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A Laboratory Test of Alcohol-Related Intimate Partner Aggression: Expectancies Are Not to Blame

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Abstract

Background: The role of alcohol expectancies and evaluations (i.e., perceived outcomes of drinking and whether these outcomes are desirable) in alcohol-related intimate partner aggression (IPA) has been debated, with some researchers arguing that expectancies fully account for the alcohol-IPA relationship and others suggesting they play a minimal if any role in alcohol-related IPA. In the current study, we examine the impact of expectancies and evaluations on alcohol-related IPA observed in the lab, in order to clarify what impact, if any, alcohol expectancies have on alcohol-related IPA. Consistent with

Published in *Substance Use & Misuse* 58:7 (2023), pp. 851–857. doi:10.1080/10826084.2023.2188422 Copyright © 2023 Taylor & Francis Group, LLC. Used by permission. findings from laboratory studies examining *general* aggression, we expected that individuals who were intoxicated would display greater IPA than individuals who were sober, but that alcohol expectancies and evaluations would be unrelated to *in vivo* IPA.

- *Method*: Participants were 69 dating couples (total N = 138), randomly assigned to consume either an alcohol or placebo beverage. IPA was measured with an *in vivo* aggression task based on the Taylor Aggression Paradigm.
- *Results*: As expected, alcohol intoxication predicted *in vivo* IPA following provocation (p < .03), whereas alcohol expectancies and evaluations were not related to IPA.
- *Conclusions*: These findings provide further support that alcohol expectancies and evaluations play little if any role in alcohol-related IPA. Rather, intoxication likely increases risk for IPA through its physiological effects on perception and thought. Further, treatments targeting alcohol use, rather than beliefs about outcomes of drinking, may have a greater impact on alcohol-related IPA.
- **Keywords:** Alcohol, intimate partner violence, alcohol expectancies, dating violence, harms to others

Introduction

Intimate partner aggression (IPA) is a significant global and national issue with 27% of ever-partnered women in the world (Sardinha et al., 2022) and one in three individuals in the U.S. (Smith et al., 2015) experiencing IPA in their lifetime. Broadly defined, IPA is any behavior used by a current or former partner that causes physical, sexual, or psychological harm. Experiencing IPA is positively associated with poor mental (e.g., PTSD, anxiety, depression, suicidal behavior; Dillon et al., 2013), and poorer self-rated physical health and chronic pain (Plichta, 2004). Global costs of intimate partner aggression are estimated to be over five percent of the world gross domestic product (Fearon & Hoeffler, 2014) and the U.S. experiences a population economic burden of nearly \$3.6 trillion over survivors' lifetimes, which includes medical costs, loss of productivity, criminal justice activities, and other costs, such as survivor property loss or damage (Peterson et al., 2018). Because of the numerous detrimental effects of IPA, identifying risk factors for IPA perpetration, and subsequently determining how to best reduce or eliminate these risk factors through treatment or policy is critical.

One such risk factor for perpetration of IPA is alcohol use. Alcohol use can harm both the drinker and those around them. The effects of alcohol on those around the drinker can include harms such as motor

vehicle accidents, vandalism, and IPA (Rehm, 2010). A robust literature supports a relationship between problematic alcohol use and IPA perpetration (Duke et al., 2017). The positive association between alcohol use and IPA perpetration has been supported by self-report (Foran & O'Leary, 2008; Rothman et al., 2012), daily diary (Derrick & Testa, 2017; Shorey et al., 2014a, 2014b), and laboratory (Crane et al., 2016; Testa et al., 2014; Watkins et al., 2015) data. Although the presence of a relationship between alcohol and IPA is undeniable, there is longstanding disagreement regarding the nature of this relationship. Whereas some researchers suggest alcohol intoxication causes aggression through its impact on cognitive processes and executive functioning (e.g., reducing inhibitory or punishment cues, increasing focus on instigative cues, and impairing regulation of goal-directed behavior; Giancola, 2000; Parrott & Eckhardt, 2018), others propose that because alcohol does not always result in IPA, other factors may better explain the association between alcohol and IPA (Fromme et al., 1993; Jones et al., 2001; Quigley & Leonard, 2006).

One theory thought to help explain this relationship is expectancy theory (Fromme et al., 1993; Jones et al., 2001; Quigley & Leonard, 2006). Expectancy theory proposes that alcohol consumption is explained by individuals having different outcome expectations of alcohol use and thus, consuming alcohol in a way that produces the expected effect (Jones et al., 2001). Specifically in regards to aggression, individuals have expectancies about the effect of alcohol on aggressive behavior and the acceptability of this behavior (Jones et al., 2001). Individuals differ in their expectations about alcohol's effects on aggressive behavior and how they evaluate (e.g., negatively or positively) aggressive behaviors when intoxicated (Fromme et al., 1993). Expectancy theory suggests that believing alcohol leads to interpersonal aggression, and evaluating these behaviors more positively, increases the likelihood that individuals will act aggressively when drinking (Quigley & Leonard, 2006). Once activated, these expectancies are hypothesized to direct behavior when alcohol is consumed (Goldman et al., 1999). Thus, it is believed that individuals who consume alcohol will act aggressively if they hold strong beliefs that intoxication is related to aggression (i.e., expectancies). In addition, those who approve of this behavior or evaluate these alcohol-related aggressive behaviors more positively are more likely to act aggressively when intoxicated

(i.e., evaluations; Field et al., 2004; Fossos et al., 2007).

Empirical support for the role of alcohol expectancies in alcoholrelated IPA is mixed. Some findings support the notion that expectancies are associated with alcohol-related IPA (Kachadourian et al., 2014), whereas others have found no such relationship (Kachadourian et al., 2012; Quigley & Leonard, 1999; Williams & Smith, 1994). The IPA expectancy literature has relied on self-report methodologies, which has limitations including retrospective recall of drinking behaviors, biases in self-reports of socially proscribed behaviors (i.e., aggression), and inability to determine causality (Kachadourian et al., 2012, 2014; Quigley & Leonard, 1999). Laboratory studies that use alcohol administration and analogue aggression tasks provide advantages over designs that rely on self-report measures of alcohol and aggression. In laboratory studies, the temporal nature of the relations between alcohol use and aggression can be established and aggression can be observed directly.

In contrast to research examining expectancies in alcohol-related IPA, laboratory studies have been used to examine associations between alcohol intoxication, expectancies, and general aggression (i.e., aggression against a stranger). These studies typically test whether a participant aggresses when provoked (e.g., aversive stimuli is received from a confederate). Overall, results from these studies suggest that expectancies have a weak if any influence on alcohol-related aggression (Chermack & Taylor, 1995; Giancola, 2006; Giancola et al., 2005). More specifically, individuals who believed that alcohol increases aggressive behavior displayed higher levels of aggression in a few circumstances, including under high provocation (but only for extreme aggression; Chermack & Taylor, 1995), men who received placebo under low provocation, and men who received alcohol under high provocation (Giancola et al., 2005). However, when these studies controlled for dispositional aggression, the relations between alcohol expectancies and aggression were rendered nonsignificant (Giancola, 2006; Giancola et al., 2005).

In sum, despite indications that alcohol expectancies may contribute to acts of general aggression, results are mixed regarding the role of expectancies in aggression toward intimate partners. However, prior work examining IPA outcomes has relied on self-report methods, which may not provide the measurement accuracy needed

to understand associations between alcohol expectancies and IPA. The current study addresses this concern by examining the impact of expectancies and evaluations on in vivo alcohol-related IPA using laboratory alcohol administration, in order to clarify what impact, if any, alcohol expectancies have on alcohol-related IPA. Similar to past research examining general aggression, we examine both unprovoked IPA (opportunity to aggress against a partner without a strong provocation) and provoked IPA (opportunity to aggress against a partner after a strong provocation) in the current study. Consistent with findings from laboratory studies examining general aggression (Giancola et al., 2005), we expected that individuals who were intoxicated would display greater IPA than individuals who were sober, but that alcohol expectancies and evaluations would be unrelated to in vivo IPA. Similarly, we did not expect alcohol to interact with expectancies and evaluations (i.e., we did not expect for the relationship between alcohol expectancies and evaluations to be stronger among those in the alcohol condition).

Materials and method

Participants and recruitment

Participants were 69 couples (total N = 138) recruited from a large Midwestern university. Participants were an average age of 23.4 years (SD = 2.5, range = 21-32) and had been in a relationship for an average of 32.0 months (SD = 23.3, range = 4-102). Participants described their relationship as dating (44.9%), dating and living together (24.6%), engaged (10.1%), or married or marriage-like (19.7%). Nearly half of participants were undergraduates (48.1%), 23.4% were graduate students, and 27% were not students. Participants described themselves as straight (94.2%), lesbian (1.5%), gay (male; 2.9%), and bisexual (1.5%). Three couples were same-sex couples. Regarding race and ethnicity, 9.5% of participants identified as Latino, Hispanic, or Spanish, 2.2% identified as African American or Black, 0.7% identified as American Indian, Native American, or Alaskan Native, 5.8% identified as Asian or Pacific Islander, 87% identified as White, and 3.6% identified as "other" (participants were allowed to pick more than one category so percentages may exceed 100%). This study was approved by the university's institutional review board.

Participants were recruited through a variety of methods including undergraduate psychology classes, campus-wide fliers, online advertisements on Facebook and Craigslist, and mass emails sent to university students over the age of 21. Because of risks associated with drinking alcohol and aggression, the current study used multiple exclusion criteria. These criteria included factors that would put the person or couple at risk if they drank alcohol (e.g., two or more severe acts of physical IPA during the previous year, current/past alcohol dependence, medical contraindications, pregnancy, etc.) Details about recruitment and inclusion and exclusion criteria have been presented elsewhere (Masked for review).

Measures and laboratory tasks

Recent alcohol use and problems

The Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993) was used to measure typical alcohol use and problems. The AUDIT is a 10-item measure that assess quantity and frequency of drinking, symptoms of dependence, and problems caused by alcohol use over the past year. Items are summed and higher scores indicate greater alcohol use and problems. The AUDIT has high internal consistency and can reliably identify patients who engage in hazardous drinking (Babor et al., 2001; Saunders et al., 1993).

Alcohol expectancies and evaluation

The five-item Risk and Aggression subscale of the Comprehensive Effects of Alcohol (CEOA; Fromme et al., 1993) was used to measure expectancies and evaluations. These subscales have been used in previous research examining alcohol, expectancies, and IPA (Kachadourian et al., 2014) First, to assess expectancies, individuals are asked to rate the extent to which they agree on a scale ranging from 1 (*disagree*) to 4 (*agree*) with items assessing individuals' beliefs about taking risks and becoming more aggressive when under the influence of alcohol

(e.g., "I would act aggressively"). Then to assess evaluations, individuals are asked to appraise each potential effect that may result from drinking alcohol using a scale ranging from 1 (*bad*) to 5 (*good*). The CEOA has adequate internal consistency, temporal stability, and validity (Fromme et al., 1993; Valdivia & Stewart, 2005).

History of IPA perpetration

The 12-item Physical Assault subscale of the Revised Conflict Tactics Scale (CTS2; Straus et al., 1996) was used to assess for history of IPA perpetration. Participants indicated whether they perpetrated each aggressive behavior against their partner during the previous six months and the number of endorsed items was summed. The CTS2 has adequate internal consistency, and good discriminant and construct validity (Straus et al., 1996; Vega & O'Leary, 2007)

Analogue IPA task

In vivo IPA was assessed with an aggression task based on the Taylor Aggression Paradigm (Bushman & Baumeister, 1998; Taylor, 1967), which has received strong support as a reliable and valid measure of aggressive behavior (Giancola & Chermack, 1998; Hoaken & Pihl, 2000). In the task, participants were told they were playing their partner in a competitive reaction time game that consisted of 25 trials. Participants were able to assign a volume level (0-10), which ranged from 60 to 105 decibels in 5 decibel increments, and length of white noise ranging from 0 (0 seconds) to 10 (5 seconds) before each reaction time competition. Participants were told that if they won the trial against their partner, their partner would hear the blast of noise the participant selected and if they lost, they would hear the blast of noise their partner selected for them. Participants heard samples of the noise beforehand, including the highest level of noise, which was designed to be unpleasant, but not harmful to the ear (Bushman & Baumeister, 1998). Participants were not actually playing their partner and instead were playing a computer program.

The first two trials of were used to assess *in vivo* IPA (Christ et al., 2018; Watkins et al., 2014, 2015). Specifically, the length and level of noise the participant assigned prior to each reaction time competition

was averaged so that each trial had a measure of IPA that could range from 0-10. All participants "lose" the first reaction time trial and afterwards receive the highest level and longest length of noise, ostensibly chosen by their partner. The noise length and level assigned prior to the first reaction time competition was used as a measure of unprovoked aggression as it occurred before any blasts of noise were received ostensibly from the participants' partners and the noise length and level assigned prior to the second reaction time competition was used as a measure of provoked aggression because it occurred after receiving the maximum blast (see Christ et al., 2018; Watkins et al., 2014, 2015).

Procedure

Participants were asked to not drink or use recreational drugs for 24 hours and to not eat for four hours prior to the scheduled study session. Once the couple arrived, each member was taken to a separate room where they provided written informed consent. Then participants completed all self-report questionnaires. Each participant was randomly assigned to drink either an alcohol or a placebo beverage. Alcohol dose was given so that the participant would reach intoxication (BrAC > .08) and was based on each participant's weight and sex. Placebo beverages contained orange juice and a small amount of alcohol (i.e., four milliliters of alcohol were added to each placebo beverage and alcohol was sprayed on the rim of the placebo beverage glass). BrAC was checked throughout the study with a breathalyzer (see Masked for review for a more detailed description of procedures). After alcohol administration participants completed the analogue IPA task. After completion of data collection, all participants were fully debriefed, verbally and in writing. Participants who consumed alcohol stayed on site until they reached a BrAC of 0.03% or lower and passed a field sobriety test. Then they either had a friend pick them up or they took a study-provided taxi. Study and alcohol administration procedures are described in more detail in another publication (Masked for review).

One participant was excluded from all analyses due to becoming ill in the middle of the study. Thus, the sample used in analyses included 137 participants (68 women and 69 men). As part of the larger study, participants were also randomly assigned to use a cognitive emotion regulation strategy (rumination, reappraisal, or uninstructed) while recalling an anger-eliciting event for two minutes prior to the analogue IPA task. The assigned emotion regulation strategy was used as a covariate in analyses as it was not directly related to current study hypotheses.

Analytic approach

Multilevel modeling (MLM; Kenny et al., 2006) was used to account for the dyadic nature of the data (the white noise assignments were made by both members of each couple and the behavior of members of a couple are likely to be more similar than individuals across couples). MLM treats the data from each partner as nested scores within the couple. A compound symmetry covariance structure was used to estimate the degree of nonindependence between outcomes (Campbell & Kashy, 2002; Kenny et al., 2006).

A multilevel model estimated using maximum likelihood within SAS PROC MIXED was used for the first trial of the IPA analogue task. The second trial was censored from above and thus a multilevel censored regression model was used. The multilevel censored model was estimated using maximum likelihood via numerical integration within SAS PROC NLMIXED.

Each model included main effects of alcohol condition, expectancies, and evaluations, and two-way interactions between alcohol and expectancies and alcohol and evaluations. Significance of main effects was examined to determine whether alcohol condition, expectancies, and evaluations were related to unprovoked and provoked IPA. The significance of the two-way interactions was examined to see if the relationship between alcohol expectancies and evaluations was stronger among those in the alcohol condition. We also controlled for the emotion regulation manipulation, sex, recent alcohol use (assessed via AUDIT), and past intimate partner aggression (assessed via the CTS2). Estimates are presented as unstandardized coefficients.

Results

Descriptives for study variables are displayed in Table 1. The alcohol group had an average BrAC of .097% (SD = 0.018) upon completion

of the reaction time game. Additional study descriptives (e.g., details on the alcohol manipulation) can be found in - (Masked for review).

The model parameters for unprovoked and provoked IPA are displayed in Table 2. As expected, we found that participants in the alcohol condition displayed higher levels of provoked IPA than participants in the placebo condition (*Est.* = 1.93, p = .01). However, alcohol condition was not related to unprovoked IPA. In addition, consistent with hypotheses and past general aggression research findings, alcohol expectancies and evaluations and their interaction with the alcohol condition were not significant in predicting either unprovoked or provoked IPA.

One main effect was found to be significant in the unprovoked IPA model. As recent alcohol use and problems increased, unprovoked IPA increased (*Est.* = 0.22, *p* = .01).

Discussion

The purpose this study was to clarify if alcohol expectancies and evaluations play a role in alcohol-related IPA assessed in the laboratory. Consistent with our hypotheses and lab-based studies of *general* aggression (Giancola et al., 2005), alcohol expectancies and evaluations were unrelated to *in vivo* IPA. In addition, we found that individuals who reported greater alcohol related problems displayed greater unprovoked IPA. We also found that individuals who drank alcohol displayed greater provoked IPA, but not unprovoked IPA, than individuals who were sober. We will discuss these findings considering prior

Variable	M	SD	Range
CEOA risk and aggression expectancies	10.96	2.78	5-18
CEOA risk and aggression evaluations	10.13	2.77	5-22
Unprovoked IPA	2.84	1.86	0-10
Provoked IPA	4.98	3.41	0-10
AUDIT	5.49	1.92	2-9
CTS2 physical aggression perpetration count	0.09	0.38	0-3

 Table 1. Study variable descriptives.

CEOA = Comprehensive Effects of Alcohol; IPA = Intimate partner aggression; AUDIT = Alcohol Use Disorders Identification Test; CTS2 = Conflict Tactics Scale - Revised.

Predictors	Unprovoked IPA			Provoked IPA		
	Est	SE	р	Est	SE	р
Control Variables						
Gender	0.43	0.34	.21	-0.26	0.77	.73
IPAhistory	-0.06	0.40	.88	-0.65	0.92	.48
Recent alcohol use and problems	0.22	0.09	.01	0.25	0.22	.25
Emotion regulation manipulation (no instruction vs. reappraisal)	0.29	0.38	.44	0.76	0.91	.41
Emotion regulation manipulation (no instruction vs. rumination)	0.34	0.39	.39	1.17	0.91	.20
Primary IVs and Interactions among IVs						
Alcohol condition	0.36	0.30	.23	1.93	0.73	.009
CEOArisk and aggression expectancies	0.07	0.10	.50	-0.02	0.23	.94
CEOArisk and aggression evaluations	0.04	0.09	.68	-0.03	0.20	.87
Alcohol condition * expectancies	-0.14	0.12	.24	0.14	0.30	.64
Alcohol condition * evaluations	-0.01	0.12	.95	0.002	0.30	.996

Table 2. Model parameters for unprovoked and provoked intimate partner aggression (IPA).

CEOA = Comprehensive Effects of Alcohol

IPA = Intimate partner aggression

theory and research.

Results showed that expectancies and evaluations about taking risks and becoming more aggressive when under the influence of alcohol did not have a main effect or interact with alcohol intoxication to predict unprovoked or provoked IPA as operationalized in our analogue task. This finding is consistent with some self-report data examining IPA (Kachadourian et al., 2012; Quigley & Leonard, 1999), but contrasts with others showing that aggression expectancies and excessive drinking are positively associated with aggression (Kachadourian et al., 2014). Self-report studies rely on participants' memory and interpretations of past IPA and alcohol use, which may limit their validity. In addition, many previous expectancy-IPA studies focused on both verbal and physical aggression, whereas the current study's analogue aggression measure is best considered a measure of physical aggression. Future studies should examine whether expectancies and evaluations have an impact on alcohol-related verbal IPA.

The alcohol administration procedures used here allowed us to randomize participants to alcohol or placebo conditions. In addition, we were able to observe participants' administration of aggression toward their partners by using an IPA analogue task. Our findings were largely consistent with results from past *general* aggression laboratory studies demonstrating that expectancies are poor predictors of aggression (Chermack & Taylor, 1995; Giancola, 2006; Giancola et al., 2005). Additional study findings were also largely consistent with prior work indicating that intoxicated individuals displayed greater provoked aggression (Giancola et al., 2005). According to the alcohol myopia model, alcohol's pharmacological properties narrow attentional focus, restrict the cues individuals perceive, and reduce individuals' ability to process meaning from cues they do perceive (Giancola et al., 2011; Parrott & Eckhardt, 2018; Steele & Josephs, 1990). This myopia leads intoxicated individuals to focus on the most salient cues (e.g., high blast of noise ostensibly from one's partner) in the environment and dismiss less salient cues (e.g., potential consequences of aggressive behavior) leading to increased risk of aggressive behavior. As a whole, these past and current laboratory findings suggest that alcohol expectations and evaluations may play little if any role in alcohol-related aggression.

This study has implications for theory, research, and practice related to alcohol use. In the context of prior work, the current findings suggest that expectancy theory does not offer a sufficient explanation for aggression following alcohol consumption. Future research should focus on specific neurological and psychological processes altered by alcohol and how these processes interact in specific contexts to increase aggression and IPA specifically. In clinical practice, time should be spent in session providing psychoeducation on the pharmacological effects of alcohol and in providing techniques and tools focused on reduction of alcohol use, especially if the patient is easily provoked or if a history of aggression is present.

The current study had several limitations. Although the demographic representation of the current sample was consistent with the university demographics (Masked for review), the participants were mostly European American students and thus results may not generalize to a more diverse sample. In addition, the current study was conducted within a laboratory among a relatively small sample of couples who reported no serious past aggression in their relationships (this was an exclusion criterion in the current study due to potential risk), which limits generalizability. These effects may be detectable among a larger sample or different among a sample of couples who have higher levels of aggression in a natural setting. Future studies should explore relations between expectancies, evaluations, intoxication, and IPA among more diverse samples. In addition, future work could include a non-placebo drink condition that would elicit no expectation that participants are drinking alcohol, and also examine specific expectancy and evaluations related to IPA rather than aggression in general. Future studies could also examine these relationships in a more natural setting, potentially using ecological momentary assessment methods.

Overall, the findings from this laboratory study lend further evidence to the notion that alcohol expectancies and evaluations may not play a role in alcohol-related IPA. Instead, alcohol likely increases risk for IPA though its pharmacological impact on cognitive processes and executive functioning, such as reducing coping mechanisms, reducing inhibitory and/or punishment cues, increasing focus on instigative cues, and generally impairing regulation of goal-directed behavior (Giancola, 2000; Parrott & Eckhardt, 2018). Findings from past research and the current study suggest the importance of addressing use of alcohol rather than alcohol expectancies and evaluations among individuals who have perpetrated alcohol-related IPA.

Declaration of interest The authors declare that they have no conflict of interest. The authors alone are responsible for the content and writing of the article.

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