

Older Children Not Smarter Than Their Younger Sibs, Study Finds

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A recent study provides some of the best evidence to date that birth order really doesn't have an effect on intelligence. The findings contradict many studies over the years that had reported that older children are generally smarter than their younger siblings.

This new study, based on a large, nationwide sample, suggests a critical flaw in that previous research, said Aaron Wichman, lead author of the new study and a teaching fellow in psychology at Ohio State University.

Most previous studies compared children from different families, so what they were finding were differences between large and small families, not differences between siblings, according to Wichman.

“Third- and fourth-born children all come from larger families, and larger families have disadvantages that will impact children's intelligence,” he said.

“In reality, if you look at these larger families, the fourth-born child is just as intelligent as the first-born. But they all don't do as well as children from a smaller family.”

Wichman conducted the study with Joseph Lee Rodgers of the University of Oklahoma and Robert MacCallum of the University of North Carolina–Chapel Hill and professor emeritus of psychology at Ohio State. Their findings were published in a recent issue of the journal *Personality and Social Psychology Bulletin*.

The new study used data involving nearly 3,000 families who participated in the National Longitudinal Survey of Youth, which is funded primarily by the U.S. Bureau of Labor Statistics. The NLSY is a nationally representative survey of people nationwide conducted by Ohio State's Center for Human Resource Research.

The families in the study were followed over a long period of time. Data from this study were collected from 1986 through 1998. All the children in the study took intelligence tests that measured skill in mathematics, reading recognition and reading comprehension.

This data set allowed the researchers to compare children within a family, to see whether first-borns did better on these tests than did their younger siblings. There have been only a few other studies that have been done within families, and the results of those also suggested no link between birth order and intelligence.

But Wichman and his colleagues did something else to ensure a more accurate analysis: They compared intelligence test results at two specific age points (7-8 years old and 13-14 years old). Other studies had examined how children in a family scored on intelligence tests taken at one time, when children's ages may vary widely. This may have affected study results.

Another key to this study was that researchers used a relatively new statistical technique, called multilevel modeling, that allowed them to separate two kinds of variation in intelligence: variation between families, and variation among siblings within families. In addition, this technique allowed the researchers to study variables such as environmental influences that might explain differences in intelligence.

In an initial analysis, the researchers examined the data while ignoring environmental influences on intelligence that differed between families.

The results showed, as expected, that first-born children scored higher on intelligence tests than later-born children, and that as a child's birth order increased, intelligence scores went down.

But then the researchers analyzed the data using a variable that could take into account environmental differences between families. That variable was the mother's age at the birth of her first child.

“Mother's age encapsulates many variables that could negatively effect the child-rearing environment. The younger a mother was at the birth of her first child, the lower we would expect intelligence scores to be within a family,” Wichman said.

That's because younger mothers would tend to have less education, more children, lower income, and other factors that would negatively affect the intelligence of their children.

When the researchers controlled for mother's age at first birth, the effect of birth order on intelligence was nearly eliminated.

So, by taking into account the mother's age, the researchers were able to show that the reason that later-born siblings seem to have lower intelligence has to do with the fact that they come from larger families that may have different home environments than smaller families. It has little if anything to do with their birth order within the family, he said.

While the researchers used mother's age at first birth to help control for differences between families, Wichman said other factors could have also been used instead. In fact, in an unpublished analysis, the researchers did use family size itself as a control variable, and found that it also nearly eliminated the link between birth order and intelligence.

However, using family size as the control variable can create other

statistical errors, Wichman said, so the researchers used the mother's age as a substitute.

The results, though, are clear, Wichman said.

“Birth order may appear to be associated with intelligence, but that's only because larger families don't have the advantages of smaller families,” he said. “When examined within families, there is no evidence of any significant association between birth order and intelligence. It's not your birth order that is important – family environment and genetic influences are the really important factors.”

Source: Ohio State University

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