

Genetic Discoveries for Educational Attainment and Social Class Mobility: Analysis in Five Longitudinal Studies



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His work brings together discoveries from genome science and longitudinal data from population-based cohorts to identify mechanisms that cause accelerated health decline in older age.

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Abstract:

A summary genetic measure, called a polygenic score, derived from a genome-wide association study (GWAS) of education can modestly predict a person's educational and economic success. This prediction could signal biological mechanism; education-linked genetics could encode characteristics that help people get ahead in life. Alternatively, prediction could reflect social history; people from well-off families might stay well-off for social reasons, and these families might also look alike genetically. A key test to distinguish biological mechanism from social history is if people with higher education polygenic scores tend to climb the social ladder beyond their parents' position. Upward mobility would indicate education-linked genetics encode characteristics that foster success. We tested if education-linked polygenic scores predicted social mobility in >20,000 individuals in five longitudinal studies in the USA, Britain, and New Zealand. Participants with higher polygenic scores achieved more education and career success and accumulated more wealth. However, they also tended to come from better-off families. In the key test, participants with higher polygenic scores tended to be upwardly mobile compared to their parents. Moreover, in sibling-difference analysis, the sibling with the higher polygenic score was more upwardly mobile. Thus, education-GWAS discoveries are not mere correlates of privilege; they influence social mobility within a life. Additional analyses revealed that a mother's polygenic score predicted her child's attainment over and above the child's own polygenic score, suggesting parents' genetics can also affect their children's attainment through environmental pathways. Education-GWAS discoveries affect socioeconomic attainment through influence on individuals' social-mobility and their family-of-origin environments.



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