Genetic and Environmental Contributions to Age at Menarche:
Interactive Effects of Father Absence and LIN28B

Gabriel L. Schlomer & Hyun-Jin Cho
Division of Educational Psychology and Methodology,
University at Albany, State University of New York

Corresponding Author: gschlomer@albany.edu

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Abstract

Substantial research and theory over a number of years have linked father absence to earlier age at menarche (AAM). More recent work has centered on explaining the relative genetic and environmental contributions to this correlation. The purpose of the current study was to evaluate the combined effects of father absence and variation in the LIN28B gene on AAM. A sample of 300 women (age 18-25) successfully genotyped for two LIN28B single nucleotide polymorphisms (SNPs; rs364663 and rs314273) were used to test gene-environment interaction models. Results for both SNPs were consistent with the hypothesis that father absence would attenuate later AAM associated with LIN28B. Genetic index analysis of combined LIN28B SNPs showed that girls with at least one copy of the T/T genotype had later AAM if they were father present. Study strengths and the implications of GxE research for life history models are discussed.

Keywords: father absence; menarche; LIN28B; life history theory; gene-environment interaction