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Understanding the Role of Alcohol, Anxiety, and Trait Mindfulness in the Perpetration of Physical and Sexual Dating Violence in Emerging Adults

Quyen M. Ngo¹, Jessica I. Ramirez¹, Sara F. Stein¹, Rebecca M. Cunningham^{1,2}, Stephen T. Chermack^{1,3}, Vijay Singh¹, and Maureen A. Walton¹

¹University of Michigan, Ann Arbor, MI, USA

²Hurley Medical Center, Flint, MI, USA

³Veterans Affairs Ann Arbor Healthcare System, MI, USA

Abstract

This study examines alcohol consumption, anxiety, trait mindfulness, and physical and sexual dating violence aggression (PDV and SDV) among 735 emerging adults (18–25 years) in an urban emergency department. Of the total sample, 27.2% perpetrated PDV and 16.5% perpetrated SDV. Alcohol was positively associated with PDV/SDV. Anxiety was positively associated with PDV. Mindfulness was negatively associated with PDV/SDV. Interaction analyses revealed women had lower PDV with higher nonjudgment facet of mindfulness. Higher act aware was associated with lower PDV regardless of high versus low alcohol. Findings indicate different contributing factors among perpetrators of PDV/SDV; some factors may be attenuated by mindfulness.

Keywords

dating violence; sexual violence; alcohol use; anxiety; trait mindfulness

Dating Violence (DV) in Emerging Adults (EAs)

DV is a serious public health problem, with estimates ranging from 15–60% of EAs (age 18–25 years) presenting to emergency department (ED) settings perpetrating physical dating violence (PDV) and/or sexual dating violence (SDV) with an intimate partner (Carroll, Raj, Noel, & Bauchner, 2011; Singh et al., 2014). DV is defined as physical violence, sexual violence, threats of physical or sexual violence, stalking, and psychological aggression (including coercive tactics) by a current or former intimate partner (Black et al., 2010). DV in emerging adulthood has enormous economic and psychosocial costs in the United States (Lieschutz, 2012) as well as morbidity and mortality (Foshee & Matthew, 2007). Although recent theoretical and empirical paradigm shifts suggest that DV among EAs may be a

Corresponding Author: Quyen M. Ngo, Injury Prevention Center, Department of Emergency Medicine, University of Michigan, 2800 Plymouth Rd., Suite B10-G080, Ann Arbor, MI 48109-2800, USA. qen@umich.edu.

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dyadic and mutual process between partners (Chiodo et al., 2012; Dutton, 2012; O'Leary & Slep, 2012; Whitaker, Haileyesus, Swahn, & Saltzman, 2007), much of the prior literature has focused on males as aggressors and females as the victims, with less attention given to females who commit acts of aggression in the context of dating relationships (Bonache, Gonzalez-Mendez, & Krahé, 2017; Exner-Cortens, Eckenrode, & Rothman, 2013). Moreover, research on DV among EAs focuses specifically on PDV or SDV, or does not distinguish the two, despite the potential ramifications for health with regard to sexually transmitted infections (Buelna, Ulloa, & Ulibarri, 2009; Teitelman et al., 2016) and child bearing (O'donnell, Agronick, Duran, Myint-U, & Stueve, 2009; Young, Deardorff, Ozer, & Lahiff, 2011). Finally, much of the literature on DV among EAs has focused on college students, with additional studies focused on those who are not in college, given they may be at increased risk for negative health outcomes, including violence (Coker, Follingstad, Bush, & Fisher, 2016; O'Donnell et al., 2009). Thus, the present study examines DV among a community sample of EAs presenting to the ED.

Factors Associated With DV Aggression: Alcohol, Anxiety, and Mindfulness

Consistent with socioecological theory (Bronfenbrenner & Morris, 1998; Heise, 1998; J. W. White, 2009), in which shared risk and promotive factors within the individual and social environment increases or decreases risk for DV aggression, the proposed study is informed by the I-Cubed theory of intimate partner violence (IPV; Finkel et al., 2012). This theory states that instigating, impelling, and inhibiting factors explain interactions that escalate to partner violence (Finkel et al., 2012). Instigating factors are defined as partner behaviors that trigger aggression. Impelling factors are dispositional or situational factors that increase the urge to aggress (e.g., anxiety, alcohol use). Inhibiting factors increase the likelihood that an individual will override their urge to aggress. Consequently, the likelihood of aggression is highest when instigating and impelling factors are high and inhibiting factors are low (Finkel et al., 2012). In this regard, alcohol use is a well-documented risk and instigatory factor for dating aggression (Finkel et al., 2012; Rothman, McNaughton Reyes, et al., 2012; Shorey, Stuart, & Cornelius, 2011). Consumption peaks among EAs (Jackson, Sher, & Schulenberg, 2008; H. R. White, Jackson, & Loeber, 2009) with approximately 60% of noncollege EAs reporting alcohol use in the last 30 days and 35% of noncollege EAs reporting 5+ drinks in a row in the past 2 weeks (Windle, 2003). Data from laboratory and daily assessment studies show that alcohol intoxication reduces inhibition, increasing the likelihood of cue interpretation as aggressive (Devries et al., 2014; Epstein-Ngo et al., 2013; Epstein-Ngo et al., 2014; Giancola & Corman, 2007; Gilchrist, Ireland, Forsyth, Godwin, & Laxton, 2017; Maldonado-Molina, Reingle, & Jennings, 2011; Scaglione et al., 2014; Sell, Turrissi, Scaglione, Hultgren, & Mallet, 2016; Steele & Josephs, 1988), priming one to engage in more instigatory cues (Sayette, Wilson, & Elias, 1993). Foran and O'Leary (2008) conducted a meta-analytic review of over 50 previous research articles on alcohol use/abuse and IPV. The authors found that among studies of female alcohol use/abuse and aggression, there was a small but significant average effect size ($r = .14$; 95% confidence interval = $[0.08, 0.20]$), whereas for males, average effect sizes ranged from small to moderate ($r = .23$; 95% confidence interval = $[0.21, 0.24]$). Of note, the authors were only able to find eight studies of female to male aggression whereas 47 studies of male to female aggression were

found. This demonstrates the need for more studies that include both female to male and male to female aggression, such as the present study (Devries et al., 2014; Rothman, McNaughton Reyes, et al., 2012).

Similarly, anxiety has been associated with DV aggression and could be considered an additional risk factor impelling DV (Foshee et al., 2011; Godbout, Dutton, Lussier, & Sabourin, 2009; Vagi et al., 2013). Studies supporting this notion include those showing a positive association between anxiety and DV aggression (Shorey, Sherman, et al., 2011; Vagi et al., 2013); furthermore, anxiety has been widely diagnosed among EAs and has been strongly associated with a myriad of comorbidities (Gros, Gros, & Simms, 2010). However, this relationship is likely reciprocal in nature, as research also shows that involvement with violence increases risk for anxiety (Gros et al., 2010), with additional studies needed to establish temporality. The association between anxiety and DV aggression may be explained by Endler's Multidimensional Interaction Model of stress, anxiety, and coping. This model posits that cognitive processing of threat triggers anxiety and associated stress responses (e.g., physical violence, aggression) as a way to mitigate the perceived threat (Endler, 1997). Arguments between couples may trigger anxieties that result in physical violence as a way to mitigate perceived threats to physical or emotional well-being. Finally, in terms of sex differences, male and female victims of sexual aggression experience anxiety at similar rates, and anxiety is also strongly correlated with DV aggression (Shorey, Sherman et al., 2011).

In contrast to alcohol use and anxiety, which would be considered impelling factors under the I-Cubed theory (Finkel et al., 2012), mindfulness could be considered an inhibitory factor. Mindfulness can be a temporary state or a stable trait, but it is also a skill that can be enhanced (Gallagher, Hudepohl, & Parrott, 2010). This construct is defined as an awareness that comes from intentionally and nonjudgmentally paying attention to the present moment's internal and external experiences/sensations (Kabat-Zinn, 2003). Despite the growth of research on mindfulness and the theoretical rationale of it as an avenue through which violence may be reduced, few studies have closely examined mindfulness in relation to violent behaviors, despite links between mindfulness and risk factors associated with violence. Mindfulness may mitigate violent aggression through a number of factors, including increasing behavioral control, increasing executive functioning, and decreasing emotional reactivity or substance use (Hölzel et al., 2011; Witkiewitz, Marlatt, & Walker, 2005). For instance, trait mindfulness is linked with reductions in alcohol use or relapse (Witkiewitz et al., 2005). Moreover, lower levels of trait mindfulness have been associated with higher levels of impulsivity (Wupperman et al., 2012; Wupperman, Neumann, Whitman, & Axelrod, 2009), and more negative affect such as anxiety (Brown & Ryan, 2003; Wupperman et al., 2009). State mindfulness has also been positively associated with levels of executive functioning (Chambers, Lo, & Allen, 2008). These factors are associated with violence and aggression (Birkley & Eckhardt, 2015; Watkins, Maldonado, & DiLillo, 2014), potentially suggesting a moderating role of mindfulness in the association between alcohol use and DV. For example, Gallagher and colleagues (2010) found the link between amount of alcohol consumption and sexual coercion was reduced with higher levels state of mindfulness. Unfortunately, despite compelling evidence, the nascent research on

mindfulness-based treatments to reduce aggression reveals a number of weaknesses in study design (Fix & Fix, 2013), including lack of rigorous designs and small sample sizes.

Furthermore, mindfulness is not a unidimensional construct, although relatively few studies to date have examined mindfulness as more than a unidimensional factor, which may be particularly important in relation to emotion regulation. For example, research from primarily college samples has shown that acting aware and nonreactivity, which are facets of mindfulness, may be important in relation to anger or aggression (Peters, Eisenlohr-Moul, Upton, & Baer, 2013; Shorey, Larson, & Cornelius, 2014). For example, acting aware and anger were associated in a primarily Caucasian undergraduate sample (Peters et al., 2013), while acting with awareness and nonreactivity facets were associated with physical aggression among primarily Caucasian undergraduate females (Shorey, Seavey, et al., 2014). Although these are significant first steps in this literature, further studies are required to explore these facets of mindfulness in relation to aggression among more marginalized groups and racially diverse samples of EAs.

Study Objectives

This study addresses crucial gaps in the literature by focusing on those who report DV aggression, both PDV and SDV, among both men and women compared with those with no DV aggression, which is unique in that past research has primarily exclusively examined aggression in men (Bermudez et al., 2013; Gallagher et al., 2010). Also, this study examines EAs (18–25 years), which is a theoretically and empirically distinct developmental time period (Arnett, 2000) when involvement in DV peaks or persists (Rennison & Planty, 2003; H. R. White et al., 2009) potentially due to increases in commitment to partner, cohabitation, and sharing of finances (Arnett, 2000). In addition, a limited number of studies have examined the potential role of mindfulness in relation to DV aggression, which could be the focus of future interventions. Finally, this study focuses on DV in a health care and community-based sample of underserved, high-risk EAs, whereas most studies of DV have focused on college samples or adolescents (Vagi et al., 2013; Voth Schrag, 2017).

Given the significant gaps in our understanding of DV among EAs, this cross-sectional study examines both PDV and SDV committed by males and females, among a racially diverse sample of underserved EAs. We hypothesized as follows:

Hypothesis 1: Alcohol use will be positively associated with PDV and SDV.

Hypothesis 2: Anxiety will be positively associated with PDV and SDV.

Hypothesis 3: Trait mindfulness will be negatively associated with both PDV and SDV.

Hypothesis 4: Exploratory analyses will examine whether trait mindfulness and specific facets of mindfulness are associated with PDV and SDV. We expect that acting aware, nonjudgment, and nonreactivity will be negatively associated with PDV and SDV. Post hoc analyses will explore Mindfulness $\times$ Substance Use and Mindfulness $\times$ Mental Health interactions as related to PDV and SDV.

Method

Participants

Of the 1,284 EAs approached in the ED, 77% ($n = 1,001$) completed the screen. Of the total screened, a subsample of participants was chosen based on whether they had received the full range of mindfulness questions, yielding a final sample size of $n = 735$ (female = 270; male = 465). The final sample (see Table 1) was on average 21.5 years of age ($SD = 2.3$), 63.3% males, 57.3% African Americans (vs. 42.7% Caucasian/Other), 61.8% received public assistance, and 31.7% reported at least some college education (see Table 1). Of those in the final sample, 23.7% of youth reported being single in the previous 6 months, 65.1% reported having a girlfriend/boyfriend, 10.6% reported having a fiancée, and 0.6% reported being married. Those who refused participation did not differ by age. Refusal rates by sex differed with males refusing at higher rates than females (24.7% vs. 18.0%, respectively, $\chi^2 = 7.93$, $p < .01$). African Americans had a lower refusal rate (16.0%) than Caucasians (32.3%; $\chi^2 = 49.30$, $p < .001$).

Procedures

Data for this study were collected from the screening phase of a larger intervention development project to reduce alcohol use and physical aggression, called the Ahimsa Project. Participants were recruited from the Hurley Medical Center (HMC), a Level 1 urban ED in Flint, Michigan, between December 2013 and September 2015. The University of Michigan and HMC Institutional Review Boards approved the study protocols, and a Certificate of Confidentiality was obtained from the National Institutes of Health. This study was designed to oversample for males who are less likely to seek medical care and also less likely to agree to participate in research studies (Costello, He, Sampson, Kessler, & Merikangas, 2014).

Research staff shifts covered all 7 days of the week between the hours of 6:30 a.m. and 12:00 a.m., but did not include major holidays. EAs seeking treatment for any reason in the ED were approached by research staff. Once written consent was obtained, participants self-administered a tablet-based screening survey (30–40 min), and chose a US\$1.00 gift (e.g., lotion, earbuds). Exclusion criteria included acute suicidal ideation or self-harm, acute psychosis, being in police custody, unable to speak English, illiteracy, combativeness, too sick to approach or unable to provide informed consent (e.g., unconscious, insufficient cognitive orientation, or developmental disability), currently enrolled in another study, or HMC staff status.

Measures

Dependent variables

DV aggression.: PDV and SDV were measured using the Physical Violence and the Sexual Coercion subscales of the modified Revised Conflict Tactics Scales (CTS-2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996; Wolfe, Scott, & Reitzel-Jaffe, 2001). Participants were asked about specific DV aggression behaviors with intimate partners over the past 6 months and responded on a 7-point Likert-type scale, ranging from *never* (0) to *more than 20 times* (6). Sexual coercion included both physical force as well as nonphysical acts of sexual

coercion (e.g., insisting on sex when partner did not want to, or using threats to make partner have sex). Due to the time constraints associated with ED recruitment, the Sexual Coercion Aggression subscale was condensed into two items: one question about moderate and one question about severe acts. PDV included the full physical violence aggression subscale (screen in criteria for the larger study) and condensed injury items that were by definition the result of physical violence (e.g., one moderate question and one severe question). The item assessing weapon use against a partner was split to measure the frequency of knife versus gun violence. PDV and SDV variables were created by dichotomizing CTS-2 items into binary categories with 0 = no PDV or SDV and 1 = yes PDV or SDV.

Independent variables

Demographics.: Demographic and socioeconomic measures included age, gender, race, receipt of public assistance, and whether or not participants lived with their partners (Johnston, Bachman, O'Malley, & Schulenberg, 2010).

Alcohol use.: The three-item Alcohol Use Disorders Identification Test–Consumption (AUDIT-C) was used to assess past 6-month alcohol consumption (Bush, Kivlahan, McDonell, Fihn, & Bradley, 1998). Responses ranged from *never* (0) to *daily/almost daily* (4) and were summed to create a scale score for alcohol consumption ($\alpha = .76$); note that a positive score for risky drinking is typically indicated by a score of 3 for females and 4 for males (Bradley et al., 2007; Bush et al., 1998).

Mindfulness.: Mindfulness was assessed using the 24-item Five Factor Mindfulness Questionnaire–Short Form (Baer et al., 2008; Bohlmeijer, ten Klooster, Fledderus, Veehof, & Baer, 2011). The measure assesses five theoretically informed facets of mindfulness including (a) observing ($\alpha = .75$): the extent to which one pays attention to internal and external experiences (e.g., “I pay attention to physical experiences, such as the wind in my hair or sun on my face”); (b) describing ($\alpha = .67$): the ability to label internal experiences with words (e.g., “I’m good at finding words to describe my feelings”); (c) acting with awareness ($\alpha = .76$): the extent to which one attends to current moment activities (e.g., “I find it difficult to stay focused on what’s happening in the present moment”); (d) nonjudging ($\alpha = .73$): the ability to take a nonevaluative stance toward inner experiences (e.g., “I tell myself I shouldn’t be feeling the way I’m feeling” [reverse]); and (e) nonreactivity ($\alpha = .74$): the ability to be aware of thoughts and feelings without becoming carried away by them (e.g., “I watch my feelings with-out getting carried away by them”). Trait mindfulness (24 items; $\alpha = .85$) and facet (four-six items each) scores were calculated by summing responses (ranging from *never or very rarely true* [0] to *very often or almost always true* [5]). Higher scores indicate greater mindfulness.

Anxiety.: Symptoms of anxiety were assessed using six items from the General (three items) and Panic (three items) Anxiety subscales of the Brief Symptom Inventory (Derogatis, 2001; Derogatis & Melisaratos, 1983; Recklitis et al., 2006). Response scales ranged from *not at all* (0) to *extremely* (4). Responses were summed to create anxiety symptom scores ($\alpha = .88$), with higher scores indicating greater anxiety.

Data Analysis

Analyses included descriptive statistics, bivariate analyses (t tests and chi-square as appropriate), and multivariate logistic regressions using SAS version 9.4 (SAS Institute, Inc., Cary, NC). Separate regressions were conducted for PDV aggression (PDV vs. no PDV) and SDV aggression (SDV vs. no SDV). As this article focuses on youth DV, we excluded married participants ($n = 20$; Shorey, Cornelius, & Bell, 2008). Descriptives were presented separately for males and females due to potential sex differences in DV (Rutter, Weatherill, Taft, & Orazem, 2012; Shorey et al., 2011). Multivariate logistic regressions included age, race, and gender as covariates. Models included whether or not participants lived with their dating partners, receipt of public assistance, alcohol use, anxiety, and mindfulness (unidimensional trait mindfulness and five separate facets of mindfulness). Post hoc interaction analyses explored whether mindfulness moderated the relationships between substance use/mental health and PDV/SDV. Note that a portion of the sample received a condensed version of the mindfulness questionnaire, which was later reexpanded due to measurement issues. This study uses only data from participants who received the full, uncondensed mindfulness scale.

Results

Descriptive and Bivariate Analyses

Among the sample, 58.6% reported using alcohol (see Table 1). In all, 27.2% of the sample reported PDV and 16.5% reported SDV. Among females, 33.3% reported PDV and 11.5% reported SDV with the rates among males at 23.7% for PDV and 19.4% for SDV. Of males who committed SDV, 51.1% also committed PDV. Of females who committed SDV, 64.5% also reported committing PDV. On average, females scored higher on trait mindfulness than males but there were no gender differences in average anxiety.

Bivariate analyses (see Table 2) showed those with PDV were more likely to be female, African American, receive public assistance, more anxious, and less mindful. Regarding the five facets of mindfulness, those with PDV were lower in nonreactivity, nonjudging, and acting aware. SDV (see Table 2) was associated with younger age, being male, no college education, more alcohol consumption, and less mindfulness. Regarding the five facets of mindfulness, those with SDV were lower in describing, nonjudging, and acting aware.

Logistic Regression Models

Overall trait mindfulness models.—With regard to the multivariate analyses for PDV (see Table 3), those reporting PDV were more likely to be female, African American, consume more alcohol, report more symptoms of anxiety, and report less trait mindfulness compared with those with no PDV. For the model examining SDV, aggression was associated with younger EAs, male gender, receipt of some form of public assistance, more alcohol consumption, and less mindfulness, than those reporting no SDV.

Five facets of mindfulness models.—With regard to the multivariate analyses for PDV (see Table 3), those who reported committing PDV were more likely to be female, African American, consume more alcohol, and report more anxiety symptoms compared with youth

who did not commit PDV. In terms of the facets of mindfulness, those reporting PDV reported less nonjudging, and less acting aware. For the model examining SDV, aggression was associated with younger age, male gender, public assistance, and more alcohol consumption. In terms of the facets of mindfulness, SDV was negatively associated with the nonjudging and acting aware facets.

Post Hoc Interaction Analyses

For the models examining PDV, we ran interaction analyses with the facet of mindfulness that was significant as above (i.e., nonjudging and acting aware). Interactions for Nonjudging/Acting Aware $\times$ Alcohol, Nonjudging/Acting Aware $\times$ Anxiety, and Nonjudging/Acting Aware $\times$ Gender were examined one at a time. There were two interactions of note: Nonjudging $\times$ Gender ($\beta = -10$, $p < .05$; see Figure 1a) and Acting Aware $\times$ Alcohol Consumption ($\beta = .02$, $p < .05$; see Figure 1b). There were no significant interactions associated with SDV.

We also conducted simple slopes analyses to better understand the interaction effects (Aiken & West, 1991; Dawson, 2014; Dawson & Richter, 2006). For the Nonjudging $\times$ Gender interaction, a simple slopes analysis revealed a significant effect of low versus high nonjudgment for females ($t = -3.85$, $p = .001$) but not for males ($t = -0.63$, $p = ns$). A simple slopes analysis of the Acting Aware $\times$ Alcohol Consumption interaction revealed significant effects of low versus high acting with awareness for low alcohol consumption ($t = 2.63$, $p = .01$) and high alcohol consumption ($t = 7.32$, $p = .001$).

Discussion

There is increasing awareness of the need to reduce DV aggression, in addition to focusing on services for victims. Consequently, it is imperative to address gaps in knowledge of PDV and SDV and potential avenues for intervention. With this in mind, this study specifically aimed to fill several gaps in current understanding by (a) focusing on those who report committing DV and associated risk factors such as alcohol and anxiety, (b) examining EAs (18–25 years) who are more likely to be involved in serious partnerships, (c) exploring the potential role of mindfulness to mitigate the likelihood of DV perpetration, and (d) studying DV in a health care and community-based population of underserved, high-risk EAs.

Alcohol Consumption

With regard to physical and sexual dating violence (PDV/SDV), greater alcohol consumption was associated with both greater PDV and SDV aggression. This is consistent with the I-Cubed theory (Finkel et al., 2012) and research, in which acute alcohol use reduces inhibition, increasing the likelihood of cue interpretation as aggressive, and responding with instigatory cues (Devries et al., 2014; Epstein-Ngo et al., 2013; Epstein-Ngo et al., 2014; Giancola & Corman, 2007; Gilchrist et al., 2017; Maldonado-Molina et al., 2011; Scaglione et al., 2014; Sell et al., 2016; Rothman, Stuart, et al., 2012). This link has also been found specifically with sexual violence (Lormand et al., 2013; Shorey et al., 2015); however, much of the sexual violence literature has either not focused on dating partners (Vagi, Olsen, Basile, & Vivolo-Kantor, 2015) and/or were primarily conducted with

college samples (Edwards et al., 2015; Lehrer, Lehrer, & Koss, 2013). Our findings continue to support this link for alcohol use and PDV and SDV among a racially diverse sample of males and females residing in a socioeconomically disadvantaged urban community. Although findings from this cross-sectional study cannot identify the influence of acute consumption on PDV and SDV, data from timeline follow-back and daily diary studies suggest that intoxication increases the likelihood of DV (perpetration or victimization) among males and females as well as sexual violence victimization among women (Epstein-Ngo et al., 2013; Epstein-Ngo et al., 2014; Scaglione et al., 2014; Sell et al., 2016).

Anxiety

A lesser studied risk factor for physical aggression is anxiety. Despite a theoretical rationale for anxiety as an impelling factor in dating aggression (Endler, 1997; Finkel et al., 2012), surprisingly little research exists examining the link between symptoms of anxiety and PDV/SDV. Instead, the majority of literature in this area focuses on symptoms of anxiety and/or posttraumatic stress disorder among violence victims, implicitly framing anxiety temporally as a consequence of violence experiences (Blasco-Ros, Sánchez-Lorente, & Martinez, 2010). We found that anxiety was associated with PDV and SDV aggression; however, due to the cross-sectional nature of these data, it is unclear whether anxiety preceded acts of PDV and SDV or whether it followed acts of violence. Interpersonal conflicts likely trigger anxieties, and the stressful contexts in which these EAs live may prime them to escalate to violence given neighborhood violence exposure and reduced emotional/psychological capacity to effectively cope when conflicts arise with dating partners. Given that stressors such as poverty can be linked to increased anxiety and aggression, which likely predate involvement with DV, the likely reciprocal link between these two variables is important to examine in future longitudinal studies using daily process methods.

Mindfulness

One unique aspect of these findings is that we also examined mindfulness as an inhibitory factor, based on I-Cubed theory (Finkel et al., 2012), on PDV and SDV; further-more, we not only examined whether overall trait mindfulness was negatively associated with PDV, but we also delved into the various facets of mindfulness to explore whether there were specific aspects of mindfulness associated with PDV and SDV. Consistent with previous literature, we found that PDV was negatively associated with overall trait mindfulness (Shorey et al., 2014). We also found that, like Bergman, Christopher, and Bowen (2016) and Peters and colleagues (2013), acting with awareness and nonjudgment were the facets of mindfulness that were significantly negatively associated with PDV perpetration. Similarly, nonjudgment and acting with awareness were negatively associated with SDV aggression. Thus, trait mindfulness, particularly being aware of actions and being nonjudgmental or accepting, appears to inhibit PDV and SDV; these data are exciting as they point to the potential utility of mindfulness interventions to prevent or reduce involvement with DV. For example, inhibitory tools for aggression, such as mindfulness exercises focusing on awareness (e.g., mindful breathing) and perspective taking (e.g., compassion meditations), could be introduced.

We then examined the potential moderating role of mindfulness in inhibiting PDV and SDV. Although there were no significant interactions associated with SDV, we found that for PDV, nonjudgment interacted with gender such that females appeared to benefit more from higher levels of this facet of mindfulness than did males. Among females who had greater nonjudgment, there was less PDV aggression. There was also a significant interaction between alcohol consumption and acting with awareness on PDV. With greater impelling and instigatory factors such as higher levels of alcohol consumption, the inhibiting effects on PDV were smaller based on acting with awareness; however, with lower levels of alcohol consumption and less impelling and instigatory factors, PDV was more likely to be inhibited among those with high levels of acting with awareness. These theoretical explanations require further study using longitudinal data collection methodologies.

Nonetheless, these findings for the facets of mindfulness support precision medicine notions, in which tailoring of intervention content may be needed based on certain subgroups, such as males and for individuals with higher levels of alcohol consumption. For example, among heavy drinkers (who are more likely to be male), integration of intervention content focusing on reducing alcohol consumption and binge drinking as well as PDV could be delivered. Furthermore, addressing negative affect such as anxiety would be important if identified, particularly in relation to whether it is an impelling factor or a consequence or both for the individual. Clearly, multifocused approaches are needed to reduce PDV and SDV, with mindfulness as one component along with motivational interviewing, and/or cognitive behavioral techniques to address comorbid aggression, alcohol use, and anxiety (D. Davidson, Gulliver, Longabaugh, Wirtz, & Swift, 2007; K. M. Davidson et al., 2009; Hides, Samet, & Lubman, 2010; Walton et al., 2012). Finally, the fact that facets of mindfulness did not differ based on SDV appears to indicate consistency in these subscales; however, it may be that the lower rates of SDV created floor effects, which prevented detection of small effects. Thus, replication of these interaction effects is required.

Limitations

There are a few limitations. First, the cross-sectional data limit our ability to draw any causal conclusions from our findings. Nonetheless, the findings do point toward important future directions for research into the exact relationship between alcohol, anxiety, mindfulness, and violence. Second, although findings relied on self-report retrospective data, which could be perceived as potential recall or reporting bias, we ensured privacy and gave participants self-administered computerized assessments. The use of such techniques shows reliability and validity for self-report (Brener, Billy, & Grady, 2003). Note that we did not specify whether participants were attending a community college or a 4-year institution, nor did we assess sexuality (e.g., heterosexual, bisexual, homosexual relationships), length of cohabitation, or other differences by type of relationship (e.g., casual sex/dating partner, hookups with ex-partners, hookups with “friends with benefits”), which should be assessed in future research. In addition, the use of a community-based ED sample from an urban setting may limit the generalizability of these findings. However, the consistency with current literature and the fact that this study focuses on an understudied, underresourced population lends importance to the need for this research. Finally, future studies are needed to examine these factors in relation to within-group variation in frequency and severity of PDV and SDV.

Conclusion

The findings reveal that alcohol consumption, anxiety, and trait mindfulness are all factors associated with DV aggression in EAs in the ED. Psychotherapeutic interventions indicated for DV reduction should consider addressing alcohol consumption, mental health problems, and trait mindfulness as potential pathways to decrease PDV and SDV aggression.

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Author Biographies

Quyen M. Ngo is a research assistant professor in the Department of Emergency Medicine's Injury Prevention Center at the University of Michigan. She is a fully licensed clinical psychologist with expertise in substance use, violence and trauma, contemplative practice, and technology-assisted psychological interventions.

Jessica I. Ramirez, MPH, MSW, is a doctoral student in Social Work at the University of Washington, Seattle. Her research focuses on community violence exposure and prevention strategies for reducing violence within marginalized and underserved communities.

Sara F. Stein, LLMSW, MS, is a doctoral candidate in Clinical Psychology and Social Work at the University of Michigan. Her research focuses on chronic exposure to intimate partner violence (IPV) and aims to identify the psychosocial mechanisms that cause and/or create risk for experiencing IPV with multiple intimate partners across the lifetime.

Rebecca M. Cunningham is a professor in the University of Michigan Department of Emergency Medicine, associate vice president for Research-Health Sciences, University of Michigan Office of Research, director of the CDC-funded University of Michigan Injury Prevention Center, professor in the Department of Health Behavior and Health Education of the University of Michigan School of Public Health and the associate director of the Flint Youth Violence Prevention Center. Her expertise is in ED-based research on substance use, violence, and other negative outcomes, particularly among children, and the development and application of behavioral interventions in the ED setting.

Stephen T. Chermack is a professor in the Department of Psychiatry at the University of Michigan. Dr. Chermack's research interests include substance use screening and brief interventions in medical care settings, developing violence prevention interventions for individuals with substance use disorders, treatment interventions integrating motivational

interviewing and Cognitive Behavioral Therapy (CBT), and mental health and substance abuse health services utilization, treatment engagement, and outcomes.

Vijay Singh is a clinical assistant professor in the Departments of Emergency Medicine, Internal Medicine, and Family Medicine at the University of Michigan Medical School. He is a family medicine physician with fellowship training in health services research and public health. His research focuses on healthcare identification and response to intimate partner violence and dating violence, including associated mental health, alcohol, and substance use problems.

Maureen A. Walton is a professor in the Department of Psychiatry at the University of Michigan Medical School. Dr. Walton's research interests include developing and testing the efficacy of interventions for alcohol, drug use and violence in community health care settings, such as the emergency department (ED), primary care, and substance use treatment. Her research focuses on the interrelationship among multiple risk behaviors such as alcohol, illicit drugs, and violence, particularly among traditionally understudied populations such as adolescents, women, and African Americans.

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Figure 1.

Interaction plots.

Note. PDV = physical dating violence.

Table 1.

Demographic Characteristics and Promotive and Risk Factors by Gender.

Variables	Female (<i>n</i> = 270, 36.7%)	Male (<i>n</i> = 465, 63.3%)
	<i>M</i> (<i>SD</i>) <i>n</i> (%)	<i>M</i> (<i>SD</i>) <i>n</i> (%)
Age	21.3 (2.2)	21.6 (2.3)
African American	167 (61.9%)	254 (54.6%)
Public Assistance ***	201 (74.4%)	253 (54.4%)
College ***	114 (42.2%)	119 (25.7%)
Live with partner	77 (28.5%)	108 (23.2%)
Alcohol consumption **	1.6 (2.2)	2.2 (2.7)
Anxiety	3.3 (4.6)	3.8 (5.0)
Mindfulness **	84.5 (12.4)	81.5 (12.0)
Describe ***	18.7 (4.4)	17.5 (4.0)
Nonreactive *	16.0 (4.2)	15.3 (4.7)
Nonjudgment	16.9 (4.4)	16.8 (4.5)
Observe **	14.2 (3.7)	13.4 (4.1)
Act aware	18.6 (4.2)	18.6 (4.3)
PDV perpetration **	90 (33.3%)	110 (23.7%)
SDV perpetration **	31 (11.5%)	90 (19.4%)

Note. PDV = physical dating violence; SDV = sexual dating violence.

*
 $p < .05$.

**
 $p < .01$.

***
 $p < .001$.

Table 2. Demographic Characteristics and Promotive and Risk factors by PDV/SDV Perpetration Versus No PDV/SDV Perpetration.

Variables	PDV perpetration (<i>n</i> = 200, 27.2%) <i>M</i> (<i>SD</i>) <i>n</i> (%)	No PDV perpetration (<i>n</i> = 535, 72.8%) <i>M</i> (<i>SD</i>) <i>n</i> (%)	Variables	SDV perpetration (<i>n</i> = 121, 16.5%) <i>M</i> (<i>SD</i>) <i>n</i> (%)	No SDV perpetration (<i>n</i> = 614, 83.5%) <i>M</i> (<i>SD</i>) <i>n</i> (%)
Age	21.4 (2.2)	21.5 (2.3)	Age	21.1 (2.2)	21.6 (2.3)
Gender**	90.0 (45.0%)	180.0 (33.6%)	Gender**	31.0 (25.6%)	239.0 (38.9%)
African American**	133.0 (66.5%)	288.0 (53.8%)	African American	74.0 (61.2%)	347.0 (56.5%)
Public assistance**	140.0 (70.0%)	314.0 (58.7%)	Public assistance	84.0 (69.4%)	370.0 (60.3%)
College	60 (30.0%)	173 (32.3%)	College**	26 (21.5%)	207 (33.7%)
Live with partner	46.0 (23.0%)	1 39 (25.98%)	Live with partner	29.0 (23.97%)	156 (25.41%)
Alcohol consumption	2.6 (3.0)	1.7 (2.3)	Alcohol consumption**	2.7 (2.9)	1.8 (2.5)
Anxiety***	5.1 (5.6)	3.0 (4.4)	Anxiety	4.3 (4.9)	3.5 (4.8)
Mindfulness***	78.6 (12.0)	84.1 (12.0)	Mindfulness***	78.2 (12.7)	83.5 (12.0)
Describe	17.2 (4.2)	18.2 (4.1)	Describe*	17.1 (4.1)	18.1 (4.2)
Non reactive*	14.9 (4.0)	15.8 (4.7)	Nonreact	15.1 (4.4)	15.6 (4.5)
Nonjudgement***	15.5 (4.4)	17.3 (4.4)	Nonjudge***	15.5 (4.4)	17.1 (4.4)
Observe	13.7 (3.8)	13.8 (4.1)	Observe	13.4 (3.7)	13.8 (4.1)
Act aware***	17.4 (4.2)	19.1 (4.3)	Act aware***	17.3 (4.0)	18.9 (4.3)

Note. PDV = physical dating violence; SDV = sexual dating violence.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 3.

Logistic Regression Examining Alcohol Consumption, Mindfulness, and Anxiety on Dating Violence Perpetration.

Variable	Physical dating violence		Sexual dating violence	
	Odds ratio	95% CI	Odds ratio	95% CI
Model 1: Overall trait mindfulness				
Age	0.95	[0.88, 1.03]	0.90 [*]	[0.82, 0.99]
Gender	1.87 ^{***}	[1.29, 2.71]	0.56 [*]	[0.35, 0.90]
Race	2.06 ^{***}	[1.41, 3.00]	1.36	[0.89, 2.09]
Public assistance	1.36	[0.93, 1.98]	1.60 [*]	[1.03, 2.50]
College	0.96	[0.65, 1.41]	0.68	[0.42, 1.10]
Live with partner	1.06	[0.70, 1.61]	1.19	[0.73, 1.94]
Alcohol consumption	1.15 ^{***}	[1.07, 1.23]	1.13 ^{**}	[1.05, 1.21]
Anxiety	1.05 ^{**}	[1.01, 1.09]	0.99	[0.94, 1.03]
Trait mindfulness	0.97 ^{***}	[0.95, 0.98]	0.97 ^{**}	[0.95, 0.99]
Model 2: Five facets of mindfulness				
Age	0.96	[0.89, 1.04]	0.90 [*]	[0.82, 0.99]
Gender	1.83 ^{**}	[1.26, 2.66]	0.54 ^{**}	[0.34, 0.87]
Race	2.12 ^{***}	[1.44, 3.13]	1.41	[0.91, 2.19]
Public assistance	1.33	[0.91, 1.94]	1.57 [*]	[1.00, 2.46]
College	0.92	[0.62, 1.37]	0.64	[0.39, 1.05]
Live with partner	1.06	[0.70, 1.61]	1.20	[0.74, 1.96]
Alcohol consumption	1.14 ^{***}	[1.06, 1.22]	1.12 ^{**}	[1.04, 1.20]
Anxiety Facets of mindfulness	1.05 [*]	[1.01, 1.09]	0.98	[0.94, 1.03]
Describe	1.01	[0.96, 1.06]	1.00	[0.94, 1.06]
Nonreactive	0.96	[0.91, 1.01]	0.99	[0.93, 1.06]
Nonjudgment	0.94 [*]	[0.89, 0.99]	0.93 [*]	[0.88, 0.99]
Observe	0.96	[0.91, 1.02]	0.94	[0.88, 1.00]
Act aware	0.94 [*]	[0.90, 0.99]	0.93 [*]	[0.88, 0.99]

Note. CI = confidence interval.

^{*} $p < .05$.

^{**} $p < .01$.

^{***} $p < .001$.