



Published in final edited form as:

Am J Orthopsychiatry. 2014 November ; 84(6): 696–710. doi:10.1037/ort0000036.

A Conceptual Framework for Understanding the Association between School Bullying Victimization and Substance Misuse

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Abstract

This article reviews current research findings and presents a conceptual framework for better understanding the relationship between bullying victimization (hereafter referred to as victimization) and substance misuse (hereafter referred to as SM) among adolescents. Although victimization and SM may appear to be separate problems, research suggests an intriguing relationship between the two. We present a brief, empirical overview of the direct association between victimization and adolescent SM, followed by a proposed conceptual framework that includes co-occurring risk factors for victimization and SM within family, peer, and school/community contexts. Next, we discuss potential mediators linking victimization and SM, such as internalizing problems, traumatic stress, low academic performance, and school truancy/absence. We then identify potential moderating influences of age, gender/sex, social supports, and school connectedness that could amplify or abate the association between victimization and SM. Finally, we discuss practice and policy implications.

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Keywords

bullying; victimization; substance misuse; adolescents

School bullying is a serious concern which has received considerable media attention. According to the World Health Organization (2012), *bullying* is defined as repeated, aggressive behavior--both direct (e.g., hitting, kicking, or pushing) and indirect (e.g., teasing, social exclusion, or spreading a rumor)--intended to cause physical and/or psychological harm to another individual. A national survey in 2011 found that 23% of public school students (aged 12–18) reported bullying victimization (hereafter referred to as victimization (Robers, Kemp, & Truman, 2013)). Another national survey found that 28% of students (aged 12–18) reported being bullied on school property, and an estimated 16% reported being bullied electronically in 2011 (Centers for Disease Control and Prevention, 2012). Bullying victims frequently experience depression, anxiety, low self-esteem, school adjustment problems, academic difficulties, and suicidal behavior (Kim & Leventhal, 2008; Reece, 2008; Smokowski & Kopasz, 2005; Gruber & Fineran, 2007; Hjern, Alfven, & Ostberg, 2008; Vanderbilt & Augustyn, 2010).

In addition to victimization, substance misuse (SM) is another major concern, as it is the leading cause of adolescent morbidity and mortality in the U.S. (Brannigan, Schackman, Falco, & Millman, 2004; Sussman, Skara, & Ames, 2008). *Substance misuse* has referred to meeting requirements for a substance abuse or dependence but the term has been used inconsistently, and requires a clearer, more precise definition, and greater consistency (Kelly, 2004). For this article, SM is used to describe individuals suffering from “alcohol/cocaine/etc., abuse or alcohol/cocaine/etc. dependence, only when it is known that these individuals meet criteria for such disorders” (Kelly, 2004, p. 85). Alcohol use among adolescents (12–17 years old) has been relatively stable recently, with 13.3% of adolescents reporting current use, 7.4% reporting current binge drinking episodes, and 1.7% reporting heavy drinking episodes (Substance Abuse and Mental Health Services Administration [SAMHSA], 2012a). However, adolescent marijuana use is as high as it has been since 2003, at 7.9% (SAMHSA, 2012a). Overall rates of SM and dependence diagnoses for adolescents in 2011 were 6.9% (SAMHSA, 2012a), with adolescents accounting for 7.2% of SM treatment admissions (SAMHSA, 2012b). Among adolescents, females reported slightly higher alcohol use rates, (13.2%) compared to males (12.6%). However, illicit drug use rates were similar between male and female adolescents (9.6 and 9.5%, respectively; SAMHSA, 2012a).

It may seem that victimization and SM are distinctly different problems. However, research has shown bullying victims are more likely to use substances, compared to those uninvolved in bullying (Niemela et al., 2011; Tharp-Taylor, Haviland, & D’Amico, 2009). A recent study on the prevalence of victimization and SM among middle and high school students from sixteen school districts documented that among victims in middle schools, 3.2% smoked cigarettes, 3.9% consumed alcohol, and 2.4% used marijuana. However, these prevalence rates are even higher for victims in high school—17.9% smoked cigarettes, 34.5% consumed alcohol, and 16.6% used marijuana (Radliff, Wheaton, Robinson, &

Morrison, 2012). A better empirical and theoretical understanding of this relationship is critical for the development of intervention strategies that effectively target modifiable risk and protective factors of victimization and SM. To assist in this aim, this article provides the first review of the research to date, as far as the authors are aware, that integrates the existing empirical findings on victimization and SM.

This article presents a conceptual framework that enhances our empirical and theoretical understanding of the association between victimization and SM. First, we examine the existing literature on victimization and SM, which includes a discussion of their risk (defined as increasing the likelihood of harm, while contributing to the development of mental, psychosocial, and behavioral dysfunction or maintenance of a problem condition; Fraser, 2004; Richman & Fraser, 2001)—and protective factors (defined as internal or external resources that promote positive development and/or ameliorate or buffer risk; Luthar, Cicchetti, & Becker, 2000; Richman & Fraser, 2001; Rutter, 1987). Second, we propose and discuss a conceptual model that depicts (a) the *risk and protective factors* that directly increase or decrease the likelihood of victimization and/or SM, (b) the risk and protective factors that potentially strengthen or weaken (i.e., moderate) the association between victimization and SM, and (c) the psychosocial and behavioral factors that may function as pathways (i.e., mediators) between victimization and SM. Lastly, we conclude with an examination of potential implications for practice and policy.

Victimization and Substance Misuse: A “Direct” Association

Being victimized generates psychosocial distress in children and adolescents, and victimization can be a precursor to emotional and behavioral disorders, low academic achievement, dropping out of school, and subsequently, SM. There has been increasing research interest in the relationship between victimization and SM (Niemela et al., 2011; Radliff et al., 2012; Vieno, Gini, & Santinello, 2011). A growing body of national and international research suggests that all types of victimization create a proximal risk for SM among adolescents (see Table 1; Vieno et al., 2011). In other words, youth who are bullied by their peers are at a heightened risk of alcohol, tobacco and drug use, although these associations vary, depending on gender, types of victimization (e.g., physical, mental) and types of substances (Espelage, Aragon, Birkett, & Koenig, 2008; Goebert, Else, Matsu, Chung-Do, & Chang, 2011; Mackie, Castellanos-Ryan, & Conrod, 2011; Mitchell, Ybarra, & Finkelhor, 2007; Niemela et al., 2011; Tharp-Taylor et al., 2009; Topper, Castellanos-Ryan, Mackie, & Conrod, 2011). For instance, Tharp-Taylor et al.’s (2009) longitudinal finding, from 926 racially/ethnically diverse students revealed that psychological or physical victimization (separately or in combination) were significantly associated with alcohol, tobacco, marijuana, and inhalant use. SM was collected at two time points (fall 2004 and spring 2005) during an academic year. Their results supported an association between mental or physical victimization and SM in spring 2005. This finding held even after controlling for covariates, such as gender, grade level, ethnicity, and SM in fall 2004. Further, physical victimization was found to have a larger effect on alcohol use among female adolescents, with no differences found between genders for psychological victimization (Tharp-Taylor et al., 2009).

Niemela et al. (2011) also found that, from a national sample of Finnish adolescent males, those who were victimized at age eight were more likely to engage in daily heavy smoking and other forms of drug use at age eighteen, compared to non-victims, even after controlling for childhood family background, psychopathology during childhood, and other forms of SM. However, victimization was not found to predict frequent alcohol use, independent of other covariates.

From a sample of 13,921 high school students in a Midwestern U.S. public school district, Espelage et al. (2008) also found that lesbian, gay, and bisexual (LGB), and 'sexually questioning' youth (i.e., youth questioning their sexual orientation) who experienced victimization (both verbal and physical) reported high levels of alcohol and marijuana use. Interestingly, sexually questioning students who experienced homophobic victimization were more likely than LGB students to use all types of drugs (i.e., Ecstasy, hallucinogens, over-the-counter and prescription medications, cocaine, marijuana, and cigarette) and alcohol.

A few studies have found that victimization was not associated with higher SM (Houbre, Tarquinio, Thuillier, & Hergott, 2006; Rivers, Poteat, Noret, & Ashurst, 2009). For instance, in a representative sample of 2,002 students (ages 12–16) in 14 U.K. schools, Rivers et al.'s (2009) cross-sectional findings indicate that perpetration and witnessing bullying situations were associated with higher levels of SM, while victimization was not. Houbre et al. (2006) found no relationship between victimization and the use of alcohol, tobacco, and drugs, although they found that youth who reported higher levels of intrusive thoughts or nightmares related to their victimization were more likely to smoke.

Despite the significant advances made in our understanding of the relationship between victimization and SM, this review of the extant literature is the first to provide a comprehensive discussion and integration of these empirical findings. As a result, the magnitude of victimization in relation to SM is elusive, as little is known about why certain victimized youth are at higher risk of engaging in SM than others. Furthermore, there have been few attempts to investigate certain risk and protective factors that predispose or inhibit SM among victimized youth. Given these observations, a conceptual framework that considers the risk factors, as well as possible intervening factors (i.e., mediators and moderators) in the sequential link between victimization and SM is warranted, which can significantly contribute to the development of prevention and intervention strategies that disrupt the victimization-SM link.

A Proposed Conceptual Framework

Figure 1 provides a conceptual framework. First, several risk factors pertaining to victimization and SM can be related to individual characteristics or to the interpersonal and environmental contexts (Baldry & Farrington, 2005). Also factors related to victimization and SM can co-occur at multiple levels of the social-ecological domains. Consistent with recommendations from Swearer and Espelage (2011), the social-ecological framework is seen as essential in understanding the phenomenon of bullying victimization. It is a framework which considers the complex interplay between the individual and his or her

behavior, and social-environmental contexts, such as family, peers, school, and community. The social-ecological influences are rarely considered collectively when investigating the relationship between victimization and SM. Thus, we first identified co-occurring risk factors within family, peer, and community contexts.

While some youth are confronted with multiple problem behaviors, which simultaneously predispose them to victimization and alcohol and drug use, others may experience early etiological processes underlying victimization that contribute to the onset and escalation of SM. Also, adolescents who are victimized rarely engage in SM immediately. They may follow complex developmental pathways, experiencing problems such as depression and anxiety, low academic achievement, and school truancy/absenteeism before eventually engaging in SM (see Bender, 2010; Moffitt & Caspi, 2001). The underlying question is how SM is manifested over time and in contexts (Hussong, Jones, Stein, Baucom, & Boeding, 2011; Sroufe & Rutter, 1984). Our conceptual framework is also guided by a developmental psychopathology structure, which purports that behavioral maladaptations, such as victimization and SM reinforce one another.

Untangling this complexity can be facilitated by investigating mediators and moderators. The conceptual framework also identifies potential mediators (i.e., internalizing problems, traumatic stress, low academic achievement, and school truancy/absenteeism) that can serve as developmental pathways connecting victimization experiences and SM supported by the empirical literature (Bonnano & Hymel, 2010; Luk, Wang, & Simons-Morton, 2010), and potential moderators (i.e., age, gender/sex, social supports, and school connectedness) that may strengthen or weaken the link between victimization and SM (Patton et al., 2004; Radliff et al., 2012; Tharp-Taylor et al., 2009).

Co-Occurring Risk Factors for Victimization and Substance Misuse

As the literature review indicated, the association between victimization and SM is evident. However, there is still room to enhance our understanding of this relationship, as studies on victimization and adolescent SM have largely been developed independently of one another (Radliff et al., 2012). Assessing co-occurring risk factors and the interconnected nature of victimization and SM can facilitate the development of more integrated and cost-effective treatment strategies that can disrupt the victimization-SM link and improve both outcomes (see Figure 1).

Family—Caregivers have been identified as strong influences in shaping adolescents' personality and environment because of the length and intensity of caregiver-youth relationships (Vakalahi, 2001). Negative experiences with caregivers, such as lack of parental involvement or parental support (Barboza et al., 2009; Georgiou, 2009), and parental or caregiver neglect or abuse (Bolger & Patterson, 2001; Shields & Cicchetti, 2001; Yodprang, Kuning, & McNeil, 2009) can increase youth's likelihood of becoming a victim. Shield and Cicchetti (2001) found that abused and neglected children were at higher risk of peer victimization than were their non-maltreated peers. Abusive family environments may contribute to result in children becoming bullying victims (Duncan, 2004). Youth who grow up in a negative family environment may develop learned behavior patterns that result in

chronic, self-defeating acting out with their peers (i.e., learned helplessness), which increases chances of victimization (Gibb, Alloy, Abramson, & Mark, 2003; Miller & Norman, 1979; Siyahhan, Aricak, & Cayirdag-Acar, 2012). Furthermore, attachment theorists also posit that youth whose caregivers are uninvolved or abusive, and those who experienced insecure attachment during childhood are likely to develop poor social skills, which can lead to peer conflicts or peer victimization outside the home (Barboza et al., 2009; Georgiou, 2009; Bolger & Patterson, 2001; Shields & Cicchetti, 2001; Yodprang et al., 2009).

Abusive home environments are also significant predictors of SM. Abused youth are more likely to experience drug-use problems and have an increased risk of alcohol use, compared to non-victims (Dube et al., 2003; Dube et al., 2006). A longitudinal study conducted by Moran, Vuchinich, and Hall (2004) also found that all categories of abuse (emotional, physical, and sexual) were related to increased tobacco, alcohol, and illicit drug use among high school adolescents. Victims of abuse can turn to SM to help cope with or escape from emotional trauma (i.e., self-medication); Harrison, Fulkerson, & Beebe, 1997; see Arnold, 1990).

Peers—During adolescence, youth increasingly seek autonomy and turn to peers, typically spending more time with peers than with their families (Brown 1990). Thus, peer relations play a significant role in outcomes such as victimization, and SM. Research findings suggest that these influences can foster or inhibit the risk of victimization (Erath, Pettit, Dodge, & Bates, 2009; Espelage, Holt, & Henkel, 2003; Pellegrini, Bartini, & Brooks, 1999). Espelage et al.'s (2003) study, which consisted of 422 middle school adolescents, found that homophily exists within adolescent peer groups with respect to bullying involvement. The homophily theory (i.e., peer groups formation based on similar traits) purports that youth who affiliate with peers who engage in bullying are also likely to be involved in this behavior (Espelage et al., 2003). Victims might also affiliate with youth who are similarly treated by their peers, which can subsequently increase the risk of being bullied or rejected.

The homophily theory can also explain why adolescents who affiliate with alcohol and drug using peers are at a higher risk of SM. Similar to victimization, youth who associate with drug-using peers are at a significantly higher risk of similar behavior, compared to youth with non-drug using peers (Barnes, Welte, Hoffman, & Dintcheff, 2005; Clark, Belgrave, & Nasim, 2008; Ryzin, Fosco, & Dishion, 2012). SM appear to be attributed to a more fundamental peer process, in which exposure to drug using friends and peers increases such behaviors (Hanish, Martin, Fabes, Leonard, & Herzog, 2005, p. 267).

Schools and Communities—In addition to peers, schools and communities play critical roles in the psychosocial development of youth. It is no surprise that youth who reported feeling disconnected from their schools and communities are reported to be at risk of victimization and peer rejection (Buhs, Ladd, & Herald, 2006; Glew, Fan, Katon, Rivara, & Kernic, 2005; You et al., 2008; Young, 2004). School disconnection is evidenced by victimized students reporting feeling less connected to their peers and teachers than their non-victimized counterparts (Skues, Cunniham, & Pokharel, 2005). Victimization is a serious barrier to educational and social development and can contribute to an environment

of fear and intimidation, which can diminish students' learning capacity and increase their disconnection from school (O'Brennan & Furlong, 2010; You et al., 2008).

Feeling disconnected from schools and communities is also a significant predictor of SM (Bacchini, Esposito, & Affuso, 2009; Clark, Belgrave, & Nasim, 2008; Wang, Matthew, Bellamy, & James, 2005). Clark et al.'s (2008) exploratory research, with a sample of 291 urban, African American youth (ages 11–18), revealed that feeling disengaged from school predicted alcohol and drug use. Wang et al. (2005) also found, from an ethnically diverse sample of adolescents, that low levels of school connectedness were associated with SM. Taken together, these findings suggest that school disconnection and lack of community cohesion (see Cleveland, Feinberg, Bontempo, & Greenberg, 2008) are inherent for adolescents who feel alienated or isolated, and are at risk for victimization, as these youth have difficulty connecting with their peers and adults in that setting (Centers for Disease Control and Prevention, 2011).

Negative community factors, such as lack of resources, presence of crime, and disorganization can aggravate youth's problem behaviors (Bacchini, Esposito, & Affuso, 2009). Similarly, although the community is an important domain for adolescent development, community factors in relation to adolescent drug use and bullying victimization have rarely been researched. However, those few studies have found that community violence and disorganization are significantly related to adolescent drug use (Buu et al., 2009; Chaix, Merlo, Subramanian, Lynch, & Chauvin, 2005; Kulis, Marsiglia, Sicotte, & Nieri, 2007; Lambert, Brown, Phillips, & Ialongo, 2004). In a nationally representative study ($N = 2,232$), children who had hostile or problematic relationships with neighbors were at greater risk of being a bully/victim (Bowes et al., 2009). *Social disorganization* theorists have long argued that community violence and instability can lead to a decrease in residents' ability to exert control and prevent problem behaviors (Sampson, 2012). Further, because youth's interactions with peers frequently occur in the community, those residing in a violent and disorganized community might frequently be exposed to victimization and SM among their peers (see Cooley-Strickland et al., 2009).

Possible Mediators on the Association between Victimization and SM

Research on risk and protective factors has focused on examining the adjustment of adolescents who are exposed to varying levels of adversity (Rose, Holmbeck, Coakley, & Franks, 2004). However, there is also evidence that both contextual (e.g., family, school) and developmental variables (e.g., behavior traits) can influence outcomes for children and adolescents under adverse conditions (Rose et al., 2004).

These potential explanatory variables can be explained by *social control* and *life course* theories, which propose that victimized youth may experience internalizing problems and stress, and develop a weaker bond with school and other institutions. Consequently, these weak connections free them to engage in deviant behaviors (e.g., drug use) (Gottfredson & Hirschi, 1990; Sampson & Laub, 1992). Additional longitudinal research is needed to determine which variables may potentially mediate the association between victimization and subsequent SM. A *mediator* is defined as a third explanatory variable that links a cause and an effect (Wu & Zumbo, 2008).

Internalizing problems—Bullying victims suffer from internalizing problems more frequently than non-victims (Aoyama, Saxon, & Fearon, 2011; Bond et al., 2007; Chin, 2011; Fleming & Jacobson, 2009; Gibb & Alloy, 2006; Juvonen & Gross, 2008; Klomek et al., 2008; Owusu, Hart, Oliver, & Kang, 2011; Sourander et al., 2009). Gibb and Alloy (2006) found that, in a sample of 415 4th and 5th graders, verbal victimization predicted vulnerability and depression. Sourander et al. (2009) also reported that victimization was correlated with depression among a Finnish youth sample. Victims can display internalizing problems because of a perceived lack of ability to change or improve their situation that reinforces feelings of depression, anxiety, or hopelessness (Napolitano et al., 2011).

Internalizing problems, in turn, predict SM (Diego, Field, & Sanders, 2003; Frojd, Ranta, Kaltiala-Heino, & Marttunen, 2010; Kaplow, Curran, Angold, & Costello, 2001). Nauer's (2008) study, which included a sample of over 1,800 young Finnish twins, reported that early-onset depressive disorders at age 14 significantly increased the likelihood of alcohol and drug use three years later. Frojd et al. (2010) also found that generalized anxiety places adolescents at a higher risk of concurrent and ensuing drug use. Moreover, Kaplow et al. (2001) found that youth with a history of generalized anxiety disorder were more likely to use alcohol.

Recent researchers have also tested the mediating influences of internalizing problems on the relationship between victimization and SM (Bonnano & Hymel, 2010; Luk, Wang, & Simons-Morton, 2010). Luk et al. (2010) investigated the mediating influence of depressive symptoms from a national sample of 10th graders in the U.S. and found that such symptoms were not only independently associated with victimization and drug use, but also mediated the association between the two, as shown in the conceptual model.

Traumatic stress—Stress is another common outcome of victimization in school, and one of the most frequent types of stress experienced by victimized children and adolescents is traumatic stress (Newman, Holden, & Delville, 2005). “It is important that post-traumatic stress be distinguished from other types of internalizing problems (e.g., depression, generalized anxiety) because it is specifically conceptualized as a range of anxiety symptoms associated with a traumatic stressor” (Crosby, Oehler, & Capaccioli, 2010, p. 300), although relatively few research findings indicate a positive correlation between both overt and relational victimization and symptoms of traumatic stress (Crosby et al., 2010; Storch & Esposito, 2003).

Children and adolescents who display traumatic stress are particularly vulnerable to SM. Anxiety and traumatic stress are accompanied by a high level of physiological arousal, and people have the tendency to control stress in idiosyncratic ways (see Kramer & Zimmerman, 2009). Children who suffer from traumatic stress are likely to display higher levels of distress and lower levels of self-restraint, which subsequently increases risk behaviors, such as SM. Descriptive findings from numerous clinical and community studies consistently demonstrate that adolescents who use alcohol and other drugs have also experienced serious traumas (11%–47%), traumatic stress (11%–47%), or both (Clark, Lesnick, & Hegedus, 1997; Deykin & Buka, 1997; Koltek, Wilkes, & Atkinson, 1998).

Low academic achievement—Youth who are frequently victimized or rejected by their peers are at a higher risk of poor academic performance (Glew et al., 2005; Espelage, Hong, Rao, & Low, 2013; Schwartz, Gorman, Dodge, Pettit, & Bates, 2008). Nakamoto and Schwartz's (2009) meta-analysis found that victimized youth frequently earn lower grades and scores on standardized achievement tests. Academic performance requires a state of emotional well-being or secure relatedness, (Ryan & Deci, 2000) and for victimized youth, emotional well-being or secure relatedness may be impaired, putting them at risk of poor academic outcomes (Thijs & Verkuyten, 2008). Although a relatively small proportion of youth are chronically victimized in school, even temporary victimization can negatively affect youth's academic performance and achievement (Juvonen, Wang, & Espinoza, 2011).

Low academic performance is also likely to put youth at risk for SM, particularly alcohol consumption (Crosnoe, 2006; Crum, Ensminger, Ro, & McCord, 1998). Using a national sample of 11,927 middle and high school students, Crosnoe (2006) found that the number of classes failed in one year predicted alcohol use a year later. Additionally, youth who performed poorly drink more frequently than their high-achieving peers (Bryan, Schulenberg, & O'Malley, 2003; Crosnoe, 2002). Youth who fail to meet expected levels of academic achievement may be at risk of maladaptive drinking and alcohol consumption (Crum et al., 1998). Likewise, youth who frequently consume alcohol are likely to struggle academically (Crosnoe, 2006).

School truancy/absence—Victimization can adversely affect school attendance, and bullying victims are likely to skip school to avoid being physically or emotionally abused (Glew et al., 2005; Gastic, 2008; Holt, Chee, Ng, & Bossler, 2013; Sharp, 1995). Sharp (1995) and Gastic (2008) found that victimization is positively associated with increased risk of truancy and frequent absences as an avoidance strategy. Glew et al. (2005) also reported that victimized youth are more likely to report feeling unsafe in school. Holt et al.'s (2013) findings from a national sample of Singaporean youth also indicate that all forms of victimization (physical, cyber, and mobile) were related to poor school attendance. Bullying victims may consider their school to be an unsafe environment and become truant or absent as a result (Glew et al., 2005).

Youth who are frequently truant or absent are vulnerable to SM (Chou, Ho, Chen, & Chen, 2006; Vucina & Becirevic, 2007; White, Violette, Metzger, & Stouthamer-Loeber, 2007). From a sample of 2,126 Taiwanese adolescents (aged 12–18 years), Chou et al. (2006) found that the lifetime prevalence of illicit drug use for truant adolescents was 15.0–17.9% (12.1–14.5% for ecstasy, 4.6–7.3% for ketamine, and 3.5–8.8% for marijuana), compared to 3.1–3.4% for youth who attended school regularly. White et al. (2007) also demonstrated that truancy was a significant predictor of smoking among African-American males (ages 13–25). As illuminated by the social development model, school bonding is an important component of adolescent development (Hawkins & Weis, 1985), and youth who feel connected to their school are more likely to be academically engaged and less likely to be involved in problem behaviors (e.g., drug use). School bonding attenuates problem behaviors as adolescents conform to norms, expectations, and values of the school (Henry & Thornberry, 2010).

Potential Moderators

As depicted in the conceptual model, researchers also need to identify and test moderators that could amplify or abate the victimization-SM link. A *moderator* is a variable unrelated to either the independent variable or dependent variable, but impacts their association when entered into the model (Rose et al., 2004). The moderation effect is more commonly recognized as “interaction” effect, in which the direction or strength of an independent variable’s effect on the dependent variables is contingent upon the level (e.g., male or female) or the value (e.g., behavior) (Wu & Zumbo, 2008). There has been extensive research focused on risk factors and prevention and not enough emphasis on factors related to the individual (e.g., gender/sex) or to the social (family, school) contexts, which can reduce or moderate the impact of risk factors, making an individual adolescent more resilient (Dekovic, 1999).

Recognizing potential moderators can help identify protective factors (defined as mitigation of risk through stress reduction and strengthening of opportunities for growth or coping capacities; Davies, 2004) that interrupt the pathway from victimization to SM, as well as illuminate our understanding of why certain adolescents are more likely to turn to substances as a coping strategy when victimized. In this section, we propose that certain individual factors (e.g., age, gender/sex) and social contexts (social supports, school connectedness) can amplify or abate the relationship of victimization and SM.

Age—Age is a possible moderator, as SM might be more frequent among older youth, although some studies have shown that the age of onset of SM is before age fourteen (e.g., DuRant, Smith, Kreiter, & Krowchuk, 1999). Indeed, as previously mentioned, Radliff et al. (2012) found higher rates of cigarette, alcohol, and marijuana use among victimized students in high school, compared to those in middle school. Studies also have documented that the link with SM was stronger for adolescents in late puberty than for those in early stages (e.g., Patton et al., 2004). It is plausible that older students who are victimized have greater access to alcohol and drugs and greater affiliation with substance-using peers, which would provide them with more opportunities to use drugs themselves. In addition, older students are considerably less likely than younger students to turn to adult authorities when they are victimized (Unnever & Cornell, 2004); instead, they might attempt to cope with it by participating in risky behaviors, including drug use.

Gender/sex—Gender/sex is another likely moderator in that the relation between victimization and SM might vary based on adolescent sex. As indicated by Tharp-Taylor et al.’s (2009) study, physically victimized girls are at a higher risk of alcohol drinking than boys. Given that physical victimization is more common among boys, it may be a more extreme occurrence for girls, which can contribute to their likelihood of drinking. Studies also suggest that male and female victims tend to respond in different ways. Boys might display externalizing behaviors, while girls might turn to self-medicating strategies, including alcohol and drug use to cope (Carbone-Lopez, Esbensen, & Brick, 2010). However, other studies challenge this, as some girls might display externalizing behaviors and some boys self-medicating behaviors (e.g., drinking alcohol, using illicit drugs) (Espelage, Mebane, & Swearer, 2004; Espelage & Swearer, 2003).

Social supports—Perceived social support derived from adolescents' immediate social environments, such as home and school is another plausibly relevant moderator. Widely recognized protective factors among multiple age groups, *social support* is a multifaceted concept, which contains at least two distinct dimensions (Garbarino, 1999). First is its role of making adolescent members feel connected to people within and outside the family. The second is its role in fostering prosocial behavior, by modelling the core values of the community and society (Garbarino, 1999). Although youth report that they receive different social cues from adults (e.g., parents, teachers) than from friends and peers (Furman & Buhrmester, 1985), social support from adults and peers are equally important. Thus, it is expected that low levels of perceived social support from home or school can aggravate adverse results, such as drinking and using drug (see Rigby, 2000).

On the other hand, higher levels of perceived social support from home and school can reduce the risk of SM, even among victims (Baldry & Farrington, 2005; Jeynes, 2008). Victimized adolescents who receive adequate amount of social supports from adults and peers feel connected to their school and their community, display higher levels of psychological well-being, greater self-esteem, and the ability to withstand adversity (e.g., Espelage et al., 2008), which can buffer deleterious outcomes of stress, such as alcohol and drug use. Despite strong empirical evidence linking perceived social support to psychosocial adjustment among adolescents, our knowledge of the role of perceived social support in the association between victimization and SM remains sparse.

School connectedness—And finally, school connectedness is another potential moderator that might buffer the effects of victimization, such as SM. *School connectedness* is a belief that classmates, peers, and adults (e.g., teachers) in their schools care about their academic and psychosocial growth (Centers for Disease Control and Prevention, 2009). School connectedness is critical to the healthy development of children and adolescents. It is an important protective factor that can reduce the risks of victimization and SM. Youth who are victimized by their peers may perceive their school environment as unsafe and dangerous, which can impede their academic progress and social relations, causing them to feel disconnected from school (Skues, Cuningham, & Pokharel, 2005). Consequently, youth who are disengaged from their school are at a heightened risk of participating in risky behaviors, such as SM (Bacchini, Esposito, & Affuso, 2009; Clark, Belgrave, & Nasim, 2008; Wang, Matthew, Bellamy, & James, 2005). Despite being victims, youth with a sense of school connectedness because they enjoy adequate peer and teacher support are less prone to participate in such behaviors.

Discussion

This article informs our understanding of the relationship between victimization and SM. As illustrated in our conceptual model (see Figure 1), the integrative review of findings suggests the following: (1) there is an association between victimization and SM, although results vary depending on the covariates (Espelage et al., 2008; Niemela et al., 2011; Tharp-Taylor et al., 2009), (2) negative social experiences in multiple contexts (family, peer, and school/community) are related to the co-occurrence of victimization and SM, (3) victimization has a significant impact on psychological and school maladjustment

(internalizing problems, traumatic stress, low academic achievement, and school truancy/absence), thereby contributing to SM, and (4) identifying and testing potential moderators, such as age, gender/sex, social supports, and school connectedness, are also important. Where do we go from here?

Practice and Policy Implications

Without a doubt, prevention and intervention programs and services for victimization and SM need to be strengthened. It is also important that prevention and intervention efforts for both utilize evidence-based strategies and services that work in concert. A cohesive effort at understanding this relationship provides practitioners with more effective assessment tools, which will better inform practice. Victims of bullying are not only at risk of SM, but the risk factors for both victimization and SM can also co-occur for some adolescents. These co-occurring risk factors are particularly prevalent among “at-risk” adolescents attending schools in impoverished communities with limited resources (Cooley-Strickland et al., 2009). Shared risk factors for victimization and SM, such as lack of parental involvement and support, exposure to violence in the family, negative peer influence, perceived school disconnectedness, and exposure to community violence and disorganization, need to be considered in the assessment.

In response, many school-based prevention programs and policies have traditionally relied on identifying individual traits (Swearer Espelage, Vaillancourt, & Hymel, 2010) or involving universal programs administered to the entire school population, aimed at raising awareness about bullying and reducing bullying behaviors among students. Although some researchers have found significant and positive outcomes for these programs, several studies have yielded variable results (see Swearer et al., 2010, for a review).

Scholars have recognized the effectiveness of social-ecological-based school violence prevention programs that move beyond focusing on individual behaviors by targeting risk and protective factors occurring in various social environments (Espelage & Swearer, 2003; Swearer et al., 2010). Such programs view youth behavior and risk factors as being shaped by not only their individual characteristics but also a range of nested contextual systems of schools, communities, and society (Benbenishty & Astor, 2005). The social-ecological perspective not only can provide a more holistic picture of bullying and victimization, but also co-occurring behaviors and associated outcomes, such as SM (Kumpfer & Turner, 1990). Applying a social-ecological model in assessment, prevention and intervention can help significantly reduce attitudes and perceptions that are supportive of victimization and SM. Such approaches need to be coordinated across families, schools, and communities and should consider relationships occurring in the home, classroom, school, and community. One such program is the Communities That Care, a coalition-based prevention program that targets problem behaviors, including violence, school dropout, and SM (Hawkins, Catalano, & Associates, 1992). This program involves all community members and relevant stakeholders and focuses on strengthening resilience, improving social environments, and fostering positive youth development (Fagan, Hawkins, & Catalano, 2008).

Given the academic and psychological maladjustment link to victimization, which can contribute to risk behaviors (e.g., SM), training school personnel to create an improved

school climate is paramount. Specialized training needs to emphasize the importance of preventing bullying through effective response efforts (National Association of School Psychologists, n.d.). Such instruction can potentially ameliorate negative outcomes of victimization that increase the risk of SM, such as internalizing problems, traumatic stress, low academic achievement, and school truancy/absence.

In addition to the contributing factors and potential mediating influences linking victimization and SM, assessing the protective factors that can buffer this association is equally, if not more, important. Considering the potential moderators such as age, gender/sex, social supports, and school connectedness, prevention and intervention strategies need to be developmentally appropriate and relevant to gender/sex. Because social supports in the home, school, and community can disrupt the victimization-SM link, interventions should address the quality of relationships between adolescents and parents, peers, teachers, and staff members. Each relationship level will be significant in providing models that adolescents can emulate in their relationships and interactions with each other (Petrie, 2014). Also, creating and developing a comprehensive, integrated, safe and supportive school environment can ensure that adolescents are connected to their school, which can decrease the risk of SM associated with victimization. To do so, a school safety team, which focuses on the overall school environment, needs to be developed and sustained over time (National Association of School Psychologists, n.d.).

Conclusion

The conceptual framework presented in this article provides guidance for school and policy officials to effectively address bullying and the associated risk behaviors, such as SM. Law-makers have recognized the detriments of bullying victimization in school and responded accordingly, such as the enactment of zero-tolerance policies. However, scholars have questioned the efficacy of these policies for deterring risky behaviors (Martinez, 2009). Scholars and practitioners have instead advocated for school districts and communities to remain steadfast in their commitment to developing and implementing practices and policies that enable students' educational and social development (National Association of School Psychologists, n.d.). Empowering students, particularly those at risk for victimization and SM requires strong leadership, as well as coordinated and committed efforts of all relevant stakeholders.

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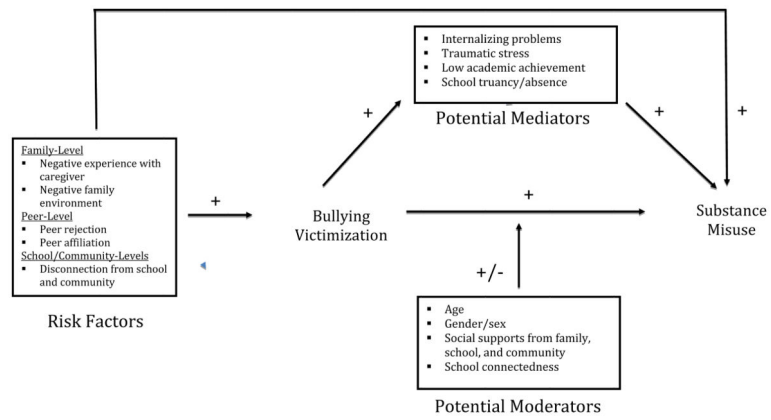


Figure 1. A conceptual framework on the association between bullying victimization and substance misuse

Table 1
Summary of studies on the association between bullying victimization and substance misuse

Reference	Purpose/Design	Sample/Measures	Findings
Espelage et al. (2008)	To examine moderating influences of positive parental relationships and positive school climate on mental health outcomes for students identified as "sexually questioning" <ul style="list-style-type: none"> Cross-sectional 	N: 13,921 high school students in U.S. Age/grade: 15.8 (mean age) Gender: 49.7% male, 50.3% female Race/ethnicity: 78.6% White; 5.4% Bi-racial; 4.8% Asian; 4.8% Black; 3.6% Hispanic Measures/control variables: parental factor, school climate, alcohol and drug use, depressive/suicidal feelings, sexual orientation/homophobic teasing/general victimization	<ul style="list-style-type: none"> Sexual minority youth reported higher levels of depression/suicide feelings and substance misuse; Sexually questioning students reported more teasing, greater substance misuse, and more feelings of depression/suicide than heterosexual or LGB students; Sexually questioning students who reported homophobic teasing were more likely to use alcohol and drugs and perceive their school as negative than LGB students; Positive school climate and parental support protected LGB and sexually questioning students against depression and substance misuse
Goebert et al. (2011)	To examine the association between cyberbullying and mental health problems among a multiethnic sample <ul style="list-style-type: none"> Cross-sectional 	N: 677 high school students in U.S. Age/grade: 9 th –12 th grade Gender: 39.8% male, 60.2% female Race/ethnicity: 45.7% Filipino, 22.3% Native Hawaiian, 4.7% Samoan, 4.2% White, and 23.1% other Measures/control variables: substance misuse, mental health (depression, anxiety)	<ul style="list-style-type: none"> Cyberbullying victims were 2.5 times more likely to engage in binge drinking and marijuana use, almost twice as likely to be depressed, and 3.2 times more likely to attempt suicide
Houbre et al. (2006)	To examine links between substance misuse, victimization, and acts of aggression <ul style="list-style-type: none"> Cross-sectional 	N: 162 students in France Age/grade: 12–17 Gender: 56.8% male, 43.2% female Race/ethnicity: 95.1% French, 4.9% Foreigners Measures/control variables: self-concept assessment, aggressive acts, parents' occupation, addictive behaviors, post-traumatic stress	<ul style="list-style-type: none"> Students in special education were more involved in bullying than students in regular schools; Students in special education reported a lower score on several dimensions of the self-concept than students in regular schools; Students who reported being victims of aggression exhibited a higher level of post-traumatic stress; No positive link was found between addictive behavior and victimization; The more the students had thoughts or nightmares related to victimization, the greater their tendency to smoke
Mackie et al. (2011)	To examine whether different developmental subtypes of psychotic-like experiences exist and whether different trajectories of psychotic-like experiences are related to victimization and substance misuse <ul style="list-style-type: none"> Longitudinal 	N: 409 students in U.K. Age/grade: 14.7 (mean) Gender: male and female Race/ethnicity: 35.5% White, 29.6% African/Caribbean, 16.4% Asian, 11% mixed race, 6.4% other Measures/control variables: psychotic-like experiences, personality, alcohol use, depression and anxiety, substance use, peer victimization	<ul style="list-style-type: none"> Peer victimization increased the likelihood of persistent psychotic-like experiences; Peer victimized adolescents were engaging in tobacco use prior to any increases in psychotic-like experiences and were engaged in cocaine, cannabis, and other drug use as psychotic-like experiences increased at later time points

Reference	Purpose/Design	Sample/Measures	Findings
Mitchell et al. (2007)	To examine the association between online and offline victimization with depression, delinquency, and substance misuse <ul style="list-style-type: none"> Longitudinal 	N: 1,501 youth internet users in U.S. Age/grade: 10–17 Gender: 53% male, 47% female Race/ethnicity: 73% White, 10% Black, 8% other races, 7% Hispanic Measures/control variables: online interpersonal victimization, offline interpersonal victimization, life adversity, demographic characteristics, negative symptomatology	<ul style="list-style-type: none"> All types of online and offline victimization were independently related to depression, delinquency, and substance misuse; Youth with online sexual solicitations were almost two times more likely to report depression and substance misuse
Niemela et al. (2011)	To examine the association between bullying and victimization and substance misuse <ul style="list-style-type: none"> Longitudinal 	N: 2,946 male adolescents in Finland Age/grade: 8 and 18 Gender: male Race/ethnicity: not reported Measures/control variables: bullying and victimization, drunkenness, smoking frequency, childhood family structure, parental education level, psychopathology at age 8, psychopathology at age 18, other forms of substance misuse	<ul style="list-style-type: none"> Frequent victimization at age 8 predicted daily heavy tobacco use and other forms of substance misuse at age 18; Bullying predicted illicit drug use; Victimization predicted lower occurrence of illicit drug use; Bullying was not associated with frequent alcohol use
Radliff et al. (2012)	To examine self-reported prevalence of bullying involvement and substance misuse <ul style="list-style-type: none"> Cross-sectional 	N: 78,333 middle and high school students in U.S. Age/grade: middle and high school Gender: 49.5% male, 51% female Race/ethnicity: (middle school) 57.7% White, 19% Black, 26.3% other/multiple ancestry (high school) 61.1% White, 19.5% Black, 19.3% other/multiple ancestry Measures/control variables: bullying and victimization, substance misuse, demographic variables, school climate, student activities, risky behaviors, and external messages about substances	<ul style="list-style-type: none"> Youth involved in bullying were more likely to use substances than those uninvolved; Bully-victims reported the greatest levels of substance misuse
Rivers et al. (2009)	To examine the impact of bullying on the mental health of youth who witness it <ul style="list-style-type: none"> Cross-sectional 	N: 2,002 students in U.K. Age/grade: 12–16 Gender: male and female Race/ethnicity: 91% White, 5.1% Other, 1.8% mixed/biracial, 1.3% Asian, 0.4% Black, 0.3% Chinese Measures/control variables: perpetrator, victim, and witness status; mental health concerns; common student concerns; substance misuse	<ul style="list-style-type: none"> Witnessing peer victimization has a significant negative impact on multiple indicators of mental health; Bullying and witnessing peer victimization each predicted higher levels of substance misuse
Tharp-Taylor et al. (2009)	To examine the relationship between victimization (mental and physical) and use of alcohol, cigarettes, marijuana, and inhalants <ul style="list-style-type: none"> Longitudinal 	N: 926 middle school students in U.S. Age/grade: 6 th –8 th grade Gender: 45.0% male, 55.0% female Race/ethnicity: 43.4% White, 26.5% Hispanic, 13.7% Mixed/multi-ethnic, 7.3% Asian/Pacific Islander, 5.6% Other, 3.5% Black Measures/control variables: students' school attended, gender, grade, race/ethnicity, substance misuse, bullying victimization	<ul style="list-style-type: none"> Youth who experienced mental or physical victimization separately or in combination were more likely to report substance misuse in spring 2005; This finding held after controlling for gender, grade level, race/ethnicity, and substance use in fall 2004
Topper et al. (2011)	To examine the development of risky coping drinking motivation as a mediator in the association between victimization and alcohol-related problem behavior	N: 245 students in U.K. Age/grade: 13–15 Gender: 28.3% male and 71.7% female	<ul style="list-style-type: none"> Peer victimization leads directly and indirectly to alcohol-related problems;

Reference	Purpose/Design	Sample/Measures	Findings
Vieno et al. (2011)	<ul style="list-style-type: none"> Longitudinal To examine the prevalence of 6 forms of bullying (physical, verbal, relational, sexual, cyber, and racist), and the role of tobacco use and drinking in bullying Cross-sectional 	<p>Race/ethnicity: 36.6% White, 32% Black, 12.9% Asian, 9.8% Mixed race</p> <p>Measures/control variables: gender, age, school grade, race/ethnicity, bullying victimization, drinking motives, alcohol problem, alcohol use</p> <p>N: 2,667 middle and high school students in Italy</p> <p>Age/grade: middle and high school students</p> <p>Gender: 50.1% male, 49.9% female</p> <p>Race/ethnicity: not reported</p> <p>Measures/control variables: bullying, smoking behavior, drinking behavior</p>	<ul style="list-style-type: none"> Peer victimization promotes a risky style of drinking, which influences a developmental risk for drinking problems Prevalence of both bullies and bully- victims was higher in boys than in girls; Girls were more likely to be victimized than boys; Rate of victimization and bullying- victimization declined across the age cohorts; Victims, bullies, and bully-victims are at increased risk for tobacco use and drinking than their uninvolved peers
Weiss et al. (2011)	<ul style="list-style-type: none"> To examine the relationship between smoking initiation and hostility, depressive symptoms, and bullying (bullies and bully-victims) Longitudinal 	<p>N: 1,771 adolescents in U.S.</p> <p>Age/grade: 6th-8th</p> <p>Gender: male and female</p> <p>Race/ethnicity: 38% Hispanic, 27% Asian, 16% Multi-ethnic, 11% White, 6% Others, 1.5% Black</p> <p>Measures/control variables: Lifetime smoking, hostility, depressive symptoms, bully and bully-victim status, age, gender, SES, race/ethnicity, immigration status, program exposure, acculturation status</p>	<ul style="list-style-type: none"> Hostility, depressive symptoms, and bullying were independently and significantly related to risk for smoking initiation; Bully-victims at baseline were more likely to initiate smoking by the 8th grade