

Poverty is linked to poorer brain development—but reading can help counteract it

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Early childhood is a [critical period for brain development](#), which is important for boosting cognition and mental well-being. Good brain health at this age is directly linked to better mental health, cognition and educational attainment in adolescence and adulthood. It can also [provide](#)

[resilience](#) in times of stress.

But, sadly, brain development can be hampered by [poverty](#). Studies have shown that early childhood poverty [is a risk factor](#) for lower educational attainment. It is also associated with differences in [brain structure](#), poorer cognition, behavioral problems and mental health symptoms.

This shows just how important it is to give all children an equal chance in life. But until sufficient measures are taken to reduce inequality and improve outcomes, our new study, [published in Psychological Medicine](#), shows one low-cost activity that may at least counteract some of the negative effects of poverty on the brain: reading for pleasure.

Wealth and brain health

Higher family income in childhood [tends to be associated](#) with higher scores on assessments of language, memory and the processing of social and emotional cues. Research [has shown](#) that the brain's outer layer, called the cortex, has a larger surface area and is thicker in people with higher socioeconomic status than in poorer people.

Being wealthy has also been linked with having more gray matter (tissue in the outer layers of the brain) in the frontal and temporal regions (situated just behind the ears) of the brain. And we know that these areas support the development of cognitive skills.

The association between wealth and cognition is greatest in the most [economically disadvantaged families](#). Among children from lower income families, small differences in income are associated with relatively large differences in surface area. Among children from higher income families, similar income increments are associated with smaller differences in surface area.

Importantly, the results from one study found that when mothers with [low socioeconomic status](#) were given monthly cash gifts, [their children's brain health improved](#). On average, they developed more changeable brains (plasticity) and better adaptation to their environment. They also found it easier to subsequently develop cognitive skills.

Our socioeconomic status will even [influence our decision-making](#). A report from the London School of Economics found that poverty seems to shift people's focus towards meeting immediate needs and threats. They become more focused on the present with little space for future plans—and also tended to be more averse to taking risks.

It also showed that children from low socioeconomic background families seem to have poorer stress coping mechanisms and feel less self-confident.

But what are the reasons for these effects of poverty on the brain and academic achievement? Ultimately, more research is needed to fully understand why poverty affects the brain in this way. There are many contributing factors which will interact. These include poor nutrition and stress on the family caused by financial problems. A lack of safe spaces and good facilities to play and exercise in, as well as limited access to computers and other educational support systems, could also play a role.

Reading for pleasure

There has been much interest of late in leveling up. So what measures can we put in place [to counteract the negative effects](#) of poverty which could be applicable globally?

Our observational study shows a dramatic and positive link between a fun and simple activity—reading for pleasure in early childhood—and better cognition, mental health and educational attainment in

adolescence.

We analyzed the data from the Adolescent Brain and Cognitive Development (ABCD) project, a US national cohort study with more than 10,000 participants across different ethnicities and varying socioeconomic status. The dataset contained measures of young adolescents ages nine to 13 and how many years they had spent reading for pleasure during their early childhood. It also included data on their cognitive, mental health and brain health.

About half of the group of adolescents starting reading early in childhood, whereas the other, approximately half, had never read in early childhood, or had begun reading late on.

We discovered that reading for pleasure in early childhood was linked with better scores on comprehensive cognition assessments and better educational attainment in young adolescence. It was also associated with fewer mental health problems and less time spent on electronic devices.

Our results showed that reading for pleasure in early [childhood](#) can be beneficial regardless of socioeconomic status. It may also be helpful regardless of the children's initial intelligence level. That's because the effect didn't depend on how many years of education the children's parents had had—which is our best measure for very young children's intelligence (IQ is heritable to a large extent).

We also discovered that children who read for pleasure had larger cortical surface areas in several brain regions that are significantly related to cognition and mental health (including the frontal areas). Importantly, this was the case regardless of socioeconomic status. The result therefore suggests that reading for pleasure in [early childhood](#) may be an effective intervention to counteract the negative effects of poverty on the brain.

While our current data was obtained from families across the United States, future analyses will include investigations with data from other countries—including developing countries, when comparable data become available.

So how could reading boost cognition exactly? It is already known that language learning, including through reading and discussing books, is a key factor in healthy brain development. It is also a [critical building block](#) for other forms of cognition, including executive functions (such as memory, planning and self-control) and social intelligence.

Because there are many different reasons why poverty may negatively affect [brain development](#), we need a comprehensive and holistic approach to improving outcomes. While reading for pleasure is unlikely, on its own, to fully address the challenging effects of poverty on the [brain](#), it provides a simple method for improving children's development and attainment.

Our findings also have important implications for parents, educators and policy makers in facilitating reading for [pleasure](#) in young children. It could, for example, help counteract some of the negative effects [on young children's cognitive development](#) of the COVID-19 pandemic lockdowns.

More information: Yun-Jun Sun et al, Early-initiated childhood reading for pleasure: associations with better cognitive performance, mental well-being and brain structure in young adolescence, *Psychological Medicine* (2023). [DOI: 10.1017/S0033291723001381](https://doi.org/10.1017/S0033291723001381)

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