



Trauma exposure and heavy drinking and drug use among college students: Identifying the roles of negative and positive affect lability in a daily diary study

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HIGHLIGHTS

- Trauma-exposed individuals reported higher negative and positive affect lability.
- Negative affect lability was associated with substance use outcomes.
- Negative affect lability mediated the trauma exposure-substance use relations.

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ABSTRACT

Trauma exposure is linked to heavy drinking and drug use among college students. Extant research reveals positive associations between negative affect lability and both trauma exposure and alcohol use. This study aimed to extend past research by using daily diary methods to test whether (a) individuals with (versus without) trauma exposure experience greater negative and positive affect lability, (b) negative and positive affect lability are associated with heavy drinking and drug use, and (c) negative and positive affect lability mediate the relations between trauma exposure and heavy drinking and drug use. Participants were 1640 college students (M age = 19.2, 54% female, 80% European American) who provided daily diary data for 30 days via online surveys. Daily diaries assessed negative and positive affect and substance use (i.e., percent days of heavy drinking, percent days of drug use, total number of drugs used). Individuals with (versus without) a history of trauma exposure demonstrated higher levels of negative and positive affect lability. Negative, but not positive, affect lability was associated with percent days of heavy drinking, percent days of drug use, and total number of drugs used, and mediated the associations between trauma exposure and heavy drinking and drug use outcomes. Findings provide support for the underlying role of negative affect lability in the relations between trauma exposure and heavy drinking and drug use among college students, suggesting that treatments targeting negative affect lability may potentially serve to reduce heavy drinking and drug use among trauma-exposed college students.

1. Introduction

Most college students in the United States report exposure to at least one traumatic event (Frazier et al., 2009), with lifetime prevalence

rates ranging from 52% (Owens & Chard, 2006) to 96% (Scarpa, 2001). Trauma exposure among college students is associated with deleterious outcomes (Anders, Frazier, & Shallcross, 2012), including alcohol and drug use (Read et al., 2012; Shorey, McNulty, Moore, & Stuart, 2016;

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Snipes, Green, Benotsch, & Perrin, 2014). Alcohol and drug use among college students is highly prevalent. Findings from a national survey (Substance Abuse and Mental Health Services Administration, 2014) revealed that full-time college students endorse binge and heavy drinking at significantly higher rates compared to young adults not enrolled full-time in college, and 22.3% endorse past-month illicit drug use. Further, heavy drinking and drug use among college students has been linked to both acute and long-term negative consequences (Caldeira, Arria, O'Grady, Vincent, & Wish, 2008; Dennhardt & Murphy, 2013; O'Neill, Parra, & Sher, 2001; Rimsza & Moses, 2005). Thus, research elucidating the mechanisms linking trauma exposure to heavy drinking and drug use among college students is needed to inform interventions aimed at reducing alcohol and drug use in this population.

Affect lability – defined here as changes in affective experiences in response to specific situations (Ebner-Priemer, Eid, Kleindienst, Stabenow, & Trull, 2009) – may underlie the relation between trauma exposure and heavy drinking and drug use. Trauma exposure has been linked to physiological changes that may result in higher levels of affect lability, including increased activation in the amygdala (van Harmelen et al., 2013), associated with greater emotional reactivity (Gallagher & Chiba, 1996), and changes to the prefrontal cortex (Márquez et al., 2013), central in the generation of strategies for emotional modulation (Ochsner & Gross, 2005). Thus, trauma-exposed individuals may be both reactive to emotional stimuli and deficient in regulating resulting emotional experiences, a combination that may lead to higher levels of affect lability.

Consistent with this research, individuals with a history of trauma exposure report higher levels of affect lability (Aas et al., 2014; Goodman et al., 2003). Given that intense emotions are more difficult to modulate (Mennin, Heimberg, Turk, & Fresco, 2005), individuals who experience frequent, intense shifts in positive or negative affect (i.e., positive or negative affective lability), such as those with a history of trauma exposure, may engage in heavy drinking or use drugs to dampen or avoid emotional distress and arousal, consistent with self-medication (Khantzian, 1997) and negative reinforcement (Baker, Piper, McCarthy, Majeskie, & Fiore, 2004). Yet, only a handful of studies have examined the role of affect lability in relation to alcohol and drug use. These initial investigations have found higher levels of negative affect lability to be associated with increased alcohol use (Gottfredson & Hussong, 2013; Jahng et al., 2011; Rankin & Maggs, 2006) and substance use broadly (use of alcohol and/or drugs; Shadur, Hussong, & Haroon, 2015).

Notably, research on affect lability has focused almost exclusively on negative emotion experiences. Literature suggests that individuals experience dysregulation across both negative and positive emotional systems (Cyders et al., 2007; Weiss, Gratz, & Lavender, 2015). Trauma-exposed individuals may be motivated to avoid any arousal-inducing experience (Hayes, Strosahl, Wilson, & Bissett, 2004), including positive emotions (Roemer, Litz, Orsillo, & Wagner, 2001; Tull & Roemer, 2003). Indeed, trauma-exposed individuals have been found to exhibit heightened physiological arousal to stimuli that elicit positive emotions (Litz, Orsillo, Kaloupek, & Weathers, 2000); this greater sensitivity to positive emotion-inducing stimuli may make them prone to positive affect lability as shifts in positive emotions are a direct consequence of positive emotional sensitivity (Carpenter & Trull, 2013). Higher levels of positive emotion lability among trauma-exposed individuals may motivate heavy drinking and drug use. For example, trauma-exposed individuals may be less accepting of positive emotions because they elicit arousal that is experienced as distressing (Roemer et al., 2001; Tull & Roemer, 2003). Consistent with tension reduction theory (Conger, 1956), heavy drinking and drug use may then serve to reduce arousal from positive emotions among trauma-exposed individuals. Alternatively, higher levels of positive affect lability may reduce the capacity to control heavy drinking and drug use in the context of urges or cues for them (Baumeister, Bratslavsky, Muraven, & Tice, 1998). Consistent with this theory, positive affect lability has been shown to

predict alcohol use (Jahng et al., 2011; Rankin & Maggs, 2006), although mixed findings have been detected, with another study finding no support for this association (Gottfredson & Hussong, 2013). This theory and empirical work suggests the need for research on the relations between positive affect lability and heavy drinking and drug use.

To summarize, there are several noteworthy limitations in the existing literature examining trauma exposure, affect lability, and alcohol and drug use. First, no study to date has examined whether negative or positive affect lability is related to drug use specifically. Further, research has yet to examine whether positive or negative affect lability are unique pathways that explain the observed relations between trauma exposure and both alcohol and drug use. The current study aims to fill these gaps in the literature using daily diary assessments collected over 30 days with a large sample of alcohol-using college students to test whether (a) individuals with (versus without) trauma exposure experience greater negative and positive affect lability, (b) negative and positive affect lability are related to heavy drinking and drug use, and (c) negative and positive affect lability mediate the relations between trauma exposure and heavy drinking and drug use.

2. Methods

2.1. Participants

Undergraduate psychology students were recruited as part of a project examining daily experiences and alcohol use. Eligibility criteria were: (a) ≥ 18 years of age, (b) alcohol use at least twice in the past 30 days (to recruit individuals who would show meaningful within-person variation in drinking behavior), and (c) no past treatment for alcohol problems (to decrease error variability in modeling the relationships of interest). The final sample included 1640 students, 54% female ($n = 881$), and the average age was 19.2 ($SD = 1.4$). In terms of race/ethnicity, 79.5% ($n = 1304$) were White or European American, 11.8% ($n = 193$) Asian American, 4.3% ($n = 70$) Black or African American, 3.6% ($n = 60$) Latino, and 0.8% ($n = 13$) Native American or other; race was categorized for analyses as White ($n = 1304$) vs. other ($n = 336$).

2.2. Procedures

Procedures were approved by the institutional review board at the University of Connecticut. Students were recruited through the undergraduate psychology participant pool and an email-based campus-wide announcements system. Overall, 2269 prospective participants contacted the study researchers to participate in the information sessions. Among the 2269 participants, 350 individuals did not show up for the information sessions, 45 individuals did not meet the inclusion/exclusion criteria, and 26 individuals chose not to participate in the study. Of the 1848 eligible participants that consented to participate, 1818 participants completed the online baseline survey. An additional 178 participants either (a) did not participate in the daily diary phase (i.e., daily diary data for 30 days via online surveys, available from a secure website), (b) failed to complete at least 15 diary entries, or (c) had missing data on relevant person measures. This resulted in a final N of 1640. Participants were compensated up to \$135 for completing the baseline and daily diary protocols.

2.3. Measures

2.3.1. Baseline measures

2.3.1.1. Demographic questionnaire. Information regarding age, gender, and racial/ethnic status was obtained.

2.3.1.2. Trauma exposure. The Traumatic Experiences Screening Instrument (TESI; Ford et al., 2000) is an 18-item, self-report measure designed to screen for trauma events in a respondent's lifetime.

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