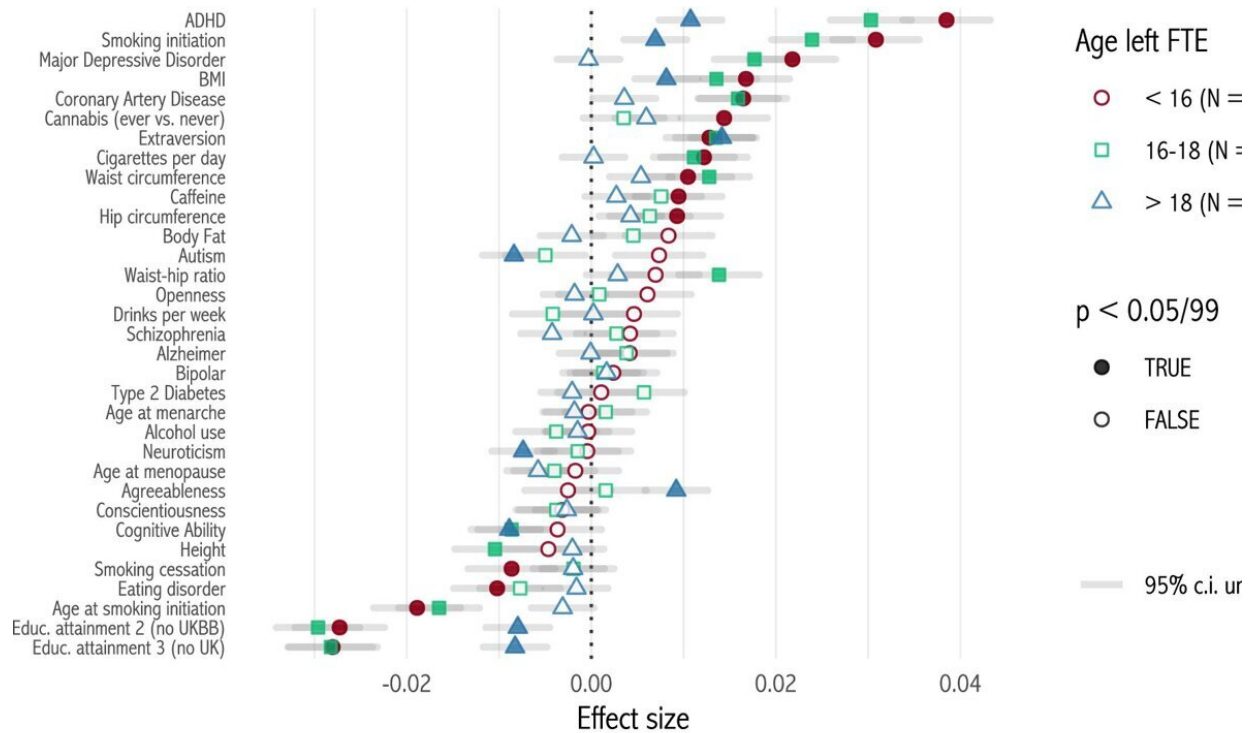


# Natural selection may be making society more unequal

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(a) Age left full-time education

Selection effects by education and income. Credit: *Behavior Genetics* (2022).  
DOI: 10.1007/s10519-022-10107-w

Contemporary humans are still evolving, but natural selection favors those with lower earnings and poorer education—according to research

from the University of East Anglia.

A new study published today shows how [natural selection](#) effects are stronger in groups with [lower income](#) and less education, among younger parents, people not living with a partner, and people with more lifetime sexual partners.

Meanwhile, natural selection is pushing against genes associated with high educational attainment, high earnings, a low risk of ADHD or [major depressive disorder](#), and a low risk of coronary artery disease.

Lead researcher Prof. David Hugh-Jones, from UEA's School of Economics, said: "Darwin's theory of evolution stated that all species develop through the natural selection of small, inherited variations that increase the individual's ability to compete, survive, and reproduce.

"We wanted to find out more about which characteristics are selected for and against in contemporary humans, living in the U.K."

The research team looked at data from more than 300,000 people in the U.K., taken from the U.K. Biobank—a long-term project investigating the respective contributions of genetic predisposition and environmental exposure to the development of disease.

The team studied the participants' [polygenic scores](#)—an estimate of a person's genetic liability, predicting a person's health, education, lifestyle or personality.

They looked at two generations of people living in the U.K., by using data on the participants' number of siblings as well as their number of children.

David Hugh-Jones said: "We found that 23 out of 33 polygenic scores

were significantly linked to a person having more or fewer children over their lifetime.

"Scores which correlated with lower earnings and education predicted having more children, meaning those scores are being selected for from an evolutionary perspective.

"Scores which correlated with higher earnings and education predicted having fewer children, meaning that they are being selected against.

"The effects were especially strong among people with less [education](#) and lower incomes, and among people not living with a partner. Among [older mothers](#), effects were actually reversed—in this group, scores correlating with higher earnings were selected for.

"We explain these patterns using the economic theory of fertility, which was first developed more than 60 years ago. If you have genes associated with higher earnings, this has two opposite effects.

"It makes you better off, so you can afford more children. But it also makes it more costly to spend time on childcare instead of your job, because you will miss out on [higher wages](#).

"The first effect leads people to have more children, the second effect leads them to have fewer. At lower incomes, this second effect is more powerful. That explains the results we see.

"Our explanation shows how economics and genetics can work together.

"Natural selection could be making society more unequal, by increasing the correlation between income and polygenic scores, including scores that predict health and educational outcomes."

The research was led by UEA in collaboration with Abdel Abdellaoui, a geneticist at Amsterdam UMC Medical Center.

"Human capital mediates natural selection in contemporary humans" is published in the journal *Behavior Genetics* on July 6, 2022.

**More information:** David Hugh-Jones et al, Human Capital Mediates Natural Selection in Contemporary Humans, *Behavior Genetics* (2022).

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Provided by University of East Anglia

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