Beyond the Brain: The Role of Bullying in Adolescent Substance Abuse
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Among the most important contributions to the understanding and treatment of addiction is the abandonment of the notion that substance abuse is a moral failing, a lifestyle choice, or character flaw, but instead has biological, hereditary contributions that predict its occurrence and course. Defining addiction as a chronic, relapsing brain disease characterized by compulsive drug seeking and use, despite negative consequences, has transformed the medical and psychological study of addiction since the 1930’s [1]. Indeed, scientists estimate that genetic factors account for approximately 40% to 60% of an individual’s vulnerability to addiction, including the role of the environment on gene expression and function [1]. Specifically, since abnormalities in the reward system of the brain (e.g. liking, wanting, and learning) are believed to play a role in numerous psychiatric disorders, including substance abuse, study of the functional neuroanatomy of reward has been seen as critically important in neuropsychiatry [2]. From a neurobiological perspective, addiction is a disorder of brain reward mechanisms (e.g. the dopamine pathway, among other neurotransmitters) that are critical for survival [2].

Despite the obvious utility of a brain-based understanding of addiction, researchers also acknowledge the contributions of environmental risk factors upon substance abuse. Such influences include family-related characteristics (e.g. family functioning, parenting practices, and child maltreatment) in addition to contextual factors (e.g. peer influences, the availability of substances, and opportunities for consumption) [3]. It is understood that heritable neurobiological variables, in conjunction with environmental risk factors, interact to determine an individual’s likelihood for engaging in substance abuse [3]. However, we propose that the role of a particular environmental risk factor, bullying, which is common in childhood and adolescence, has not yet been adequately considered in the development of addictive behaviors to substances.

Bullying is one of the most common forms of child violence, with a recent population study of elementary, middle school, and high school students revealing that 41% of students were frequently involved in bullying, 23% were victims of bullying, 8% were bullies, and 9% were bully/victims [4]. Bullying is a form of instrumental aggression, meaning that it is proactive and frequently not a response to aggressive behavior demonstrated by a victim [5]. A power differential exists between perpetrator and victim, such that the victim is typically unable to defend himself or herself from the bully’s aggression [5]. Bullying behavior tends to be repeated over time, although in some cases, a single incident can also be seen as an instance of this type of aggression [6]. In contrast to a traditional conceptualization of bullying as a dyadic relationship (between bully and victim), some researchers have emphasized the importance of the role of the bystander, an active and involved participant in the social architecture of the school, with bullying thus redefined as a triadic (bully-victim-bystander) relationship [7].

Three types of peer victimization have been described in the literature: physical bullying, verbal bullying, and relational bullying. Physical bullying is a purposeful attempt to injure or make someone uncomfortable through the use of physical contact (e.g. hitting, pushing, hair-pulling) [6]. Verbal bullying, also called direct verbal aggression, consists of behaviors such as name-calling, shouting, abusing, and accusing [8]. Finally, relational bullying includes harming peers through purposeful manipulation (e.g. gossiping, ignoring, rumor-spreading) or causing damage to relationships or friendships [9].

There is a relative lack of literature regarding substance abuse and perpetration of bullying [10], but the extant literature indicates that higher rates of substance use are associated with bullying [10-18]. For example, Radliff et al. found that in a large sample of middle and high school youth, individuals involved in bullying were more likely than students who did not participate in bullying to use substances [13]. During the 1980s, problem-behavior theory was frequently employed to suggest that the use of aggressive behavior indicated a general orientation toward antisocial behavior [19]. In contrast, more recently, Carlyle and Steinman suggested that the co-occurrence of substance use and aggressive behavior reflect an adolescent’s attempt to deal with peer rejection [11]. This may be particularly true for bully-victims, and in support of this, Radliff et al. found that bully-victims demonstrated higher levels of substance abuse than bullies or victims [13].

Research has yet to indicate whether bullying behaviors results in increased substance use, or whether substance use leads to bullying behaviors. Houbre et al. suggested that there is a reciprocal interaction between aggressive behaviors, substance use, and psychosomatic symptoms, in which children with aggressive tendencies and psychosomatic symptoms pursue and contribute to environments that reinforce their interactional style, with the “deviant” child adopting other “deviant” behaviors, such as substance abuse [10].

The research regarding the relation between substance among and victimization is less clear. Some studies suggest that victims are more likely to engage in substance use in comparison to their involved peers [11,17,20], while others indicate that it varies according to the substance [12,13], and still others have found no relationship between substance use and bullying victimization [10,14]. Although Houbre et al. found no relationship between bullying victimization and the use of alcohol, tobacco, and drugs, they did find that that adolescents who reported higher levels of intrusive thoughts or nightmares related to being bullied had higher levels of tobacco use [10]. The researchers hypothesized that nicotine use may help victims cope with the intrusive thoughts, or may help victims restore their social image and self-esteem. Interestingly, Rivers et al. found that bullying perpetration and witnessing bullying predicted elevated levels of substance abuse, while being a victim did not [14].

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Bendixen and Olweus found a relationship between smoking and alcohol use and general antisocial behavior, leading Olweus to conclude that such behaviors are reflective of a norm-breaking, antisocial orientation and that a reduction in bullying behavior would also result in decreases in substance abuse [21]. Amundsen and Ravndal conducted the only existing study examining the impact of Olweus’s Bullying Prevention Program upon substance abuse [22]. The Olweus Program does not specifically address substance abuse, but instead focuses upon what may be considered underlying contributions of general antisocial behavior through the implementation of school, class, and individual interventions that establish a school and home environment that is characterized by positive adult engagement and clear boundaries regarding acceptable behavior. The study revealed that although the program did not appear to decrease the frequency of alcohol use, the program did result in decrease in excessive alcohol intoxication and the use of cannabis.

The existing research has suggested linkages between bullying and substance use, although these relations are unclear. However, at least one study has documented that a commonly-used intervention program designed to decrease bullying, the Olweus Bullying Prevention Program, has been associated with a reduction in some of the more severe use of substances. We contend that, in addition to considering the heritable influences upon substance use, it is important also to reflect upon the environmental risk factors that contribute to addictive behaviors. Specific stresses associated with substance abuse include child maltreatment, which arguably includes bullying by peers. Since heritable, biological factors may be deemed immutable, it would seem prudent to address the role of concurrent environmental stressors upon substance use, such as bullying, as intervention in such behaviors are considerably more likely to be successful in reducing a robust risk factor for the development of addictive behaviors.

Therefore, it is recommended that additional research be conducted to more clearly elucidate the relationships between the roles of bully, victim, and bystander and the behaviors of substance abuse. Furthermore, additional study is clearly needed to determine whether attempts to reduce bullying behavior also serve to reduce substance use. Although the likelihood of peer victimization diminishes with age, the scars of these experiences remain, while the use of substances in children and adolescents is a public health problem that continues into adulthood. It is important that we seize the opportunity available to us to address a risk factor for substance use, the effects of which are potentially devastating not only for functioning during childhood and adolescence, but also to likelihood of a healthy, productive future.

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