



Review

Marijuana use and physical dating violence among adolescents and emerging adults: A systematic review and meta-analysis



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ABSTRACT

Background: As restrictions on marijuana are loosened, there is concern of a coming increase in marijuana use among adolescents and emerging adults, which could be coupled with commensurate increases in behavioral problems associated with use, such as physical dating violence (PDV). To summarize what is known about the association between marijuana use and PDV victimization and perpetration among 11–21 year olds, we conducted a systematic review and meta-analysis of the relevant literature published between 2003 and 2015.

Methods: Candidate articles were identified with a systematic search, and we used inclusion and exclusion criteria to review titles, abstracts, and the full text of studies for consideration. There were 13 articles examining marijuana in association with PDV; five addressed victimization and 11 addressed perpetration.

Results: Findings suggest that marijuana use is associated with a 54% increase in the odds PDV victimization, and a 45% increase in the odds of perpetration.

Conclusions: Findings suggest that dating violence is a correlate of marijuana use, and that association is strongest among adolescents (vs. emerging adults) and girls (vs. boys). Therefore, it should be routinely included as a core data item in marijuana surveillance systems, so as to allow for behavioral monitoring.

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1. Introduction

In the U.S., marijuana policy is changing rapidly at the state level. Statutes that effectively end sanctions for marijuana use by adults (>21 years) have been passed in Washington D.C., Washington, Oregon, Colorado, and Alaska. Additionally, Washington D.C. and 20 states have removed criminal penalties for use and possession (i.e., decriminalization), and 35 states have passed laws allowing for medical use (National Conference on State Legislatures (NCSL, 2016a,b). Policy changes may have notable implications for adolescents and emerging adults because they have the highest rates of marijuana use (Johnston et al., 2014, 2015; Table 1), and are at developmentally sensitive time periods. Nationally-representative data from 2013 show that 23% of high school students and 20% of 18–25 year olds report past 30-day marijuana use (Substance Abuse and Mental Health Services Administration (SAMHSA, 2014; Kann

et al., 2014). As restrictions on marijuana are loosened, there is concern of a coming increase in marijuana use among adolescents and emerging adults, which could be coupled with commensurate increases in behavioral problems associated with use (Testa and Brown, 2015).

We have limited knowledge about the associations between marijuana use and behavioral problems, but are in a period in time when such information is very much needed. It is necessary to develop a comprehensive understanding of the associations between marijuana use and specific public health problems in general, and among adolescents and emerging adults in particular, given their high levels of use and developmental stage (American Academy of Pediatrics, 2015; Ghosh et al., 2016). This knowledge can inform policy decisions, and can enable the public health sector to anticipate how changes in marijuana policy and use might impact other behavioral problems, so as to mitigate adverse consequences.

Dating violence is an example of a behavioral problem that could be influenced by marijuana use, though there is not yet a scientific consensus as to the association between the two (Testa and Brown, 2015). The fact that there is strong support for an

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Table 1

Percentage reporting past 30-day marijuana use, by age and population group, US, 2013.

Age Group ^a	
12–17 year olds	7%
18–25 year olds	20%
26–34 year olds	13%
35–49 year olds	6%
50+ year olds	3%
Population Group	
8th, 10th, and 12th grade students, combined ^b	16%
8th grade students ^b	10%
10th grade students ^b	20%
12th grade students ^b	27%
High school students ^c	23%
Full-time college students ^d	21%
Adults 1–4 years post high school graduation, not enrolled in school full-time ^d	26%

^a Substance Abuse and Mental Health Services Administration (2014).

^b Johnston et al. (2015).

^c Kann et al., 2014.

^d Johnston et al. (2014).

association between alcohol and partner violence among youth (Rothman et al., 2012; Shorey et al., 2011) highlights the importance of considering substance use as a risk factor for partner violence. To fill this knowledge gap, we review and summarize the existing literature describing what is known about the association between marijuana use and physical dating violence (PDV) among adolescents and emerging adults in the U.S.

1.1. Marijuana use and physical dating violence (PDV)

Approximately 10% of U.S. high school students report having experienced PDV victimization in the past year (Rothman and Xuan, 2013; Kann et al., 2014). Estimates of the prevalence of PDV perpetration among the same population range from 12%–31% (Rothman et al., 2010; Taylor and Mumford, 2016; Haynie et al., 2013; Coker et al., 2014). Although population-based estimates of PDV among emerging adults are harder to obtain, results from nationally-representative surveys and studies of college students suggest that the prevalence is also high (Berger et al., 2012; Smith et al., 2003; Black et al., 2010). Approximately 10%–40% of 18–21 year olds report PDV in a relationship (Johnson et al., 2015b,c; Halpern et al., 2009).

The consequences of PDV can be serious. Those who are victimized are at increased risk for multiple negative outcomes including physical health problems, depressive symptomatology, unhealthy eating behavior, academic difficulties, and physical injury (Fletcher, 2010; Bonomi et al., 2013; Ackard et al., 2007; Coker et al., 2000; Exner-Cortens et al., 2013). Youth who perpetrate PDV also have significant psychosocial problems, and are at an increased risk for perpetrating partner violence in adulthood (Gidycz et al., 2007; Smith et al., 2003).

Two recent reviews highlight relevant information about the association between marijuana use and dating violence (Testa and Brown, 2015; Vagi et al., 2013). First, Vagi et al. reviewed longitudinal studies (published from 2000 to 2010) to identify risk and protective factors for dating violence perpetration among 10–24 year olds. Of the 20 studies included in that review, just one examined marijuana use as a risk factor, and results were not statistically significant (Foshee et al., 2010). An important lesson from Vagi et al.'s (2013) work is that marijuana has been infrequently examined in etiological research on dating violence, particularly in comparison to alcohol.

Second, Testa and Brown (2015) conducted a narrative review of 30 studies (published since 2008) that addressed marijuana use and dating violence perpetration among youth and adults. They

concluded that there is likely a modest positive association between marijuana use and partner aggression globally, i.e., an association between the two over a given time period, or at two or more different time points. However, they further note that the two behaviors have not been shown to be linked in studies that examine “event-level” associations, i.e., marijuana use occurring on the same day as dating violence. The limited information from event-level studies raises the possibility that global associations could simply reflect two co-occurring, but not mechanistically related, behaviors.

Both reviews suggest important next steps for research on marijuana use and PDV, which we address in this study. First, neither summarizes marijuana use in association with PDV victimization, which is a notable gap. Second, at this stage in the science, a systematic review and meta-analysis on the topic are warranted. Results would provide a quantitative, summative estimate of the association between marijuana use and PDV to provide additional context to the existing reviews. Third, results of existing studies should be viewed in terms of both their study design as well as the theorized mechanisms, so as to better understand how marijuana use might be associated with PDV globally, and at the event level (Testa and Brown, 2015). There are several theoretical explanations for how marijuana use could increase risk for partner violence, and we review them below.

1.2. Marijuana use and physical dating violence (PDV): theoretical explanations

1.2.1. PDV perpetration. One class of potential mechanisms linking marijuana use to partner violence relates to how the substance impacts users' physiological and psychological state. First, use impairs cognition and creates perceptual distortions (Pope and Yurgelun-Todd, 1996; Goldstein, 1985). Consequently, people who have used marijuana may interpret others' actions as aggressive even if they are not, and respond combatively. Second, marijuana may impair the ability to tamp down aggressive impulses, and thereby increase the risk for aggressive behavior in conflict situations (Moore and Stuart, 2005; Yanowitch and Coccaro, 2011; Temple et al., 2013; Friedman, 1998). Third, marijuana can make some users feel paranoid, anxious, or panicky, which could elevate risk for conflict (Moore and Stuart, 2005). Relatedly, marijuana use increases heart rate, and the physiological arousal associated with an increased heart rate may increase the likelihood of aggressive behavior (Moore and Stuart, 2005). A fourth explanation relates to symptoms of withdrawal; which may contribute to irritability and, therefore, increase the risk for conflict and aggression (Moore and Stuart, 2005; Smith et al., 2013; Smith, 2002; Testa and Brown, 2015).

Further explanations relate to the interaction between people and their social environments. Specifically, an association between marijuana use and PDV perpetration could be situational – purchasing and using marijuana may bring one into settings and social contexts where violence is more likely (Bean, 2001). Friedman (1998) identifies a “systematic dimension” model, which suggests that those who use marijuana may become involved in violence because it is intrinsic to the selling of illicit substances. Among youth, this may be reflected in friendship with peers who use or sell illicit drugs and/or who engage in high levels of violence.

A final explanation relates to “problem behavior theory.” The premise of problem behavior theory is that adolescents have psychosocial motivations to engage in a variety of risk behaviors – such as dating violence and substance use (Jessor, 1987). This theory would suggest that there are antecedent variables that increase risk for both marijuana use and PDV, and that their co-occurrence reflects those antecedent motivations rather than one behavior “causing” the other.

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