

NAME OF PRESENTING AUTHOR: Tong Chen

EMAIL ADDRESS OF PRESENTING AUTHOR: tuc548@psu.edu

## Associations Among Adolescent Depressive and Anxiety Symptoms and Early Adult Substance Use: Multivariate Behavioral Genetic Analyses

Tong Chen<sup>1</sup>, Amanda M. Ramos<sup>2</sup>, Jennifer L. Maggs<sup>3</sup>, David Reiss<sup>4</sup>, Jenae M. Neiderhiser<sup>1</sup>

<sup>1</sup> Department of Psychology, The Pennsylvania State University, University Park, PA, USA

<sup>2</sup> Department of Epidemiology, The University of North Carolina at Chapel Hill, Chapel Hill, NC, USA

<sup>3</sup> Human Development and Family Studies, The Pennsylvania State University, University Park, PA, USA

<sup>4</sup> Yale Child Study Center, Yale School of Medicine, New Haven, CT, USA

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### ABSTRACT:

This study examined genetic and environmental influences on associations among depressive and anxiety symptoms in adolescence and substance use in early adulthood. Participants were from the Nonshared Environment and Adolescent Development project, a longitudinal study including same-sex twin/sibling pairs and parents. Adolescent depressive/anxiety symptoms were measured by composite scores of multiple reporters ( $M_{\text{age child } 1/2} = 14.4/12.9$  years). Substance use was measured by early adult self-reports ( $M_{\text{age child } 1/2} = 26.8/25.5$  years), including frequency of current use of cigarettes, alcohol, other drugs; problems due to use summed across substances; lifetime smoking history (number of years smoked, number of cigarettes ever smoked and smoked per day). Depressive/anxiety symptoms in adolescence were not associated with early adult use or problem use of most substances. Depressive/anxiety symptoms were associated with early adult cigarette use ( $r = .12/.10$ ) and lifetime smoking history ( $r = .20/.13$ ). Cross-sibling correlations suggested substantial genetic and shared environmental influences for the associations between depressive/anxiety symptoms and lifetime smoking history, and for the association between anxiety symptoms and early adult cigarette use. The association between depressive symptoms and early adult cigarette use showed only nonshared environmental influences. Additional analyses will include multivariate twin/sibling models to examine associations among depressive symptoms, anxiety symptoms, and early adult cigarette use or lifetime smoking history. Examining depressive and anxiety symptoms in the same model allows us to consider whether different subtypes of internalizing symptoms are associated with smoking for different genetic or environmental factors, while controlling for the covariance between depressive and anxiety symptoms.

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