

GENE-ENVIRONMENT INTERACTION IN ALCOHOL PROBLEMS
IN EMERGING AND YOUNG ADULTHOOD:
THE DRD4 VNTR, DAT1 VNTR, AND 5-HTTLPR POLYMORPHISMS

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ABSTRACT

Alcohol problems at different developmental stages are associated with different genetic and environmental factors. Taking a developmentally sensitive approach, the current study characterized interaction effects between monoamine gene polymorphisms and developmental environments on alcohol problems during emerging and young adulthood. Prospective data of a cohort of 454 Caucasian individuals assessed at the mean ages of 18 to 34 were used. A longitudinal hierarchical factor model was used to model one persistent alcohol problem factor throughout emerging and young adulthood and two residual alcohol problem factors limited to emerging adulthood and to young adulthood. Then, interaction effects between each of the DRD4 VNTR, DAT1 VNTR, and 5-HTTLPR genes and three developmental environments were modeled to account for those alcohol problem factors. Persistence of those environments was modeled as an enduring effect of childhood adversity on the persistent alcohol problem factor and situational effects of college involvement and delayed adult role transition on the two developmentally limited alcohol problem factors. Carriers of the DRD4 long allele showed greater persistent alcohol problems as childhood adversity increased and greater alcohol problems limited to emerging adulthood as college involvement increased. Alcohol problems among non-carriers of the long allele, however, did not differ as a function of childhood adversity and college involvement. For the DAT1 VNTR and the 5-HTTLPR polymorphisms, no significant gene-environment interaction was found. Although preliminary, these findings highlight the importance of modeling both distal and proximal environments and their interplay with genetic susceptibility in alcohol problems at specific developmental stages.