



# Vulnerability to peer influence: A moderated mediation study of early adolescent alcohol use initiation

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## ABSTRACT

Affiliation with deviant peers is a correlate of adolescent alcohol use; however, the mechanism accounting for this association remains unclear, particularly with respect to initiation of alcohol use in early adolescence. This prospective study examines perceived peer attitudes and use as a mediator between peer delinquency and initiation of alcohol use, and how parenting may moderate vulnerability to this risk pathway. Participants included 371 11–13 year-old adolescents (55.5% female, 83.0% Caucasian). Results suggested that high levels of peer delinquency prospectively predicted perceived peer approval and use of alcohol and that peer approval and use of alcohol prospectively predicted initiation of alcohol use. Thus, reinforcement and modeling of alcohol use appear to be important mechanisms by which delinquent peers influence the initiation of drinking. There was no support for parental warmth or control as moderators of peer influence.

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## 1. Introduction

The prevalence of adolescent alcohol use continues to be a public health concern (Johnston, O'Malley, Bachman, & Schulenberg, 2005). For example, 16% of eighth graders report drinking alcoholic beverages in the past 30-days (Johnston, O'Malley, Bachman, & Schulenberg, 2008). Alcohol initiation among early adolescents is particularly concerning given that this is when incidence rates begin to increase with early initiation predicting escalation in use and problematic use in later life (Grant & Dawson, 1997; Gruber, DiClemente, Anderson, & Lodoico, 1996; Pitkanen, Lyyra, & Pulkkinen, 2005; Warner & White, 2003). In particular, Grant and Dawson (1997) reported 8% and 14% decreases in risk for alcohol abuse and dependence, respectively, for each year in which drinking initiation was delayed through adolescence. In addition, early alcohol initiation (alcohol use before age 15), is strongly associated with frequent binge drinking in college (LaBrie, Rodrigues, Schiffman, & Tawalbeh, 2007), positive alcohol perceptions (LaBrie et al., 2007), marijuana and other drug use (Grunbaum et al., 2004), and later sexual risk taking leading to pregnancy and parenthood by 12th grade (Guo et al., 2002). Accordingly, identifying risk factors associated with alcohol use in early adolescence, a period when drinking is initiated for some youth, may help inform the development and refinement of effective

prevention programs. Peer delinquency is one of the strongest correlates of adolescent use (e.g., Barnow et al., 2004; Vitaro, Brendgen, Ladouceur, & Tremblay, 2001); yet the mechanisms through which peer delinquency impacts alcohol use initiation in early adolescence remains unclear. The goal of this study was to examine peer modeling and reinforcement of drinking as a mechanism that might account for the association between peer delinquency and alcohol initiation in early adolescence using a prospective design. Moreover, parenting was examined as a contextual factor that might moderate the degree of vulnerability to delinquent peer influence.

### 1.1. Peer socialization

Alcohol use during adolescence typically occurs in the context of peers (e.g., Barnes, Hoffman, Welte, Farrell, & Dintcheff, 2006; Ingram, Patchin, Huebner, McCluskey, & Bynum, 2007) and the role of peer influence on adolescent drinking is prominent in many etiological theories (Petraitis, Flay, & Miller, 1995). Initiation of alcohol use commonly occurs during early adolescence (Johnston et al., 2005), a developmental period when the amount of time spent with peers increases and peer relationships become the primary social context that influences social development (Rubin, Bukowski, & Parker, 1998). Change in the quality and amount of time spent with peers suggests that this period may be marked by heightened susceptibility to peer influence (Brown, Dolcini, & Leventhal, 1997). Thus, peer influence may be particularly important in the early stages of alcohol use (Colder & Chassin, 1999).

Delinquent peer groups are characterized by rebellion against adult authority, rule breaking, and premature adoption of adult roles

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(e.g., Haynie, 2002; Moffitt & Caspi, 2001), all of which are compatible with alcohol use. It is therefore not surprising that affiliation with delinquent peers is one of the most robust correlates of initiation of alcohol use (Barnow et al., 2004; Dishion, Capaldi, Spracklen, & Li, 1995; Vitaro et al., 2001). These findings suggest that some peer groups provide the social context for delinquency and reinforce and model alcohol use (Cashwell & Vacc, 1996). Although the association between delinquent friends and early stages of alcohol use has been established, the mechanism through which these behaviors operate remains unclear. It is often suggested that delinquent peers provide reinforcement, modeling, and access to alcohol, but there has been a paucity of studies testing these ideas.

Social learning theory asserts that adolescents affiliating with deviant peers observe and imitate problem behaviors, receive social reinforcement for these behaviors, and develop positive expectancies about problem behaviors (Petraitis et al., 1995; Svensson, 2003). It is likely that some of these socialization processes are specific to drug and alcohol use. For example, adolescents associating with deviant peers may be exposed to attitudes supporting substance use, such as substance use approval and positive expectancies of alcohol use (Ary, Tildesley, Hops, & Andrews, 1993; Chassin, Presson, Sherman, Montell, & McGrew, 1986; Krohn, Skinner, Massey, & Akers, 1985). A critical aspect of social learning theory is that adolescents do not have to observe peers engaging in a behavior for it to be reinforced; simply believing that peers approve of the behaviors or perceiving pressure to adopt peers' attitudes promote engagement in the behavior (Petraitis et al., 1995). Thus, perceived peer approval and use of alcohol may be especially influential during early adolescence when direct pressure is rare (Bauman & Ennett, 1996; Engels, Knibbe, Drop, & de Haan, 1997). That is, social influence may be operating during this period and perceived approval and use may be an important vector of socialization. Indeed, Andrews, Hampson, Barckley, Gerrard, and Gibbons (2008) found that perceived peer approval and use in the elementary years predicted intentions to use alcohol in adolescence, which then predicted use of alcohol one year later. We propose that affiliating with deviant peers will be associated with the perception that peers approve of use and engage in drinking, which will subsequently predict initiation of alcohol use. That is, we tested a mediational pathway such that perceived peer approval and use of alcohol would mediate the association between peer delinquency and the initiation of alcohol use.

When testing a peer influence model, it is important to account for potential selection effects. Selection refers to an individual choosing to be friends with individuals similar to themselves. Of interest in the current study are adolescents who select peers based on similarity with respect to delinquency and alcohol use. Selection is differentiated from peer influence, in that the selection model proposes that substance use behavior and positive attitudes about substance use lead to friendships with peers who support substance use, while the peer influence model, or socialization, suggests that certain friendships lead to substance use. Research generally supports both selection and socialization (Mercken, Candel, Willems, & de Vries, 2009), but that socialization is more prominent in the early stages of alcohol and drug use (Wills & Cleary, 1999). Nonetheless, the magnitude of peer influence tends to diminish when studies have controlled for selection effects (Bauman & Ennett, 1996). Accordingly, we control for selection effects by using a prospective design, selecting youth who were abstainers from alcohol at our baseline assessment, and including self-reported delinquency as a covariate when examining the effects of peer delinquency.

### 1.2. The role of parenting

Though social learning theory is informative with regard to the influence of delinquent peers to engage in problem behaviors, peers account for only one social influence. Parenting has also been

demonstrated as a predictor of adolescent alcohol use initiation (e.g., Barnes, Reifman, Farrell, & Dintcheff, 2000), and parents continue to have a significant impact on adolescents' alcohol use through late adolescence (Mrug & Windle, 2009; Wood, Read, Mitchell, & Brand, 2004).

In general, research has identified two primary dimensions of parenting associated with adolescent alcohol use: parental warmth and parental control. Parental warmth and control are viewed as broad dimensions which are multifaceted. Parental warmth reflects behaviors toward the child that promote messages that they are loved such as praising and giving affection (e.g., Barnes et al., 2006; Darling, 1999). In contrast, parental control includes behaviors that are directed to the child to shape behavior deemed acceptable by the parent (e.g., Barnes et al., 2006; Darling, 1999) including discipline and setting explicit rules regarding adolescent behavior (Barnes & Farrell, 1992). Both parental warmth and control are viewed as positive parenting behaviors and they have been associated with reduced risk for adolescent alcohol use (Barnes & Farrell, 1992; Barnes et al., 2000; Flannery, Williams, & Vazsonyi, 1999; Mason, Cauce, Gonzales, & Hiraga, 1994; Smetana, Crean, & Daddis, 2002). Given that peers and parents are important influences during adolescence, integrating both dimensions into one theoretical model may improve prediction of adolescent alcohol use initiation.

Social control theory (Hirschi, 1969) posits that weak bonds to conventional institutions (such as would be expected from poor parenting) are likely to predict adolescent delinquency above and beyond the influence of peers, suggesting that parenting and deviant peers have an additive effect on deviant behavior in youths. Yet, recent advances in psychological theory have strongly argued for an examination of whether or not the magnitude of mediational pathways vary across different contexts (Preacher, Rucker, & Hayes, 2007) and suggest that an important future direction for the study of family influences on adolescent substance use is to examine moderational models in a longitudinal framework (Chassin & Handley, 2006). Some recent studies support the moderating role of parenting (Mrug & Windle, 2009; Vitaro, Brendgen, & Tremblay, 2000; Wood et al., 2004), such that high levels of parental warmth decreased the influence of peers on later delinquent behaviors. Yet these studies did not examine a potential mediating mechanism, and did not consider the role of peer influence on alcohol use. Accordingly, we tested potential moderating effects to examine whether vulnerability to peer influence on alcohol use was dependent on parenting context. We extend the literature in two important ways. First, we examine initiation of alcohol use in early adolescence. Second, we tested a moderated mediational model whereby parenting behavior is tested as a moderator of the proposed mediational pathway from peer delinquency to peer approval/use, and subsequently initiation of alcohol use.

### 1.3. Current study

Based on the current research on peer socialization factors, it was hypothesized that perceived peer approval and use of alcohol would mediate the relationship between perceived peer delinquency and initiation of alcohol use one year later. We included self-reported delinquency to control for potential selection effects. Furthermore, parental control and warmth were tested as potential moderators. Specifically, it was hypothesized that the influence of peers on alcohol use initiation would be relatively weak at high levels of both parental control and parental warmth. This study attempts to build upon current research in several ways: we use a prospective design to examine a mechanism of early alcohol use initiation that includes peer and parent socialization factors integrated into one theoretical model, and we test potential mediation and moderation effects.

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