

Unpacking Peer Social Genetic Effects in Adolescence and Young Adulthood: Evidence from Two Genetically Informed Longitudinal Surveys

Social science genomics has witnessed an explosion of research on social genetic effects. A social, or indirect, genetic effect is the influence of one organism's genotype on a different organism's phenotype. Studying social genetic effects allow researchers to leverage genetic data to help unpack social influences. However, we argue that the existing work on social genetic effects has suffered from two key limitations: (1) the use of summary measures (i.e. polygenic scores) from genome-wide association studies of direct genetic effects, which often fail to properly capture social genetic effects, and (2) the inability to address non-random peer group formation. We explore social genetic effects among individuals ages 16 to 22, a critical period for social development. To address the first limitation of past work, we genotyped dyads from two longitudinal studies (Add Health and Spit for Science) to separately identify effects from the individual's own genotype (direct genetic effects), social genetic effects, and the correlation between them. We examine a wide range of phenotypes, including academic performance, alcohol and substance use, and physical and mental health. To address the second limitation, we leverage quasi-random roommate assignment in the Spit for Science study. We also use data on course-taking patterns and university organization participation to explore how peer group formation produces phenotypic and genotypic homophily. Our results will aid in our understanding of the extent and nature of social genetic effects in human populations, how one's social environment influences economic, educational, and health outcomes, and how existing genetic studies may be biased by the presence of social genetic effects.