Direct and Indirect Effects of Older Siblings’ Alcohol Use on Younger Siblings’ Alcohol Use

Shawn D. Whiteman & Alexander C. Jensen
Project Funded by NIAAA grant R21-AA017490, Shawn D. Whiteman, Principal Investigator

INTRODUCTION

A growing body of research highlights that older siblings’ substance use behaviors consistently predict their younger siblings’ concurrent and future use (e.g., Fagan & Najman, 2005; Low et al., 2012; Slomkowski et al. 2005).

Importantly, these sibling effects emerge beyond the influence of parents and peers (e.g., Fagan & Najman, 2005; Windle, 2000) as well as shared genetics (e.g., Kendler et al., 2013; Scherrer et al., 2013; Slomkowski et al., 2005).

In short, older siblings make a unique contribution to their younger brothers’ and sisters’ developing substance use behaviors.

The mechanisms underlying the associations between siblings’ substance use, however, are largely unknown as most studies fail to measure influence processes and therefore infer explanations post hoc.

The present study addresses this gap by identifying the direct and indirect pathways through which older siblings’ behavior shape their younger siblings’ attitudes about and patterns of alcohol use.

METHOD

Participants

• Parents and two adolescent siblings from 326 families.
• Older siblings (51% female) averaged 17.17 (SD = .94) years old. Younger siblings (60% female) averaged 14.52 (SD = 1.27) years old.
• 71% of families were White (not Hispanic); 23% were African American; 4% Latino; 1% Asian; 1% multi-ethnic.
• Families ranged from working to upper class.

Procedure

• Data were collected via telephone interviews with one parent and two adolescent siblings. Interviews were conducted separately and privately and lasted approximately 30 to 45 minutes.
• Participants received an honorarium of $35 ($105 per family).

FIGURE 1

METHOD (continued)

Measures

• Alcohol Use (NIAAA, 2003). Parents’, older and younger siblings’ reported on the frequency of their own alcohol use in the past year. Responses were dichotomized: 0 = did not use alcohol in past year; 1 = used alcohol in past year.
• Attitudes About Alcohol (Elliott et al., 1985). Younger siblings’ ratings of 7 items on a 5-point scale (α = .91). Higher scores denote more favorable attitudes about alcohol.
• Siblings’ Co-Use of Alcohol. Older and younger siblings’ reported of frequency with which target sibling was present when they drank alcohol in past year. Recoded into dichotomous variable: 0 = did not drink with sibling; 1 = drank with sibling.
• Friends’ Alcohol Use. Younger siblings’ reported on the frequency of their friends’ alcohol use in the past year. Responses were dichotomized: 0 = did not use alcohol in past year; 1 = used alcohol in past year.

FIGURE 2

ANALYTIC STRATEGY

• To estimate the relative effects of sibling influence, a series of models were estimated using conditional process analysis (Hayes, 2013).
• To isolate the effects of older siblings’ alcohol use, all models controlled for parents’ alcohol use, younger siblings’ friends alcohol use, parents’ knowledge/monitoring, sibling intimacy, sibling conflict, siblings’ shared friends, sibling age-spacing, youth gender, and gender composition of the sibling dyad.

RESULTS

Older siblings’ alcohol use predicted younger siblings’ use directly (OR = 3.90) and indirectly through younger siblings’ attitudes about alcohol (indirect effect = .35, 95% CI = .05 - .71; OR = 1.42). (See Figure 1)
• Siblings’ co-use of alcohol (OR = 11.46) accounted for some of the variance of the direct effect (OR = 2.38, ns). The indirect association remained significant (indirect effect = .31, 95% CI = .02 - .69; OR = 1.37). (See Figure 2)

DISCUSSION

• Consistent with previous research, older siblings’ alcohol use was predictive of younger siblings’ use, controlling for a number of individual, family, and friend characteristics.
• Older siblings’ influence operated through both indirect and direct channels.
• Indirectly, older siblings’ use shaped younger siblings’ cognitions, which in turn, were linked to their probability of use.
• Directly, older siblings’ facilitated younger siblings’ drinking by introducing them to the contexts in which alcohol was used (i.e., co-use).
• The identification of processes that drive sibling similarities is critical to the development of effective family-based intervention strategies aimed at curbing adolescent alcohol and other substance use.
• In fact, intervention programs specifically targeting sibling relationships may be especially promising given recent evidence that they serve as a non-stigmatizing entrée into families and promote health (Feinberg et al., 2012; 2013).