Breastfeeding and adult intelligence

Cesar Victora and colleagues (April, 2015)\(^1\) report that breastfeeding is associated with children developing higher intelligence quotients (IQ) in later life. Victora and colleagues viewed this association as being causal. However, their experimental design ignored two important facts: first, that the children were biologically related to their mothers; and second, that adult IQ is strongly heritable (narrow heritability of at least 0·5, meaning that additive genetic effects account for half the variation in intelligence from person to person in Western populations).\(^2\) These genetic effects also interact with socioeconomic status.\(^3\) Mothers with high IQs might be more likely to breastfeed their children than mothers with lower IQs. The increased IQ of their children would then be a consequence of simple genetic transmission. Breastfeeding might have little direct effect on the IQ of the offspring.

Evidence suggests that this is the case. Mothers with higher IQs are far more likely to breastfeed than are mothers with lower IQs;\(^4\) one SD difference in IQ more than doubled the odds of a mother breastfeeding. Furthermore, controlling for maternal IQ halved\(^4\) or—with the inclusion of socioeconomic status—eliminated\(^5\) any association between breastfeeding and adult IQ compared with bottle feeding. These studies\(^6\) also showed that maternal education is not an effective proxy for maternal IQ. Thus, although Victora and colleagues controlled for maternal education, this probably did not adequately control for maternal IQ.

Whenever a highly heritable trait or behaviour such as IQ is linked to parental behaviour, it is crucial to control for parental levels of the trait or to develop alternative designs that remove confounding genetic effects. Otherwise, there is a real risk that public health interventions based on such research will be far less effective than might be expected.

I declare no competing interests.

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