



Risk and Resilience: A Prospective Analysis of the Complex Effects of Internalizing Problems on Alcohol Use in Adolescence

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INTRODUCTION

- Previous research has found mixed results on whether internalizing problems (i.e. anxiety, depression) increase risk for or protect against alcohol use in adolescence (Colder, et al., 2012; Fite, Colder, & O'Connor, 2006).
- The tension reduction hypothesis posits that individuals with anxiety and depression use alcohol in order to reduce or avoid the negative emotions characteristic of these disorders, suggesting that internalizing problems should increase risk for substance use in adolescence (Cooper, Frone, Russell, & Mudar, 1995; Newcomb, Chou, Bentler, & Huba, 1988).
- In contrast, reduced exposure to deviant peers has been shown to explain a protective effect of internalizing problems on initiation of alcohol use in adolescents (Fite, Colder, & O'Connor, 2006).
- Those with internalizing problems also tend to be less impulsive and more avoidant of potential risk (Galen, Henderson, & Whitman, 1997; Lorian, Mahoney, & Grisham, 2012), potentially serving to further protect against alcohol use.
- The present study aimed to determine whether deviant peer affiliations and risk aversion are two protective mechanisms, and if high negative emotionality, consistent with the tension reduction hypothesis, would serve as a risk mechanism between internalizing problems and alcohol use.

Hypotheses:

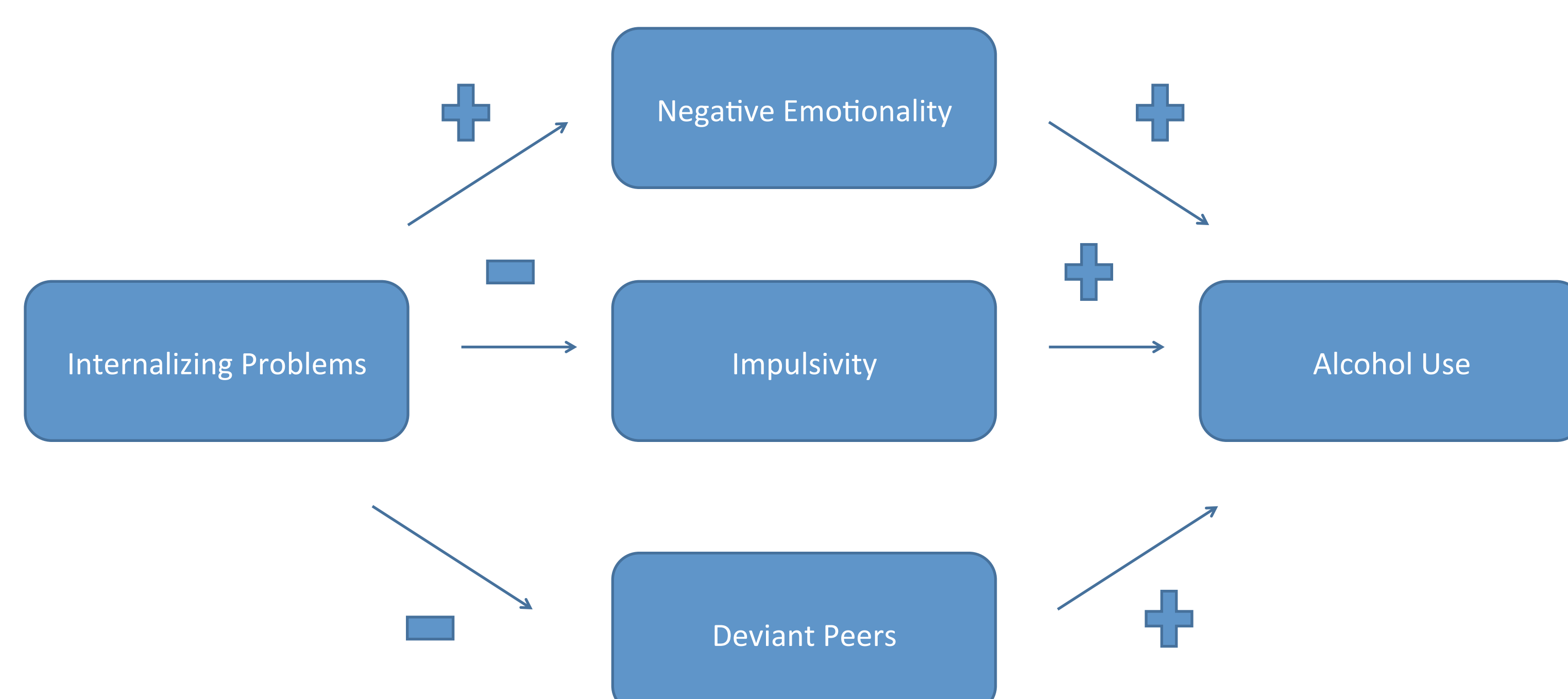
1. Internalizing problems will be indirectly negatively associated with alcohol use through its inverse association with peers.
2. Internalizing problems will be indirectly negatively associated with alcohol use through its inverse association with impulsivity.
3. Internalizing problems will be indirectly positively associated with alcohol use through its positive association with negative emotionality.

Hypotheses of bivariate correlations can be seen in Figure 1.

Externalizing problems were controlled for in the model.

Three alcohol use outcomes (i.e., frequency of use, frequency of heavy use, and alcohol abuse symptoms) were tested for exploratory purposes.

Figure 1.



METHOD

Participants

- 2,315 adolescents recruited through the Project on Human Development in Chicago Neighborhoods' (PHDCN) Longitudinal Cohort Study.
- Adolescents from age cohorts 9, 12, and 15 were utilized
- 50.3% males, 49.7% females
- 46.1% Hispanic, 35.6% African American, 14.4% Caucasian, 3.9% other ethnicities
- 39% middle class, 37.2% lower class, 23.8% upper class

Measures:

• **Internalizing and Externalizing Problems:** During wave 1 of data collection, participants' primary caregiver completed the 112-item Child Behavior Checklist (CBCL; Achenbach, 1991) to identify emotional and behavioral problems broadly classified as internalizing or externalizing. The Withdrawn, Somatic Complaints, and Anxious/Depression subscales composed the Internalizing score.

• **Negative Emotionality and Risk Aversion:** A 40-item version of the Emotionality, Activity, Sociability, and Impulsivity (EASI) Temperament Survey (Buss & Plomin, 1984) was completed by the participants' primary caregiver at wave 1. The Impulsivity scale is composed of 20 items assessing inhibitory control, decision time, sensation seeking, and persistence. The Emotionality scale is composed of five items such as "cries easily," "gets upset easily," and "reacts intensely when upset." The Impulsivity and Emotionality scales will be used as measures of risk aversion and negative emotionality, respectively.

• **Peer Deviance:** A shortened version of the 36-item Deviance of Peers (Huizinga, Esbenson, & Weiher, 1991) self-report questionnaire was utilized during wave 2 data collection. Participants reported how many of their peers had engaged in certain deviant behaviors (e.g., gotten in trouble at school, damaged property that did not belong to them) over the past twelve months.

• **Alcohol Use:** From wave 3, a substance use interview adapted from the National Household Survey on Drug Abuse (National Institute on Drug Abuse, 1991) obtained information regarding past year use of alcohol. In order to determine the frequency of use, participants were asked "not including sips and tastes, how many days" they had alcohol to drink in the past 12 months. Frequency of heavy alcohol use was assessed by asking, "during the past 12 months, about how many days have you gotten drunk or very high on alcoholic beverages?" A measure of problematic alcohol use was obtained by summing the participants' "yes" responses to questions regarding tolerance, time spent getting or using, problems resulting from use, and withdraw over the past twelve months.

Analyses

- Path analysis was conducted to test the hypothesized bivariate correlations.
- Indirect effects (i.e., mediation) were tested using the delta method to estimate standard errors (MacKinnon, 2008).

RESULTS

- Internalizing was significantly *positively* associated with negative emotionality ($\beta = .253, p < .000$).
- Internalizing was not significantly associated with deviant peers.
- Internalizing was significantly *negatively* associated with impulsivity ($\beta = -.110, p < .000$).

Frequency of Alcohol Use

- Negative emotionality was significantly *negatively* associated with frequency of use ($\beta = -.188, p = .003$).
- Deviant peers was significantly *positively* associated with frequency of use ($\beta = .971, p < .000$).
- Impulsivity was not significantly associated with frequency of use.
- Negative emotionality *significantly mediated* the relationship between internalizing and frequency of alcohol use ($\beta = -.002, p = .004$).
- Impulsivity and deviant peers did not significantly mediate the relationship between internalizing and frequency of alcohol use.

Frequency of Heavy Alcohol Use

- Negative emotionality was not significantly associated with frequency of heavy use.
- Deviant peers was significantly *positively* associated with frequency of heavy use ($\beta = 1.014, p < .000$).
- Impulsivity was not significantly associated with frequency of heavy use.
- Negative emotionality, impulsivity, and deviant peers did not significantly mediate the relationship between internalizing and frequency of heavy use.

Alcohol Abuse Symptoms

- Negative emotionality was negatively associated with alcohol abuse at trend level ($\beta = -.20, p = .075$).
- Deviant peers was significantly *positively* associated with alcohol abuse ($\beta = .964, p < .000$).
- Impulsivity was negatively associated with abuse at trend level ($\beta = -.228, p = .074$).
- Negative emotionality mediated the relationship between internalizing and alcohol abuse at trend level ($\beta = -.005, p = .08$).
- Deviant peers and Impulsivity did not significantly mediate the relationship between internalizing and alcohol abuse.

DISCUSSION

- Consistent with previous research, internalizing problems were related to higher negative emotionality and lower levels of impulsivity.
- Affiliation with deviant peers increased risk for all three alcohol use outcomes, but unlike previous research, it was not associated with internalizing problems.
- Inconsistent with previous research, negative emotionality accounted for a decreased risk for those with internalizing problems on frequency of alcohol use. This could possibly be because negative emotionality was not an optimal measurement of tension reduction motivations.
- Future research should examine more directly the motivations behind alcohol use throughout adolescence to better understand the relationship between internalizing problems and alcohol use development.

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