

Does Marriage Moderate Genetic Effects on Delinquency and Violence?

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ABSTRACT

Using data from the National Longitudinal Study of Adolescent Health (Add Health), we investigate whether marriage moderates genetic effects on delinquency and violence. In contrast to existing gene-environment research that typically focuses on one or a few genetic polymorphisms, our approach considers the effects of 881 single nucleotide polymorphisms (SNPs) in 103 genes for the gene-by-marriage interaction. The 103 genes are predominantly related to aggression and risky behavior. We extend a recently developed mixed linear model using the SNP data to estimate a heritability parameter—the proportion of variance in the phenotype that is explained by the SNPs' cumulative additive effects. We compare the proportion of variance in delinquency and violence explained by 881 SNPs among married and unmarried individuals. The results show that the collective influence of the SNPs is considerably smaller for those who are married. Because issues such as selection, confounding and heterogeneity may bias the estimate of the gene-by-marriage interaction, we conduct a series of analyses to address these issues. The findings are supportive of the inference that the gene by marriage interaction results are not seriously affected by these issues.

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