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Original Research

Do Schools Moderate the Genetic Determinants of Smoking?

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Abstract This paper uses data from the National Longitudinal Study of Adolescent Health to examine the extent to which school-level social and institutional factors moderate genetic tendencies to smoke cigarettes. Our analysis relies on a sub-sample of 1,198 sibling and twin pairs nested within 84 schools. We develop a multilevel modeling extension of regression-based quantitative genetic techniques to calculate school-specific heritability estimates. We show that smoking onset ($h^2 = .51$) and daily smoking ($h^2 = .58$) are both genetically influenced. Whereas the genetic influence on smoking onset is consistent across schools, we show that schools moderate the heritability of daily smoking. The heritability of daily smoking is the highest within schools in which the most popular students are also smokers and reduced within schools in which the majority of the students are non-Hispanic and white. These findings make important contributions to the literature on gene-environment interactions.

Keywords Smoking - Twins - Schools - Gene-environment interaction