

Can Breastfeeding Reduce Socioeconomic Disparities in Children's Cognitive Skills?

Research results from various disciplines provide clear evidence that children living in poverty perform less well on various tests measuring IQ than children who are not. Understanding the causes of these gaps is important since cognitive skills are themselves related to measures of well-being later in life. By uncovering ways in which these early disparities occur, we can better address a number of interrelated social problems throughout the life course.

In recent years, breastfeeding has been supported by public health officials, for its ability to reduce health inequalities notably. Some breastfeeding advocates go further and suggest that breastfeeding leads children to have higher cognitive skills (IQ) and has the potential to level the playing field between lower and higher income children.

Many researchers dispute this argument and assert that the relationship between breastfeeding and child IQ is spurious: when other factors, such as the quality of the educational environment or the mother's IQ, are included in the analysis, the effect of breastfeeding disappears.

This article contributes to this debate by assessing the relative impact of breastfeeding and home environment on poverty gaps in child IQ. We used data from the National Longitudinal Survey of Children and Youth (NLSCY) a representative survey of Canadian children. Because this dataset is longitudinal, we can examine how a practice carried out in the first year of life (breastfeeding and educational activities) can affect later outcomes (IQ scores).

Cognitive capacities were measured by the Peabody Picture Vocabulary Test-Revised (PPVT), taken when the children were 4 or 5 years old. Poverty was measured according to Statistics Canada's Low-



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It was prepared in collaboration with the author by Sarah Fortin, Knowledge Transfer Coordinator at the Canadian Research Data Centre Network (CRDCN), an infrastructure created to improve researchers' access to Statistics Canada detailed micro-data, to expand the pool of skilled quantitative researchers and to improve communication between social scientists and research users.

Data were accessed and the analysis done at the Atlantic RDC.

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Income Cut-offs and the quality of the home environment was measured through the number of educational activities, reading to children and education of the person most knowledgeable about the child (PMK), usually the mother. Furthermore, the analysis also controlled for several other factors, including the sex of the child, occupation, family composition and health at birth.

Results

- Poor children score significantly lower than non-poor children on the PPVT but this variable (low versus high income) explains only a small portion of the gap in cognitive scores. This suggests that factors other than income, but correlated with income, come into play.
- Breastfeeding is positively associated with higher PPVT scores. More specifically, being breastfed for more than six months increase the score of a child by 6.826 points.
- Breastfeeding only marginally contributes to reducing the IQ gap between low and high income children, probably because there is no significant difference, statistically, in rates of breastfeeding between mothers in low and high income families.
- The quality of educational environment in the home is positively linked to cognitive skills. Specifically, for each additional educational activity that a child is involved in, the score increase by 1.899 points, and for each additional unit of reading, the score goes up by 1.324 points. On the contrary, when the PMK has not completed high school, the score decreases by 8.713 points.
- An educationally rich home environment does contribute to shrinking the poverty gap in child cognitive skills. But even when benefiting from such a stimulating environment, breastfed poor children still score 5.100 points below non-poor ones.
- Overall, the variables measured in our analysis (socioeconomic and health variables, breastfeeding and educational environment) explain only a fraction of the observed poverty gap in IQ scores (just below 15 percent of the variance).

Policy and research implications

- Policies to encourage breastfeeding for six months at least may increase overall cognitive skills among Canadian children, but will likely be insufficient to reduce IQ gap. Such policies need to be crafted carefully to avoid expanding economic inequality further since breastfeeding for a long duration can have a negative impact on the income of the mother and of the family.
- Our analysis suggests that policies that help provide a rich educational environment are key means by which to help reduce poverty gap in cognitive skills. This includes encouraging educational activities, such as reading to the child, but also supporting high school persistence and completion among (future) parents.
- The variables included in our analysis do not allow us to fully explain the mechanism driving the poverty gap in children's IQ. Further research is needed to better understand how these early disparities occur.
- In particular, future research should include an assessment of mothers' or PMK's cognitive skills – a variable not provided in the dataset used for this analysis – as past studies in this area show that it is a key factor. Similarly, breastfeeding should be more precisely measured to better appreciate whether its effect is dose dependent (e.g. whether the child was breastfed exclusively or supplemented with formula).