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Effects of Thought Suppression on Provoked Men's Alcohol-Related Physical Aggression in the Laboratory

Kathryn E. Gallagher, M.A.,
Department of Psychology, Georgia State University

Claire G. Lisco, B.S.,
Department of Psychology, Georgia State University

Dominic J. Parrott, Ph.D., and
Department of Psychology, Georgia State University

Peter R. Giancola, Ph.D.
Department of Psychology, University of Kentucky

Abstract

Objective—This study utilized a comprehensive theoretical approach to provide the first data on the impact of thought suppression on provoked men's alcohol-related aggression.

Method—A diverse community sample (58% African-American) of males between the ages of 21 and 35 (*M* = 25.25) were randomly assigned to one of two beverage conditions (i.e., alcohol, no-alcohol control). Following beverage consumption, participants were provoked via reception of electric shocks and a verbal insult from a fictitious male opponent. Participants' physical aggression was measured using a shock-based aggression task.

Results—Results indicated that acute alcohol intoxication significantly increased physical aggression among lower, but not higher, thought suppressing men.

Conclusions—Results suggest that, under conditions of interpersonal provocation, alcohol intoxication produces a myopic focus on hostile thoughts and angry affect in lower, but not higher, suppression men. This pattern of results provides support for the durability of the alcohol myopia effect and highlights the need for continued examination of alcohol's role in the disruption of protective factors for men's aggression. It is important for research to continue to identify *modifiable* cognitive variables that influence self-regulation of behavior; however, it is imperative that researchers consider the extent to which these variables withstand alcohol's effects.

Keywords

Alcohol Consumption; Alcohol Myopia Theory; Attention-Allocation Model; Physical Aggression; Alcohol-Related Aggression; Alcohol-Related Violence; Thought Suppression

Correspondence concerning this article should be addressed to Dominic J. Parrott, Department of Psychology, Georgia State University, P.O. Box 5010, Atlanta, Georgia 30302-5010. parrott@gsu.edu.

It has been recommended that theoretical approaches to the study of alcohol-related aggression examine the confluent effects of alcohol consumption (e.g., pharmacological effects), aggression-facilitating characteristics of individuals (e.g., individual risk factors), and situational contexts (e.g., risky environments) (Lang, 1993; Leonard, Quigley, & Collins, 2003). Lang (1993) conceptualized this as an interaction of Agent (alcohol) X Host (person) X Environment (situation). The ensuing discussion will focus on how these three interrelated domains combine to facilitate aggression. Specifically, the present study will provide the first data on the impact of dispositional thought suppression - the attempt to control unwanted thoughts for the chief purpose of inhibiting their occurrence (Wegner & Zanakos, 1994) - on provoked men's alcohol-related aggression.

Alcohol as the Agent

Substantial research during the past several decades has supported a pharmacological explanation for alcohol's role in aggressive behavior. One of the most well-accepted theories for intoxicated behavior, the Alcohol Myopia Model (AMM) (Steele & Josephs, 1990; Taylor & Leonard, 1983) postulates that alcohol intoxication impairs controlled effortful cognitive processing. This impairment creates a "myopic" effect on attention that restricts the range of internal and external cues that can be perceived and processed. In hostile situations, alcohol facilitates aggression by narrowing attention on provocative cues because, given their alarming nature, they are generally more salient than non-provocative or inhibitory cues (i.e., threat of retaliation). As a result of this alcohol myopia, the impact of the non-provocative or inhibitory cues is not fully processed, or possibly not even perceived, increasing the probability of an aggressive reaction (for a review, see Giancola, Josephs, Parrott, & Duke, 2010).

Pertinent to the present study, the AMM has been repeatedly invoked by theorists to explain alcohol-related aggression (e.g., Abbey, 2002; Leonard, 2002). Four recent studies provide strong support for this hypothesis (Gallagher & Parrott, 2011; Giancola & Corman, 2007 – 2 studies; Giancola, Duke, & Ritz, 2011; Phillips & Giancola, 2008).

Thought Suppression as the Host

Extant research has identified myriad individual differences that potentiate the alcohol-aggression relation (reviewed in Giancola et al., 2010; Pihl & Sutton, 2009). To advance this line of work, recent empirical (Gallagher & Parrott, 2011; Giancola & Corman, 2007) and theoretical (Giancola, Josephs, DeWall, & Gunn, 2009; Giancola et al., 2010) work has identified cognitive variables associated with regulation techniques that are theoretically indicated to reduce alcohol-related aggression. However, people also use cognitive regulation techniques that are theoretically counterindicated to reduce alcohol-related aggression. For example, a wealth of experimental research has shown that *thought suppression* - the attempt to control unwanted thoughts for the chief purpose of inhibiting their occurrence (Wegner & Zanakos, 1994) - makes suppressed thoughts hyperaccessible (Wegner & Erber, 1992). Consequently, when thought suppression is interrupted or discontinued, this hyperaccessibility increases the unwanted thoughts to a greater extent than if thought suppression had not occurred (Wegner & Erber, 1992; Wegner, Schneider, Carter,

& White, 1987). This paradoxical effect has been termed *post-suppression rebound* and has been duly replicated in the literature (reviewed in Abramowitz, Tolin, & Street, 2001; Wenzlaff & Wegner, 2000).

The predominate theory utilized to explain post-suppression rebound is the *ironic process theory of mental control* (e.g., Wegner 1994; Wegner & Wenzlaff, 1996). According to this theory, two mechanisms are activated when a person attempts to suppress a thought – a conscious and intentional process that attempts to suppress the unwanted thought (i.e., the active process of thinking of unrelated thoughts) and an unconscious and unintentional process which monitors thought content so that the unwanted thought is cognitively avoided. It is this process of unconscious monitoring that is said to increase the accessibility of the suppressed thoughts (Wegner & Erber, 1992). Importantly, a similar process termed *behavioral rebound* (Baumeister, Heatherton, & Tice, 1994) provides evidence that unwanted behaviors increase when individuals suppress thoughts about enacting the behaviors (e.g., Denzler, Förster, Liberman, & Rozenman, 2010; Erskine, Georgiou, & Kvavilashvili, 2010).

Provocation as the Environment

Provocation is one of the strongest elicitors of aggressive action (e.g., Anderson & Bushman, 2002; Bettencourt & Miller, 1996). Laboratory studies show a positive relation between provocation and aggression (e.g., Giancola et al., 2002; Lau & Pihl, 1994). Moreover, the effect of provocation on aggression is exacerbated by alcohol intoxication, even when the inebriate is only minimally provoked (Ito et al., 1996).

The impact of provocation on aggression is readily explained by Berkowitz's (1990) cognitive-neoassociationistic model. According to this model, provocation (and other conflict-promoting cues) elicits negative affect which activates an associative network of aggression-related thoughts, feelings, memories, expressive motor reactions, and physiological responses (Berkowitz, 1990; 1993). In accordance with the predictions of the AAM, this literature further suggests that emotion has the tendency to focus people's attention onto the most pressing aspects in a particular moment (Berkowitz, 1989; Finucane, 2011). This heightened emotion and myopic narrowing of attention onto cues in the immediate moment are thus expected to engender aggressive responses in provocative environments (for a review, see Giancola et al., 2010).

Theoretical Integration

The reviewed literature affords a yet untested hypothesis of how the confluence of alcohol, dispositional thought suppression, and situational provocation may facilitate aggression. Like acute alcohol intoxication, thought suppression may also increase the likelihood of affective activation (Berkowitz, 1990; 1993; Giancola et al., 2010) and subsequently lead to aggressive behavior (Baumeister et al., 1994; Denzler et al., 2010). For example, research suggests that thought suppression creates a dual pathway between thoughts and mood states (Wenzlaff, Wegner, & Klein, 1991). Thus, an individual's attempts to suppress an unwanted thought during a negative mood state increases the likelihood that the unwanted thought will later prompt the negative mood state and vice versa. However, because the individual

originally attempted to suppress the thought, theory dictates (e.g., Wegner 1994; Wegner & Wenzlaff, 1996) that the thought will rebound and create a consequent return of the negative mood state (Wenzlaff et al., 1991) and may increase the likelihood of aggressive action (Baumeister et al., 1994; Denzler et al., 2010).

Additionally, data suggests that suppression produces three key consequences that may mimic the physiological effects of alcohol intoxication: a) increases in physiological activation (Gross, 1988; Gross & Levenson, 1997); b) depletion of limited cognitive resources (Muraven, Tice, & Baumeister, 1998; Schmeichel, Vohs, & Baumeister, 2003); and c) impairment of inhibitory control (Richards & Gross, 2000; Schmeichel et al., 2003). Thus, it is reasonable to postulate that, to the extent that these consequences of thought suppression occur, these effects may, like alcohol, narrow attentional focus, restrict both the internal and external cues individuals perceive, and reduce individuals' capacity to process and generate meaning from the information they do perceive.

These principles inform a set of predictions which posit that alcohol will differentially facilitate aggression depending upon an individual's tendency to engage in thought suppression. Specific hypotheses are as follows: (1) for higher thought suppressors who are provoked, acute alcohol intoxication should not significantly increase aggression relative to the sober state because post-suppression rebound in these individuals has already focused attention on instigatory cues; and (2) in contrast, for lower thought suppressors who are provoked, acute alcohol intoxication will produce a myopic focus on hostile thoughts and angry affect that mimics the aggressive-facilitating effects of thought suppression and engenders a *"Jekyll and Hyde"* effect (Giancola et al., 2010) in which these individuals become more aggressive (e.g., Abramowitz et al., 2001; Denzler et al., 2010; Wenzlaff & Wegner, 2000).

Method

Participants and Recruitment

Male social drinkers (n = 98) between the ages of 21 and 35 (Age: M = 25.25, SD = 3.87) were recruited from the metro-Atlanta community through internet advertisements and local newspapers. Social drinking was defined as consuming at least three drinks per occasion a minimum of two times per month. Respondents were initially screened by telephone and deemed ineligible if they endorsed head injuries, past or present psychiatric treatment or substance use problems, medical conditions that contraindicated alcohol administration or alcohol use problems. The racial composition of the final sample consisted of 58% African Americans, 35% Caucasians, 2% American Indian or Alaskan native, and 5% who identified as more than one race. The sample had an average of 14.5 years of education, earned $26,786 per year, and 91% had never been married.

Pre-laboratory Procedures

Within one week of completing the telephone screening interview, eligible participants were contacted by phone and scheduled for an appointment to come to the laboratory. They were told to refrain from drug use or alcohol consumption for 24 hours prior to testing and were

told to refrain from eating four hours prior to testing. Participants were told that they would be compensated at a rate of $10 per hour upon completion of the study.

Experimental Design

This study had two predictor variables: thought suppression (a continuous variable) and beverage (alcohol, no-alcohol control). Participants were randomly assigned to either an alcohol (n = 50) or a no-alcohol control group (n = 48). While placebo groups may sometimes produce compensatory responses that could reduce aggression relative to no-alcohol control groups (Bushman & Cooper, 1990), meta-analytic studies generally demonstrate that placebo and no-alcohol control groups do not significantly differ in physical aggression (Bushman, 1993; Hull & Bond, 1986). For these reasons, as well as the fact that placebo beverages are typically not consumed in "real world" situations, a no-alcohol control group was deemed preferable.

Questionnaires

White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994)—This 15-item Likert-type scale assesses the tendency to engage in thought suppression. Participants rate each item on a scale from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating a greater tendency to suppress thoughts. Sample items include *"Sometimes I really wish I could stop thinking"* and *"There are things that I try not to think about."* The WBSI shows strong convergent validity with measures of intrusive thinking (e.g., Wegner & Sanakos, 1994) and has strong internal consistency with alphas ranging from .87 to .89. An alpha reliability coefficient of .91 was obtained in the present sample.

Buss-Perry Aggression Questionnaire (BAQ; Buss & Perry, 1992)—This 29-item self-report measure assesses one's disposition toward physical aggression, verbal aggression, anger, and hostility. In the present study, only the Physical Aggression subscale was analyzed to identify group differences that could potentially confound laboratory-based physical aggression. On this measure, participants rate how each item describes them on a scale of 1 (*extremely uncharacteristic of me*) to 5 (*extremely characteristic of me*). The authors' report high validity and reliability (α = .80) for this measure. A Cronbach alpha coefficient of .85 was obtained for the Physical Aggression subscale in the present sample.

Beverage Administration

Participants who received alcohol were administered a dose of .99g/kg of 95% alcohol USP mixed at a 1:5 ratio with Tropicana orange juice. This dose, which ranges from 4–7 standard drinks for a 130–220 lb. male, has been used in past studies of alcohol-related aggression and reliably produces breath alcohol levels between .08%–.12%. The dosing procedure was also calculated for participants in the no-alcohol control group; however, they received an isovolemic beverage consisting of only orange juice. The beverage was poured into two glasses in equal quantities.

Aggression Task

A modified version (Giancola & Zeichner, 1995) of the *Taylor Aggression Paradigm (TAP;* Taylor, 1967) was used to assess direct physical aggression. The hardware for the task was developed by Coulbourn Instruments (Allentown, PA) and the computer software was developed by Vibranz Creative Group (Lexington, KY). In the TAP, participants compete in a supposed competitive reaction time task where electrical shocks are administered to and received from a "fictitious" opponent. Participants are seated at a table in a small room. On the table facing participants is a computer screen and keyboard. The numbers "1" through "10" on the computer keyboard are labeled from "low" to "high" to allow participants to determine varying levels of shock to administer. Participants receive visual feedback on the computer monitor indicating whether they "won" or "lost" the trial as well as the shock level selected and received. The keyboard and monitor are connected to a computer located in an adjacent room out of the participant's view. Physical aggression is defined by the mean shock intensity selection ("1" through "10") for trials in which the participant administers a shock, which represents an active and direct form of physical aggression. The TAP task and other similar shock-based laboratory paradigms have been repeatedly shown to be safe and valid measures of aggressive behavior (e.g., Anderson & Bushman, 1997; Giancola & Parrott, 2008).

In the present study, the TAP consisted of 20 reaction time trials (10 wins and 10 losses). For each trial, participants were informed that shortly after the words "Get Ready" appeared on the screen, the words "Press the Spacebar" would appear at which time they had to press, and hold down, the spacebar. Following this, the words "Release the Spacebar" would appear at which time they had to lift their fingers off of the spacebar as quickly as possible. A "win" was signaled by the words *"You Won. You Get to Give a Shock"* and a "loss" was signaled by the words *"You Lost. You Get a Shock."* A winning trial allowed participants to deliver a shock to their opponent and a losing trial resulted in receiving a shock from their opponent. Participants were told that they had a choice of 10 different shock intensities to administer at the end of each winning trial. Participants could not elect to not shock their opponent. However, participants were told that shock button "1" would deliver a low intensity shock that is best characterized as "very mild" and "definitely not painful." On losing trials, participants received shocks from their "opponent" that were one second in duration and ranged from 90% (an "8") to 100% (a "10") of the highest tolerated shock intensity. Following each trial, a specially designed "volt meter" and the illumination of one of the 10 "shock lights" [ranging from 1 (low) to 10 (high)] on the computer screen signaled to the participant the shock that he or the opponent selected. In actuality, the competitive task was used to lead participants to believe that they were engaging in an adversarial interaction with another individual. A randomly generated win/loss sequence was predetermined and incorporated into the computer program that executed the task. All participants received the same sequence. A computer controlled the initiation of trials, administration of shocks to participants, and recording of their responses.

Procedure

Upon arrival to the laboratory, participants were asked to present a picture ID and informed consent was obtained. Participants were weighed and their breath alcohol concentration

(BrAC) was assessed to confirm sobriety. BrACs were measured using the Alco-Sensor IV breath analyzer (Intoximeters Inc., St-Louis, MO). All participants were at 0% BrAC before beginning the procedure. Participants then completed a written version of the telephone screening measures to re-establish eligibility, the WBSI, and the BAQ. Eligible participants were then randomly assigned to one of the two beverage conditions and were informed whether or not they would receive alcohol.

After assignment to one of the two conditions, participants were escorted into the testing room where they received their beverages. Twenty minutes were allotted for beverage consumption and all participants completed their beverages within this time period. Ten minutes following beverage consumption, the experimenter conducted the pain threshold assessment to determine the intensity parameters for the shocks they would receive. This procedure was conducted while participants were seated in the testing room and the experimenter was in an adjacent control room. They communicated through an intercom. Assessment of participants' pain thresholds was accomplished via the administration of short-duration shocks (1 sec) in an incremental stepwise intensity method from the lowest available shock setting, which is imperceptible, until the shocks reached a reportedly painful level (which could vary by participant). All shocks were administered through two electrodes that were attached to the index and middle fingers of the non-dominant hand using Velcro straps. Participants were asked to inform the experimenter when the shocks were "first detectable" and then when they reached a "painful" level. Notably, a marginally significant relation was found between level of pain threshold and beverage group ($r = .21$, $p = .058$) such that men who received alcohol reported higher pain thresholds. No other relations were found between level of pain threshold and other study variables.

Following the pain threshold assessment (and upon reaching a BrAC of .08% for alcohol participants), participants were shown a 20 second video of their same-race "opponent" answering several demographic questions (see Deception Manipulation below). A minimum ascending BrAC of .08% was chosen because the aggression-potentiating effects of alcohol are more likely to occur on the ascending limb of the BrAC curve (Giancola & Zeichner, 1997) and because this BrAC level is most effective in eliciting robust levels of aggression (Duke, Giancola, Morris, Holt, & Gunn, 2011). Next, participants were informed that they would complete several "practice" competitive reaction time trials against their opponent so that they could become familiar with the procedure. In actuality, the "practice" trials were rigged so that participants received physical and verbal provocations from their opponent. These procedures were conducted to make provoking interpersonal cues extremely salient prior to the initiation of the experimental trials. Specifically, participants "lost" a disproportionate number of trials (i.e., four out of six) and the "opponent" delivered the highest possible shock intensity (i.e., 10's) to participants on each of these four trials. At the end of the trials, participants were instructed to provide verbal feedback to their opponent via a closed circuit intercom system and received a pre-recorded message from their opponent that denigrated their performance and threatened them with more shocks during the impending task. Based on past research, this procedure should engender higher levels of aggression from individuals who endorse higher, relative to lower, levels of dispositional thought suppression because higher thought suppressors should theoretically be less able to

cope effectively with the provocation (e.g., Berkowitz, 1990; 1993; Giancola et al., 2010; Wenzlaff & Wegner, 2000).

The aggression task commenced after receipt of the opponent's feedback. Upon completion of the aggression task, BrACs were measured and task deception was confirmed (see below). Participants were then debriefed, provided verbal and written descriptions of the study's aims, and compensated. All individuals who received alcohol were required to remain in the laboratory until their BrAC fell to .03%, at which point they were escorted to pre-arranged transportation by laboratory staff.

Results

Manipulation Checks

TAP deception—Task deception was verified via an oral interview with the participant and appeared to be successful. Ten participants (five no-alcohol control and five alcohol) reported that they did not believe they were competing against another person and were removed from analyses. In addition, one participant's BrAC did not reach an appropriate level. This left a final sample of 87 men (alcohol group: $n = 44$; no-alcohol control group: $n = 43$).

BrAC levels—All participants tested in this study had BrACs of 0% upon entering the laboratory. Individuals in the alcohol group had a mean BrAC of .093% (SD = .013) just before the beginning of the aggression task and a mean BrAC of .113% (SD = .014) immediately after the task. Thus, all intoxicated participants were on the ascending limb of the BrAC curve during the aggression task.

Preliminary Analyses

To confirm equal distribution of pertinent demographic and dispositional variables across experimental groups, a series of one-way analysis of variances (ANOVAs) were conducted with pertinent demographic characteristics (e.g., age, years of education, yearly income) and beverage group, dispositional physical aggression, and thought suppression. A marginally significant relation was found between level of pain threshold and beverage group ($r = .21$, $p = .058$) such that men who received alcohol reported higher pain thresholds. No other relations were found between level of pain threshold and other study variables. Additionally, chi-square analysis did not detect significant differences in racial composition or marital status. The bivariate correlation of dispositional thought suppression and dispositional physical aggression was positive and significant ($r = .40$, $p < .01$). Analyses conducted with dispositional physical aggression entered as a covariate did not indicate a significant change in the pattern of results reported below.

Regression Analyses

Hypotheses were tested using hierarchical linear regression (Cohen, Cohen, West, & Aiken, 2003). As such, thought suppression was mean centered by subtracting the mean score of the variable from the raw score of the variable. Dummy coding was employed to standardize the categorical variable (i.e., beverage condition; no-alcohol control = 0, alcohol = 1) (Cohen et

al., 2003). Interaction terms were calculated by obtaining the cross-product of the mean centered thought suppression and the dummy coded beverage group variable.

In Step 1, mean shock intensity was regressed on beverage condition and the moderator (i.e., suppression). The regression model was significant, $F(2, 84) = 3.03$, $p = .05$, $R^2 = .10$. The main effect for suppression was significant ($\beta = .25$, $p = .02$). This finding indicated that a greater tendency to suppress thoughts was associated with higher levels of physical aggression. In Step 2, mean shock intensity was regressed on beverage condition, suppression, and the Beverage X Suppression interaction. The regression model was significant, $F(3, 83) = 4.01$, $p < .01$; $R^2 = .127$. The Beverage X Suppression interaction was significant ($b = -.10$, $p = .02$). Explication of this interaction indicated that alcohol was associated with increases in physical aggression among lower ($\beta = .35$, $p = .02$), but not higher ($\beta = -.15$, $p = .33$), thought suppressors (Figure 1).

Discussion

Consistent with hypotheses, results indicate that alcohol intoxication increases physical aggression among lower (Hypothesis 2), but not higher (Hypothesis 1), thought suppressing men in an interpersonally provocative environment. In accordance with pertinent theory (Berkowitz, 1990; Steele & Josephs, 1990), this pattern of findings suggests that, under conditions of interpersonal provocation, alcohol intoxication produces a myopic focus on hostile thoughts and angry affect in lower suppression men. This finding supports the hypothesis that the pharmacological effects of alcohol mimic the cognitive consequences post-suppression rebound has on higher suppressing individuals. In this way, the protective cognitive power of lower thought suppression may be overridden by alcohol myopia and engender a true *"Jekyll and Hyde"* effect in which the lower suppressing individual becomes aggressive when intoxicated (Giancola et al., 2010). Overall, these data are consistent with recent findings that alcohol intoxication may override the protective impact of certain cognitive variables (Gallagher & Parrott, 2010) on aggression and provides continued support for the durability of the alcohol myopia effect.

Alternatively, it is plausible that these data indicate a ceiling effect for alcohol intoxication. Indeed, sober, higher suppressing men selected a mean shock intensity between 9.0 and 9.5, which left very little room to observe any facilitative effect of alcohol on aggression. One interpretation of these data may be that, because thought suppression already engenders higher levels of aggression in the sober state, alcohol intoxication does not provide an additive effect whereby increasing aggressive behavior. In other words, higher suppressing men may have achieved their maximum aggression threshold which minimized the alcohol myopia effect. This ceiling effect is in line with the ironic process theory of mental control (Wegner 1994; Wegner & Wenzlaff, 1996) and the theory of behavioral rebound (Baumeister et al., 1994; Denzler et al., 2010). Another interpretation of this perspective is that our measure of aggression (i.e., the TAP) could not capture the full effects of alcohol on aggression beyond the impact of higher levels of thought suppression. In this case, the fact that alcohol was not associated with increased aggression amongst higher suppressing men may reflect a methodological constraint on the severity of aggression men could deliver as opposed to the absence of a real effect.

In keeping with the AMM, the present findings collectively support the hypothesis that acute alcohol intoxication and dispositional thought suppression produce similar effects that precede aggression, such as (a) increases in physiological activation (thought suppression: Gross, 1988; Gross & Levenson, 1997; alcohol intoxication: for a review, see Anderson & Bushman, 2002; Rule & Nesdale, 1976), (b) depletion of limited cognitive resources (thought suppression: Muraven et al., 1998; Schmeichel et al., 2003; alcohol intoxication: reviewed in Baumeister & Heatherton, 1996), and (c) impairment of inhibitory control (thought suppression: Richards & Gross, 2000; Schmeichel et al., 2003; alcohol intoxication: Giancola, 2000, 2004; Steele & Josephs, 1990). Of course, a direct test of the AAM was not conducted and thus these findings must be interpreted with appropriate caution.

Limitations

It is noteworthy to discuss some limitations of this study. Perhaps the most significant limitation is that we did not assess individuals' in-the-moment thoughts, thought suppressing efforts, or state affect during the aggression task. Thus, interpretations of how alcohol intoxication and thought suppression may have affected men's in-the-moment cognitions, attentional processes, and mood states should be interpreted carefully. That stated, there is a strong theoretical rationale to support the assumption that one's dispositional tendency to suppress thoughts is associated with *in vivo* suppression efforts (Wegner & Zanakos, 1994). In the same vein, we did not assess effects of thought suppression and alcohol intoxication that are hypothesized to precede aggression (e.g., physiological activation, inhibitory control). Second, and more specifically, participants' state thought suppression was not measured. Because of this, it is not clear if higher suppressors actually engaged in thought suppression during the aggression task. Future studies may attempt to replicate these findings using a methodology that measures state thought suppression during the study. Third, this study did not have a no-provocation control condition. As such, the role of provocation in these relations is not clear.

Clinical Implications

Individuals' ability to regulate distressing thoughts and affective mood states is a central aspect of psychological well-being. This skill is especially important when individuals are exposed to provoking environments that are likely to promote negative affect. Our findings suggest that men who utilize thought suppression as an emotion control strategy may be more inclined to employ this technique in response to hostile thoughts and negative affect presumably produced by the interpersonal provocation. If this is the case, these men should experience a resurgence of hostile thoughts and negative affect towards their provocateur (see Wenzlaff & Wegner, 2000) which may account for the higher levels of aggression relative to men who endorse lower levels of thought suppression (Baumeister et al., 1994; Denzler et al., 2010). This pattern of findings supports the need for clinical interventions that focus on counteracting thought suppression by increasing willingness to experience difficult thoughts and emotions.

For example, emotion-focused empathic models of psychotherapy suggest that anger and rage – feelings that often precede aggression – may originate from experiences of shame,

vulnerability, and abuse (Greenberg & Paivio, 2003). However, men often suppress feelings associated with these experiences to preserve societally-based norms of masculinity (reviewed in Addis, 2011). Working with these feelings within the context of a supportive therapeutic environment is likely to reduce thought suppression and the subsequent aggression that may result. For example, Addis (2011) recommends creating a safe space for men to talk about their feelings (e.g., supportive men's groups, intimate relationships) with the end goal of eliminating this societal stigma.

Related to this is the finding that acute alcohol intoxication may override the protective effects of not engaging in thought suppression and, thus, increase aggression. Thus, interventions may need to focus on the development of alternative and more "active" cognitive coping skills (e.g., mindfulness) as well as external cues to redirect attention toward inhibitory cues. To this end, Giancola and colleagues (2010) put forth a two-part strategy, informed by the AAM, which may counteract the aggression-facilitating effects of intoxication. First, interventions with these men should focus on the emotion identification and expression skills just described. Second, these men must build internal (e.g., increasing dispositional mindfulness, personal cool down statements) and external (e.g., a non-descript wristband that has individual meaning related to non-violence) strategies that counteract the alcohol myopia effect.

Research Implications

With the present findings as a base, it is recommended that future research contribute to the literature by addressing key limitations. First, as previously discussed, it is possible that our pattern of findings reflect a ceiling effect due to methodological constraints of the TAP. To account for this, it is recommended that future work utilize alternative laboratory aggression paradigms that do not limit the severity of aggression participants can elect to enact. Examples include the Hot Sauce Task (Lieberman, Solomon, Greenberg, & McGregor, 1999) or the addition of an extreme response option (e.g., a "20" shock) greater than the accepted maximum shock intensity of a "10" (e.g., Broman-Fulks, McCloskey, & Berman, 2007).

Second, future work could strengthen further both the internal and external validity of these findings by the addition of a no-provocation control condition and utilization of a more diverse sample, respectively. For example, an alternative (but not tested) explanation is that provocation increases aggression more effectively among higher suppressing men, such that alcohol does not further increase aggression. A no-provocation control condition is required to rule out this alternative explanation. Moreover, though research consistently finds that women experience more severe intimate partner aggression than do men and incur more chronic and severe injury, findings suggest that men and women may perpetrate comparable rates of minor intimate partner aggression (e.g., Schumacher and Leonard, 2005). As such, it is important that research gain a better understanding of alcohol's effect on women's perpetration of intimate partner aggression and the extent to which thought suppression and other emotion control strategies moderate this effect. In addition, despite the fact that heavy drinking has been established as a predictor of aggression (e.g., Chermack, Fuller, & Blow, 2000), laboratory-based studies on alcohol-related aggression typically recruit samples in

which only a small subset meet criteria for heavy drinking. Clearly, for the present data to generalize to those most at risk for alcohol-related aggression, studies must examine these processes within samples of heavy drinking men and women.

Third, and perhaps most importantly, it is imperative that studies continue to investigate the numerous additional situational and trait-based risk factors associated with alcohol-related aggression (e.g., Borders & Giancola, 2011; Parrott & Giancola, 2006). It is encouraged that particular attention is focused on modifiable cognitive variables (e.g., rumination, mindfulness, hostility) that may be applied to clinical practice and violence prevention. It is highly alarming that alcohol continues to play such a substantial role in men's aggression toward women which affects approximately 25% of women during their lifetime (Abbey, Zawacki, & Buck, 2005; NVAWS; Tjaden & Thoennes, 2000). Thus, it is imperative that research continue to identify who is most at risk to perpetrate this aggression to decrease this serious public health malady.

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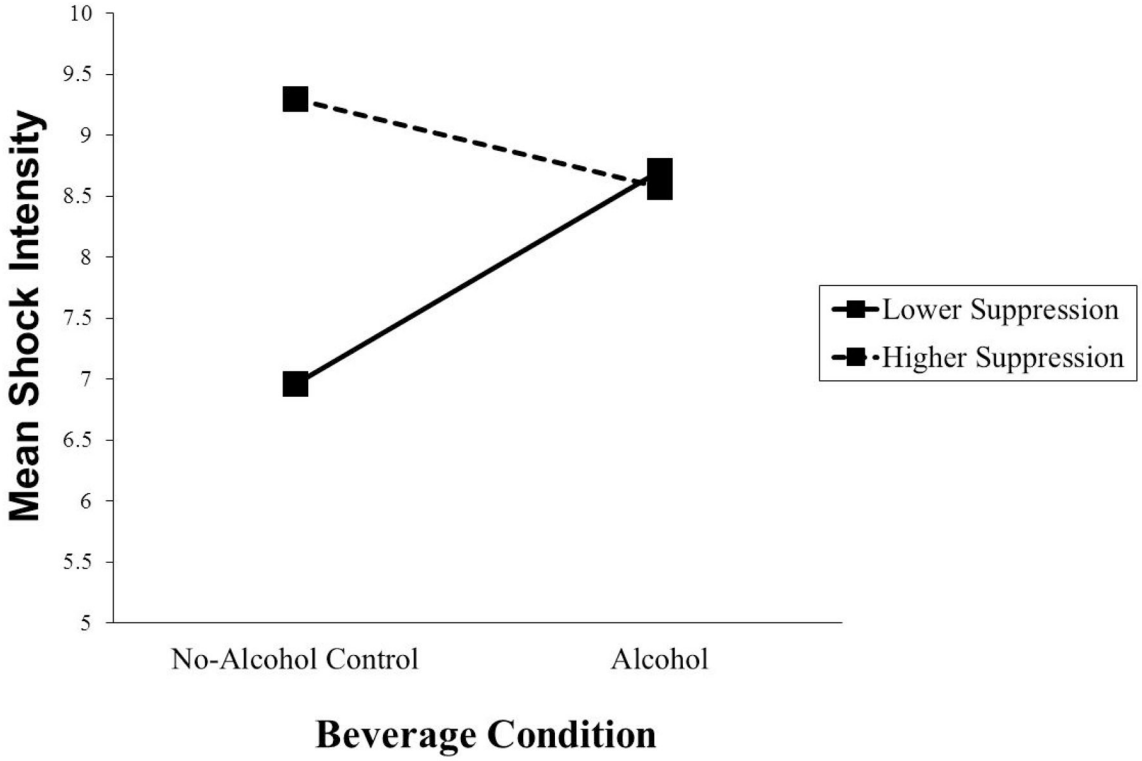

Figure 1.
Effect of thought suppression on the relation between beverage condition and physical aggression.