interests.

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