

Associations between childhood ADHD, gender, and adolescent alcohol and marijuana involvement: A causally informative design

Irene J. Elkins, Gretchen R.B. Saunders, Stephen M. Malone, Margaret A. Keyes, Matt McGue, William G. Iacono

Drug and Alcohol Dependence, December 2017.

DOI: <https://doi.org/10.1016/j.drugalcdep.2017.11.011>.

Abstract

Background

We report whether the etiology underlying associations of childhood ADHD with adolescent alcohol and marijuana involvement is consistent with causal relationships or shared predispositions, and whether it differs by gender.

Methods

In three population-based twin samples (N = 3762; 64% monozygotic), including one oversampling females with ADHD, regressions were conducted with childhood inattentive or hyperactive-impulsive symptoms predicting alcohol and marijuana outcomes by age 17. To determine whether ADHD effects were consistent with causality, twin difference analyses divided effects into those shared between twins in the pair and those differing within pairs.

Results

Adolescents with more severe childhood ADHD were more likely to initiate alcohol and marijuana use earlier, escalate to frequent or heavy use, and develop symptoms. While risks were similar across genders, females with more hyperactivity-impulsivity had higher alcohol consumption and progressed further toward daily marijuana use than did males. Monozygotic twins with more severe ADHD than their co-twins did not differ significantly on alcohol or marijuana outcomes, however, suggesting a non-causal relationship. When co-occurring use of other substances and conduct/oppositional defiant disorders were considered, hyperactivity-impulsivity remained significantly associated with both substances, as did inattention with marijuana, but not alcohol.

Conclusions

Childhood ADHD predicts when alcohol and marijuana use are initiated and how quickly use escalates. Shared familial environment and genetics, rather than causal influences, primarily account for these associations. Stronger relationships between hyperactivity-impulsivity and heavy drinking/frequent marijuana use among adolescent females than males, as well as the greater salience of inattention for marijuana, merit further investigation.