



# Peer victimization and substance use: Understanding the indirect effect of depressive symptomatology across gender

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## HIGHLIGHTS

- Peer victimization predicted later depressive symptoms.
- Peer victimization predicted later substance use through depression for females.
- No indirect effect was found for male youth.

## ARTICLE INFO

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## ABSTRACT

**Objective:** Peer victimization in school is common, with emerging literature suggesting that it may also increase risk for substance abuse. Yet, little is known about the underlying mechanisms within this risk pathway. The objective of this study is to use a prospective 3-wave design to examine the mediating role of depressive symptomatology on the relationship between peer victimization and substance use, as well as examine if the pathway varies based on gender.

**Method:** 801 youth between 6th and 12th grade completed surveys across three years, which included measures on school peer victimization, depression symptomatology and substance use. Models tested the mediational pathway between victimization, depressive symptoms, and substance use. Models were stratified by gender.

**Results:** Controlling for grade and the effect of each variable across waves, a significant indirect effect of peer victimization on substance use through depressive symptoms was found for females, with a non-significant indirect effect for males.

**Conclusion:** Results suggest that female youth who are victimized by peers engage in substance use behaviors, at least in part, due to increases in depressive symptoms. Given its effect on depression, female victims may therefore benefit from coping skills training that targets emotion regulation and distress tolerance skills in order to combat increased risk for substance use behaviors as a coping response to their victimization. Further research is warranted to better understand the risk pathway for male youth who also experience peer victimization.

## 1. Introduction

Peer victimization has been conceptualized as aggressive nonsexual behavior, whether physical (e.g., physical aggression, attacks on personal property), verbal (e.g., verbal aggression), or relational (e.g., group exclusion), experienced by a youth by their peers (Beale & Scott, 2001; Hawker & Boulton, 2000; Mynard & Joseph, 2000). This form of peer aggression is distinguished from peer bullying, which is characterized by repeated aggressive behavior in which there is a distinct power imbalance between the perpetrator and victim (Gladden, Vivilo-

Kantor, Hamburger, & Lumpkin, 2014). Although not as severe as bullying (Gladden et al., 2014), peer victimization is not an uncommon experience among school-aged youth in the United States (Beale & Scott, 2001; Schneider, O'Donnell, Stueve, & Coulter, 2012). Furthermore, peer victimization has been found to be associated with increased risk for negative mental and behavioral health outcomes, such as depression, low self-esteem (Hawker & Boulton, 2000; Ivarsson, Broberg, Arvidsson, & Gillberg, 2005), aggression, delinquency (Khatri, Kupersmidt, & Patterson, 2000; Topper, Castellanos-Ryan, Mackie, & Conrod, 2011), reduced academic performance (Nakamoto & Schwartz,

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2010), and elevated risk for suicide (Klomek, Marrocco, Kleinman, Schonfeld, & Gould, 2008). Moreover, although peer victimization can occur in a number of contexts, it is often experienced within school settings (Hong & Espelage, 2012; Kochenderfer & Ladd, 1996). The National Center for Educational Statistics (2015) documented that approximately 3 million youth between the ages of 12–18 report being victimized by peers at school during the past year. Additionally, as noted by the National School Safety Center (NSSC), peer victimization is the most enduring and underrated problem in U.S. schools (Beale & Scott, 2001). Thus, understanding both the impact of peer victimization on health behaviors, as well as, factors involved in the risk process are critical in order to inform intervention programming.

One health outcome in which the literature is mixed on its association with peer victimization is substance use. Quinn, Fitzpatrick, Bussey, Hides, and Chan (2016) examined the differential impact classification as either a victim, a perpetrator, both a victim and perpetrator, or neither a victim nor perpetrator, had on alcohol and tobacco onset, intensity, and alcohol-related harms among adolescents. The authors found no significant differences in risk for substance use between victims and those youth who had not experienced victimization. Conversely, there are others who have observed a positive relationship between peer victimization and substance use, such that the experience of victimization is associated with increase risk (Carlyle & Steinman, 2007; Pinchevsky, Fagan, & Wright, 2014; Radliff, Wheaton, Robinson, & Morris, 2012; Ringwalt & Shamblen, 2012). For example, Tharp-Taylor, Haviland, and D'Amico (2009) reported that among youth aged 11–14, those who experienced any type of peer victimization, defined as mental or physical victimization while on school property, were more likely to report substance use as they transitioned through adolescence. Topper et al. (2011) also found among a slightly older group of youth aged 13–15, that baseline peer victimization (i.e., physical or verbal aggression) was correlated with quantity and frequency of alcohol use at 12 months and predicted alcohol-related problems at 12 months above and beyond baseline alcohol problems. Additional evidence for a positive effect of peer victimization and increased alcohol use was provided by Valdebenito, Ttofi, and Eisner (2015), who conducted a meta-analysis based on 61 cross-sectional studies among adolescent samples, finding an overall modest association between school peer victimization and drug use (i.e., illicit drug use, excluding alcohol or tobacco).

With some accumulating evidence for a positive association between peer victimization and substance use, few have examined potential mediators within the risk pathway to help explain why victimization would increase risk for substance use. As suggested by Maniglio (2015) and in line with the self-medication theory (Khantzian, 1997), it is posited that individuals that have experienced peer victimization may be at increased risk to engage in substance use behaviors as a coping strategy to manage distress. Though only a limited number of studies have been conducted, there is evidence to suggest that factors associated with emotion regulation mediate this relationship. For example, Topper et al. (2011) found that the prospective relationship between peer victimization and alcohol problems was mediated through coping motives. Moreover, Luk, Wang, and Simons-Morton (2010) found an indirect path between victimization, depression, and frequency of substance use. Although Luk et al.'s (2010) findings are based on cross-sectional data, based on evidence that peer victimization predicts later depressive symptoms (McDougall & Vaillancourt, 2015; Schwartz, Gorman, Nakamoto, & Toblin, 2005; Ttofi, Bowes, Farrington, & Lösel, 2014) and depressive symptoms predict later substance use among adolescents (Edwards et al., 2014; Maslowsky, Schulenberg, & Zucker, 2014; McKowen, Tompson, Brown, & Asarnow, 2013), it is speculated that a mediational relationship between peer victimization, depressive symptoms, and substance use is probable. These findings suggest that youth who are victimized become distressed and engage in substance use as a means of coping with their distress due to peer victimization. However, more empirical evidence is needed

based on longitudinal study designs to confirm this mediational relationship.

It is also plausible that the indirect effect of negative affect within the peer victimization-substance use pathway may vary by gender, given evidence of gender differences within prevalence of peer victimization, depressive symptoms, and substance use outcomes. Specifically, adolescent males have been found to report peer victimization more often than females (Carlyle & Steinman, 2007; Nylund, Bellmore, Nishina, & Graham, 2007). Males also generally tend to report higher rates of substance use than their female peers (Chen & Jacobson, 2012; Vieno, Gini, & Santinello, 2011). Wormington, Anderson, Tomlinson, and Brown (2013) examined the moderating impact gender had on the relationship between peer victimization and lifetime substance use, finding a stronger effect for male victims than females. However, the prevalence of depressive symptomatology tends to be reported at higher rates among females compared to males (Cummings, Caporino, & Kendall, 2014), with the impact of peer victimization on depressive symptomatology also found to be stronger for females (Klomek et al., 2008). For example, Hamilton et al. (2016) examined the interplay of peer victimization and negative affect among pre-adolescents aged 12–13 based on gender and found girls who reported greater instances of peer victimization experienced greater deficits in emotional clarity. The researchers also found that peer victimization predicted levels of depression and anxiety symptoms among these girls. Null findings were observed for the adolescent males in the study. As for gender differences within the impact of negative affect on substance use outcomes, findings are mixed. Utilizing the National Longitudinal Study of Adolescent to Adult Health (Add Health), the association between depressive symptoms and substance use outcomes (i.e., daily smoking, marijuana use, and regular heavy episodic drinking) was significantly stronger for females than males (Schuler, Vasilenko, & Lanza, 2015). However, the effect for each substance disappeared after accounting for concurrent use of other substances. The absence of a gender effect has also been observed in other studies with both community and nationally-representative samples (Brook, Cohen, & Brook, 1998; Schwinin, Schinke, & Trent, 2010).

To date, only one published study has examined gender differences in the indirect effect of negative affect on peer victimization and substance use. Luk et al. (2010) found among their sample of 10th grade adolescents that depressive symptoms mediated the relationship between peer victimization and frequency of past month substance use, but the effect was only found for females, with no significant mediating effect found in males. Limitations of the study include the cross-sectional design of the study and the restricted age range of the sample.

The current study will add to the growing body of literature on the indirect effect of depression on the relationship between peer victimization and substance use outcomes by utilizing a prospective three-wave study design among a large sample of middle and high school youth. We hypothesize, consistent with previous literature, that peer victimization will be positively related to depressive symptoms and past month substance use. In line with the self-medication theory, we hypothesize that an indirect effect for depressive symptoms will be significant, such that greater past year victimization will be associated with past month substance use indirectly through higher depressive symptomatology. It is hypothesized, based on Luk et al. (2010) that the indirect path for substance use will be observed only among females.

## 2. Method

### 2.1. Procedure and participants

Our study involves participants drawn from a 5-year study (2005–2009) examining school and health behavior outcomes among students between fourth and twelfth grade. Participants were sampled from 159 schools (21 school districts) in a large Midwestern county. Informed consent forms were sent home to parents of potential

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