# University College London study reveals parental genes shape children’s education and mental health beyond inheritance



Recent research from University College London has unveiled significant insights into the role of parental genetics in shaping children's educational and mental health outcomes, even when these genes are not directly inherited. The study, funded by the Nuffield Foundation, explored the concept of "genetic nurture"—the idea that parents’ genetic predispositions influence the environments they create, impacting their children's development.

The research analysed 12 studies across diverse populations, representing 38,654 families from the UK, Australia, the Netherlands, Iceland, and the United States. An original analysis was also conducted with genetic data from 4,580 UK families, further enriching the study's findings. By employing a statistical tool known as polygenic scoring, researchers were able to quantify the cumulative effect of numerous genetic variants linked to educational traits. This methodology revealed a robust correlation between parental polygenic scores for education and children’s educational achievements, such as completed years of schooling and overall academic performance.

A key finding of the research was that parents with a genetic predisposition for educational success are more likely to engage in activities that foster similar traits in their children, such as reading regularly or providing access to enriching resources. These behaviours appear to facilitate positive outcomes for the child, regardless of whether they inherit the associated genetic markers themselves. This suggests that the mere presence of supportive parenting can amplify the effects of genetic predisposition.

In addition to educational outcomes, the report noted a tentative connection between parental genetic traits and a range of mental health factors in children, including hyperactivity, emotional regulation, and prosocial behaviour. The most pronounced effects were observed in early childhood, particularly around the age of three, underscoring the importance of parental non-cognitive skills like motivation and self-control during formative years.

Dr José J. Morosoli, co-investigator of the study, highlighted the intertwined nature of genetics and environmental factors. "Through this project, we show how genetics and environment are deeply intertwined, challenging the idea that inherited genetics alone determine outcomes," he stated. His insights further emphasise the necessity of considering both genetic and environmental influences to fully understand the complex dynamics of child development.

Crucially, the research also took into account socioeconomic status and parental education. When factoring in these variables, the apparent influence of indirect genetic effects diminished by around 75%. This significant drop suggests that the advantages linked to parental genetic predispositions are heavily mediated by the resources and opportunities available to families—a reflection of broader societal inequalities.

Professor Jean-Baptiste Pingault, the principal investigator, stressed the implications of these findings for policy-making. "Our findings echo evidence that family resources and opportunities partly shape children's developmental outcomes," he noted. This research aligns with calls from the UK Government for life-course approaches to mental health, highlighting the importance of early intervention tailored to support parental engagement in their children's development.

However, it is vital to recognise that the genetic effects identified in the study are relatively modest and should not be interpreted as deterministic. As the researchers advise, these findings serve to enhance our understanding of child development rather than offer individual predictions or inform educational policy directly. Future research is encouraged to delve deeper into the specific resource disparities that contribute to educational underachievement across different family contexts.

In summary, the integration of genetic and environmental factors presents a promising avenue for addressing educational and mental health challenges in children. By recognising the essential role that parental engagement plays—beyond mere genetic inheritance—policymakers and educators can develop more effective strategies to support child development across the socioeconomic spectrum.

### Reference Map

1. Paragraphs 1, 2, 3, 4, 5, 6, 7, 8

Source: [Noah Wire Services](https://www.noahwire.com)

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