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Gene-Environment Interplay in the Association
between Pubertal Timing and Delinquency in Adolescent Girls

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Abstract

Early pubertal timing places girls at elevated risk for a breadth of negative outcomes, including involvement in delinquent behavior. While previous developmental research has emphasized the unique social challenges faced by early maturing girls, this relation is complicated by genetic influences for both delinquent behavior and pubertal timing, which are seldom controlled for in existing research. The current study uses genetically informed data on 924 female-female twin and sibling pairs drawn from the National Longitudinal Study of Adolescent Health to (1) disentangle biological versus environmental mechanisms for the effects of early pubertal timing and (2) test for gene-environment interactions. Results indicate that early pubertal timing influences girls' delinquency through a complex interplay between biological risk and environmental experiences. Genes related to earlier age at menarche and higher perceived development significantly predict increased involvement in both non-violent and violent delinquency. Moreover, after accounting for this genetic association between pubertal timing and delinquency, the impact of non-shared environmental influences on delinquency are significantly moderated by pubertal timing, such that the non-shared environment is most important among early maturing girls. This interaction effect is particularly evident for non-violent delinquency. Overall, results suggest early maturing girls are vulnerable to an interaction between genetic and environmental risks for delinquent behavior.