

The disguise of sobriety: Unveiled by alcohol in persons with an aggressive personality.

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Abstract:

This investigation examined the factor structure of 8 well-validated self-report measures that assess traits that fall under the rubric of an “aggressive personality” and then determined how those factor(s) moderated the association between alcohol intoxication and aggression. Participants were 518 (252 men and 266 women) healthy social drinkers between 21 and 35 years of age. Following the consumption of an alcoholic or a placebo beverage, participants were tested on a laboratory aggression paradigm in which electric shocks were received from, and administered to, a fictitious opponent. Aggression was operationalized as the shock intensities and durations administered to the opponent. Results demonstrated a unidimensional factor structure for the aggressive personality traits, which were then combined into a latent variable. The aggressive personality variable moderated the alcohol-aggression relation. Specifically, alcohol was significantly more likely to increase aggression in persons with higher, compared with lower, aggressive personality scores.

Keywords: psychology | sobriety | aggressive personality | personality | aggression | alcohol use

Article:

It is most absurdly said, in popular language, of any man, that he is disguised in liquor; for, on the contrary, most men are disguised by sobriety.

—*Thomas de Quincy, Confessions of an English Opium-Eater (1856)*

Following decades of research, it is time to move past the question of whether alcohol intoxication facilitates violent behavior (for review and empirical data, see Duke, Giancola, Morris, Holt, & Gunn, 2011). Meta-analytic reviews of experimental studies show that the influence of alcohol intoxication on aggressive behavior has what would be characterized as a

“medium” effect size ($d = .47$ to $.61$; for reviews, see Bushman, 1993; Bushman & Cooper, 1990; Ito, Miller, & Pollock, 1996). However, the impact of alcohol on aggression implicated by these reviews is indisputably misleading in light of evidence that alcohol intoxication does not lead to violence in all persons (Collins, 1988; Fishbein, 2003). Instead, reactions to alcohol consumption range from benign joviality to extreme violence. Given this variability, it is critical to identify individual difference traits that best predict such behavior.

A rarely disputed tenet in psychology is that one of the best predictors of future behavior is past behavior. It would thus seem particularly fruitful to examine an “aggressive personality” as a risk factor for intoxicated aggression, where such a disposition refers to a stable tendency to behave in an aggressive manner over time and across situations and contexts. According to the well-accepted definition of Baron and Richardson (1994), aggression is “any form of behavior directed toward the goal of harming or injuring another living being who is motivated to avoid such treatment” (p. 7). Other leading aggression theorists have advanced similar definitions (Anderson & Bushman, 2002; Berkowitz, 1993; Geen, 2001).

However, more broadly conceptualized, the term aggression also includes behaviors such as sarcasm, damaging relationships, gossip, and purposely concealing information that is harmful to others (Crick, Casas, & Nelson, 2002; Richardson & Green, 1997). Specific traits that are captured by this construct include physical and verbal aggression, hostility, and anger (the latter of which includes the subcomponents of affective, behavioral, and cognitive anger). In order to be clear about the definition of terms, trait aggression (whether physical or verbal), trait anger, and trait hostility are separate constructs. Specifically, according to Berkowitz (1993), anger refers to a set of feelings that are not motivated by any particular goal. These feelings typically stem, in part, from physiological reactions, involuntary emotional expressions, and motor and facial changes, as well as thoughts and memories in response to an unpleasant event.

Alternatively, Averill (1983) noted that “anger is the drive or motive behind many, if not most, forms of aggression” (p. 1147). With regard to anger, research has shown that this construct is composed of a number of related yet distinct dimensions (Barefoot, 1992; Buss & Perry, 1992; Martin, Watson, & Wan, 2000). Martin et al. (2000) advanced a model arguing that trait anger comprises three basic components: affective, behavioral, and cognitive. The affective component captures the experience of “angry” emotions/feelings (e.g., annoyance, frustration, irritation); the behavioral component represents the outward expression of aggressive acts (e.g., yelling, making a scene, hitting); and hostility is quite similar to the cognitive component of anger that is characterized by cynical attitudes, vindictiveness, and expectations of distrust (Berkowitz, 1993).

Researchers have attempted to examine whether different aspects of aggression predict violence under the influence of alcohol. Alcohol intoxication is more likely to facilitate aggression in persons with higher levels of dispositional aggressivity (Bailey & Taylor, 1991; Giancola, 2002a; Smucker-Barnwell, Borders, & Earleywine, 2006; Tremblay, Graham, & Wells, 2008), trait anger (Giancola, 2002b; Leonard, Quigley, & Collins, 2003; Parrott & Zeichner, 2001), hostile rumination (Borders, Smucker-Barnwell, & Earleywine, 2007), hostility (Abbey, Parkhill, Jacques-Tiura, & Saenz, 2009), cynicism (Giancola, Saucier, & Gussler-Burkhardt, 2003), deviant attitudes (Zhang, Wieczorek, & Welte, 1997), and a sadistic personality (Bailly & King, 2006), as well as lower levels of anger control (Parrott & Giancola, 2004) and agreeableness (Leonard et al., 2003). Moreover, alcohol has also been found to potentiate aggression in persons with a diagnosis of antisocial personality disorder (Moeller, Dougherty, Lane, Steinberg, & Cherek, 1998) and those with a history of childhood aggression (Jaffe, Babor, & Fishbein, 1988).

As can be easily discerned from the above paragraph, the moderating influence of an aggressive personality on the alcohol-aggression relation has only been approached by examining specific individual variables (i.e., emotional anger, cynical hostility, dispositional aggressivity) that are known to compose this more general construct. While there are advantages in the descriptive accuracy gained from focusing on more narrowly defined components of a particular trait rather than examining it as a unified construct, those advantages must be weighed against the potential for unnecessary complexity, semantic confusion, and a reduced ability to generalize and translate findings across research domains. Accordingly, if researchers wish to avoid the negative ramifications of assessing and interpreting an unchecked mix of unnecessarily overlapping variables, they must always be wary of what Lohman calls “naive nominalism,” or the tendency to interpret psychological constructs *prima facie*—unquestioningly believing that “things are what they say they are” (2006, p. 34). To our knowledge, no study has examined how the combined influence of aggressive personality traits moderates the alcohol-aggression relation.

Thus, the approach taken in this article seeks to provide a more parsimonious explanation of personality's role in the alcohol-aggression relation. This form of examination is important because it answers the call of numerous scientists who argue that the consideration of broader dimensions of personality (e.g., Five-Factor Model: Costa & McCrae, 1992; three-factor models: Cloninger, 1987; Eysenck, 1947, 1967) will bring much-needed conceptual clarity and parsimony to the myriad specific personality traits that have permeated the aggression literature (Bettencourt, Talley, Benjamin, & Valentine, 2006; Miller, Lynam, & Leukefeld, 2003).

Relatedly, Kelly (1927) coined the term the “jangle fallacy” (p. 63), which refers to the tendency to treat terms that sound different as if they were actually different, even when they point to the

same basic construct. Given the expansive proliferation of personality constructs over the past several decades, a growing number of researchers are realizing that their domains of study are in need of “de-jangling.” This is certainly true of aggression research, bringing us to the first aim of our investigation, which is to examine the latent structure of a number of traits that putatively fall under the rubric of an aggressive personality, such as dispositional physical aggression, verbal aggression, and hostility, as well as anger with all of its associated affective, behavioral, and cognitive components.

The second aim of this experiment involves testing whether an aggressive personality interacts with acute alcohol intoxication to explain why alcohol facilitates aggression in some persons but not in others. Social norms generally prohibit violence. When one is provoked, the ability to inhibit a violent reaction is dependent on one's self-regulatory capabilities. We hypothesize that persons with a more aggressive personality will not have the same self-regulatory skills to control their aggressive impulses compared with those with a less aggressive personality (DeWall, Baumeister, Stillman, & Gailliot, 2007). Given the cognitive, emotional, and behavioral disinhibiting effects of alcohol, we also hypothesize that this effect will be significantly intensified under alcohol intoxication. Put differently, the disinhibiting effects of alcohol are hypothesized to facilitate aggression in persons with more aggressive personalities, thus “unleashing the beast within,” without increasing aggression in persons who have less aggressive personalities.

Method

Participants

Participants were 518 (252 men and 266 women) healthy social drinkers between 21 and 35 years of age ($M = 23.05$, $SD = 2.91$) recruited from the greater Lexington, Kentucky, area through newspaper advertisements and fliers. Social drinking was defined by consuming at least three to four drinks per occasion at least twice per month. Respondents were initially screened by telephone. Individuals reporting any past or present drug- or alcohol-related problems, serious head injuries, learning disabilities, or serious psychiatric symptomatology were excluded from participation. Individuals reporting abstinence from alcohol use or a condition in which alcohol consumption is medically contraindicated were also not allowed to participate in the study. Respondents were screened for alcohol use problems using the Short Michigan Alcoholism Screening Test (SMAST; Selzer, Vinokur, & van Rooijen, 1975). Any person scoring an 8 or more on the SMAST was excluded from participation. Anyone with a positive breath alcohol

concentration (BrAC) test or with a positive urine pregnancy/drug result test (i.e., cocaine, marijuana, morphine, amphetamines, benzodiazepines, and barbiturates) was also excluded.

Participants were $\approx 87\%$ Caucasian, $\approx 10\%$ African American, $\approx 1.0\%$ Hispanic, and $\approx 2.0\%$ other (essentially evenly split between men and women), which is consistent with the Lexington, Kentucky, ethnic composition. Ninety-two percent of the participants were never married, and the sample had an average of 16 years of education. The sample also had a mean yearly household income (i.e., including support from parents) of approximately \$61,000.

Prelaboratory Procedures

Following the telephone screening interview, persons eligible for participation were scheduled for an appointment to come to the laboratory. They were told to refrain from drinking alcohol 24 hours prior to testing, to avoid drinking caffeinated beverages the day of the study, to refrain from using recreational drugs from the time of the telephone interview, and to refrain from eating 1 hour prior to testing (given that participants did not begin drinking until 3 hours into the experiment, the standard 4-hour fast used in most alcohol studies was observed). Due to hormonal variations associated with menstruation that may affect aggressive responding (Volavka, 1995), women were not tested between 1 week before menstruation and the beginning of menstruation. Participants received \$75 at the completion of the study as compensation.

Laboratory Session

After establishing that the participants met all of the inclusion criteria, demographic data were collected. Participants then completed self-report inventories that assessed a general trait of an aggressive personality (see below), in addition to a number of other measures unrelated to this investigation.

The Buss-Perry Aggression Questionnaire (BPAQ; Buss & Perry, 1992) was used to measure an aggressive disposition. The BPAQ is a 29-item inventory with four subscales (i.e., Physical Aggression, Verbal Aggression, Anger, and Hostility). The BPAQ is scored on a 5-point Likert scale and has been shown to have excellent psychometric properties (Buss & Perry, 1992; Williams, Boyd, Cascardi, & Poythress, 1996). Means and standard deviations for both genders were consistent with those described in Buss and Perry's (1992) original standardization study on the BPAQ.

The Spielberger Trait Anger Scale (STAS; Spielberger, 1996) was administered to assess the general construct of anger. The STAS is a 10-item inventory that is scored on a 4-point Likert scale. The items from this scale assess one's disposition to experience anger, not one's behavioral manifestation of that anger. The STAS is a well-established measure with excellent psychometric properties. The Trait Anger Scale has been shown to have an internal consistency coefficient of .82 for adult men and women (Spielberger, 1996).

The ABC Anger Inventory (ABCAI; Martin, 1998; Martin et al., 2000) is a 30-item inventory, scored on a 5-point Likert continuum, with three subscales (i.e., Affective, Behavioral, and Cognitive). The ABCAI has excellent psychometric properties. Its tridimensional factor structure has been supported by both exploratory and confirmatory factor analyses. Each scale has good internal consistency, averaging around .85 over six separate studies conducted on incarcerated and non-incarcerated men and women (Martin, 1998). The scales also have good 3-month test-retest reliability coefficients (Affect $\alpha = .77$; Behavioral $\alpha = .81$; Cognitive $\alpha = .81$) and are only modestly correlated with one another (correlations around .45). They have also been shown to have good convergent and discriminant validity with other measures of anger, hostility, aggression, and personality (Martin, 1998).

Beverage Administration

Men and women were divided evenly into the beverage groups. Men who received alcohol were administered a dose of 1g/kg of 95% alcohol USP mixed at a 1:5 ratio with Tropicana orange juice. Women were given a dose of 0.90g/kg of alcohol to control for gender differences in body fat composition and alcohol metabolism (Watson, Watson, & Batt, 1981). Beverages were poured into the requisite number of glasses in equal quantities. The dosing procedure was also calculated for the placebo group; however, they received an isovolemic beverage consisting of only orange juice (i.e., the missing alcohol portion was replaced with orange juice). Four ml of alcohol were added to each placebo beverage and 4 ml were layered onto the juice in each glass for a total of 8 ml of alcohol in each glass. Immediately prior to serving the placebo beverages, the rims of the glasses were sprayed with alcohol. All participants were given 20 minutes to consume their beverages and were not given any information regarding what to expect from their beverages. However, during the informed consent process, they were told that they would consume the equivalent of about three to four mixed drinks. To ensure that participants would be accustomed to the dose of alcohol administered in our experiment, we excluded anyone who did not consume at least three to four drinks per occasion at least twice per month. No participant experienced any adverse effects due to alcohol consumption.

In addition to the two beverage groups used in this study (i.e., alcohol and placebo), a sober control group, in which participants receive a nonalcoholic beverage and are told that they consumed no alcohol, could have also been used. Overall, research has shown that the vast majority of investigations indicate that whereas alcohol groups display significantly greater levels of aggression compared with sober control groups, placebo and sober controls do not tend to differ significantly in this respect (reviewed in Bushman & Cooper, 1990; Chermack & Giancola, 1997; Hull & Bond, 1986; Ito et al., 1996). In recognition of previous research demonstrating that sober and placebo groups do not differ significantly in aggression, and in order to provide an added control for the chance that the belief that one has consumed alcohol might influence aggression, we employed an alcohol and a placebo group.

Aggression Task

A modified version of the Taylor Aggression Paradigm (TAP; Taylor, 1967) was used to measure aggression. This task places participants in a situation where they are led to believe that electric shocks are received from, and administered to, a fictitious opponent during a supposed competitive reaction-time task. Participants were seated at a table in a small room. On the table facing the participant was a computer screen and a keyboard. White adhesive labels marked “1” through “10” were attached to the number keys running across the top of the keyboard. The labels “low,” “medium,” and “high” were placed above keys “1,” “5,” and “10,” respectively, to indicate the subjective levels of shock corresponding to the number keys. The keyboard and monitor were connected to a computer located in an adjacent control room out of the participant's view.

Participants were informed that shortly after “Get Ready” appeared on the computer screen, “Press the Spacebar” would appear, at which time they had to press and hold down the space bar. Following this, “Release the Spacebar” would appear, at which time they had to lift their fingers off of the space bar 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.” Participants were told that they had a choice of 10 different shock intensities to administer at the end of each winning trial for a duration of their choosing. Following a losing trial, they received 1 of 10 shock intensities that lasted 1 second. Participants viewed the shocks they selected and received on a “volt meter” and by the illumination of one of 10 “shock lights” (ranging from 1 [low] to 10 [high]) on the computer screen. The entire TAP procedure consisted of 34 trials, and shock intensities were administered to participants in an essentially random pattern with no more than three consecutive wins or losses. The trials were interspersed by 5-second intervals. The initiation of trials, administration of shocks to the participants, and the recording of their responses were controlled by a computer. The experimenters, other electronic equipment, and the

computer that controlled the task were located in an adjacent control room out of the participants' view. To ensure safety and to protect the integrity of the study, the experimenter secretly viewed and heard the participant through a hidden video camera and microphone throughout the procedure. Physical aggression was operationalized as the combined mean responses for shock intensity ("1" through "10") and shock duration (in milliseconds) across all trials of the TAP. The score was calculated by transforming each corresponding shock intensity and duration value into z scores and then summing them. This was done to increase the reliability of both indices inasmuch as a meta-analytic investigation demonstrated that shock intensity and duration are significantly related to one another and are considered to be part of a more general construct of aggression (Carlson, Marcus-Newhall, & Miller, 1989). For this reason, more recent studies using the TAP and its modified versions have adopted and successfully used similar combinatory techniques involving shock intensity and duration (Bartholow, Anderson, Carnagey, & Benjamin, 2005; Carnagey & Anderson, 2005; Giancola & Corman, 2007; Parrott & Zeichner, 2001; Ward et al., 2008). The TAP has been repeatedly shown to be a safe and valid measure of aggressive behavior for men and women (Anderson & Bushman, 1997; Giancola & Chermack, 1998; Hoaken & Pihl, 2000).

TAP validity issues

There has been discussion regarding whether laboratory measures of aggression generalize to "real-world" violence. First, it is key to recognize that the goal of this investigation is to assess how theory-based hypotheses explain the alcohol-aggression relation. Thus, the use of the TAP is appropriate given that "the primary goal of most laboratory research is the development of theories designed to explain underlying processes and mechanisms. Furthermore, it is these theoretical principles that one wishes to generalize, not the specific characteristics of the sample, setting, manipulation, or measure" (Anderson & Bushman, 1997, p. 22; see also Mook, 1983). Second, research indicates that the TAP does indeed generalize to real-world violence: (1) The TAP and its modified versions have successfully differentiated violent from nonviolent prison inmates (reviewed in Giancola & Chermack, 1998). (2) Studies show positive relations between shock selections and self-report measures of physical assault, behavioral hostility, and outwardly directed anger (Giancola & Parrott, 2008; Hammock & Richardson, 1992). (3) Our own data demonstrate that TAP responses are related to self-reports of (a) physical fights, (b) felonies, (c) deliberately hitting others, (d) cruelty to animals, and (e) breaking objects out of anger (Phillips & Giancola, 2009); in addition, many of our participants also yell vulgar names at their opponent and/or give them "the finger" during the task. (4) Responses on the TAP are not related to nonviolent constructs, such as guilt, suspicion, resentment, inwardly directed anger (Giancola & Zeichner, 1995), helping, and competition (Bernstein, Richardson, & Hammock, 1987). (5) Finally, it is difficult to dispute that within the ethical limits of the laboratory, participants control an actual weapon (i.e., the TAP) that can be used to inflict violence (i.e., painful electric shocks) upon another person.

Procedure

Upon entering the laboratory, participants were explained the procedures of the experiment and were asked to sign an informed consent form. To disguise the fact that the TAP is a measure of aggression, participants were given a fictitious cover story. They were informed that the study was aimed at understanding the effects of alcohol and personality on reaction time in a competitive situation. The experimenter then assessed their BrACs to ensure sobriety. If the BrAC test was negative, participants underwent a urine drug test and women also underwent a urine pregnancy test.

Participants were told that they were about to compete against a person of the same gender in an adjacent room on a reaction-time task. Instructions for the TAP were given as participants began drinking their beverages. Prior to beginning the TAP, participants' pain thresholds and tolerances were assessed in order to determine the intensity parameters of the shocks they would receive. This was accomplished via the administration of short-duration shocks (0.5 seconds) that increased in intensity in a stepwise manner from the lowest available shock setting, which was imperceptible, until the shocks reached a subjectively reported "painful" level. All shocks were administered through two finger electrodes attached to the index and middle fingers of the nondominant hand using Velcro straps. Participants were instructed to inform the experimenter when the shocks were "first detectable" and then when they reached a "painful" level. Later, during the actual testing, participants received shocks that ranged from 1 to 10. These shocks were respectively set at 55%, 60%, 65%, 70%, 75%, 80%, 85%, 90%, 95%, and 100% of the highest tolerated shock intensity. The threshold-tolerance determination procedure was conducted while the participant was seated in the testing room and the experimenter was in the adjacent control room. They communicated through an intercom.

Given that the aggression-potentiating effects of alcohol are more likely to occur on the ascending limb of the BrAC curve (Giancola & Zeichner, 1997) and because a BrAC of at least 0.08% is effective in eliciting robust levels of aggression (Giancola & Zeichner, 1997; Gustafson, 1992; Pihl, Smith, & Farrell, 1984), the alcohol group began the TAP as close to a BrAC of 0.09% as possible. This methodology indicates that we decided to standardize BrAC rather than the time latency following beverage consumption. One could argue that the time duration between the end of beverage consumption and beginning the aggression task should have been standardized for both beverage groups. This was not done because it would have essentially eliminated the effectiveness of the placebo manipulation (see below) and would have produced undesirably large individual differences in BrACs during the aggression task. Participants in the placebo group completed the TAP immediately following their pain

threshold/tolerance assessment. To maximize the placebo manipulation, individuals in the placebo group had their pain thresholds and tolerances tested 2 minutes after they finished their drinks. It has been shown that placebo manipulations are only effective shortly after beverage consumption (Bradlyn & Young, 1983; Martin, Earleywine, Finn, & Young, 1990; Martin & Sayette, 1993). As such, testing pain thresholds and tolerances 2 minutes after beverage consumption ensured that aggression was assessed while the placebo manipulation was most effective (Martin et al., 1990; Martin & Sayette, 1993). Finally, immediately before beginning the TAP, participants provided subjective ratings of their level of intoxication. This was done using a specially constructed scale ranging from 0 to 11 on which 0 was not drunk at all, 8 was drunk as I have ever been, and 11 was more drunk than I have ever been. Regardless of beverage group assignment, all participants were informed that their opponent was intoxicated. This was done to ensure that the “drinking status” of the opponent would not confound any potential beverage group differences in aggression.

Immediately following the TAP, BrACs were measured and participants were again asked to rate their subjective level of intoxication. In addition to this, they were asked whether the alcohol they drank caused them any impairment on a scale ranging from 0 to 10 on which 0 was no impairment, 5 was moderate impairment, and 10 was strong impairment. Participants were then asked a yes-no question regarding whether they believed that they had consumed alcohol. They were also asked a variety of questions to indirectly assess the credibility of the experimental manipulation (see below). Participants were then debriefed and compensated. All individuals who received alcohol were required to remain in the laboratory until their BrAC dropped to 0.04%.

Results

Manipulation Checks

TAP checks

To verify the success of the TAP deception, participants were asked about their subjective perceptions of their opponent, whether their opponent tried hard to win, whether they thought the task was a good measure of reaction time, and how well they believed they performed on the task. Overall, the deception manipulation was successful. Typical descriptions from participants about their opponents included “just an average college student,” “performance was as good as mine,” and “competitive.” Many participants also used very profane, abusive, and antagonistic remarks and inappropriate hand gestures toward their opponents. Some participants also

indicated that they had “no feelings for this person either way,” that “s/he shocked me a little high,” and that “the person played fair.” The majority of participants stated that they did equally well on the task as their opponent and thought that their opponent tried hard to win.

Placebo checks

All participants in the placebo group indicated that they believed that they drank alcohol. With regard to the question regarding how drunk they felt, persons in the alcohol group reported mean pre- and post-TAP ratings of 4.6 and 5.0 (scale range: 0–11) and those in the placebo group reported mean pre- and post-TAP ratings of 1.8 and 1.9, respectively, pre-TAP ratings: $t(514) = -20.08$, $p < .05$; post-TAP ratings: $t(516) = -19.73$, $p < .05$. With regard to the question about whether the alcohol they drank caused any impairment, persons in the alcohol group reported an average rating of 5.53 and those in the placebo group reported an average rating of 2.1, $t(516) = -19.31$, $p < .05$, (scale range: 0–10).

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 0.095% (SD = 0.011) just before beginning the TAP and a mean BrAC of 0.105% (SD = 0.016) immediately after the task. Persons given the placebo had a mean BrAC of 0.015% (SD = 0.011) just before the TAP and a mean BrAC of 0.007% (SD = 0.007) immediately after the task. There were no gender differences in mean BrACs either before (men = .094%; women = .096%) or after (men = .103%; women = .106%) the TAP.

Factor Analysis of the Aggressive Personality Variables

The first aim of this study was to determine whether the eight self-report variables would load onto a unitary factor or whether they would be fractionated into subcomponents. We conducted a principal-components factor analysis with an oblique rotation given that the eight variables are logically and theoretically related. Nevertheless, both the eigenvalues and the scree plot clearly indicated a definitive one-factor solution explaining 53.4% of the variance. The following factor loadings were observed: BPAQ Physical = .76; BPAQ Verbal = .68; BPAQ Anger = .80; BPAQ Hostility = .64; Spielberger Trait Anger = .80; ABC Affective = .74; ABC Behavioral = .81; and ABC Cognitive = .59. As such, the factor loadings were saved and a latent “aggressive personality” variable was created with these factor loadings using the regression method for factor scores. Higher scores on the latent variable indicate a more aggressive personality.

Gender Differences

There were no significant gender differences on the demographic variables of age, years of education, and yearly household salary. However, as would be expected, men had significantly higher scores on the aggressive personality variable, and the TAP, compared with women (see Table 1).

Table 1. Gender Differences on the Demographic, Independent, and Dependent Variables

Measure	Men				Women					
	<i>M</i>	<i>SD</i>	Range		<i>M</i>	<i>SD</i>	Range			
Age	22.91	2.51	21.0	—	34.0	23.18	3.25	21.0	—	35.0
Years of education	16.10	1.92	9.0	—	23.0	16.27	1.99	7.0	—	27.0
Household salary	59.9K	67.7K	2.8K	—	500.0K	62.4K	87.2K	1.3K	—	900.0K
BPAQ physical*	2.25	0.74	1.0	—	4.56	1.73	0.63	1.00	—	4.44
BPAQ verbal*	2.77	0.77	1.2	—	5.00	2.54	0.73	1.00	—	5.00
BPAQ nger	2.03	0.65	1.0	—	4.14	2.01	0.61	1.00	—	4.14
BPAQ hostility	2.10	0.67	1.0	—	4.50	1.98	0.64	1.0	—	4.50
ABC affective	2.68	0.71	1.0	—	4.73	2.75	0.65	1.18	—	4.64
ABC behavioral*	2.44	0.73	1.1	—	4.50	1.97	0.73	1.00	—	4.30
ABC cognitive	3.24	0.70	1.33	—	4.89	3.21	0.72	1.00	—	4.67
STAS anger	1.65	0.44	1.0	—	3.60	1.62	0.39	1.00	—	3.20
Agg personality*	0.16	1.04	-2.29	—	3.94	-0.15	0.94	-1.94	—	2.72
TAP*	0.36	1.43	-1.88	—	5.65	-0.36	0.99	-1.86	—	4.76

Note. BPAQ = Buss Perry Aggression Questionnaire; ABC = ABC Anger Inventory; STAS = Spielberger Trait Anger Scale; Agg = Aggressive; TAP = Taylor Aggression Paradigm; K = \$1,000; $p < .05$ (t test mean comparisons).

Regression Analyses

The second aim of this investigation was to examine whether the aggressive personality factor would moderate the relation between acute alcohol intoxication and aggression. By design, following the factor analysis, the aggressive personality variable was statistically standardized and therefore centered, as recommended by Aiken and West (1991). Beverage and gender groups were dummy coded following the procedures outlined in Cohen, Cohen, West, and Aiken (2003). Interaction terms were calculated by obtaining the cross-products of pertinent first-order variables. Analyses were conducted using a three-step hierarchical regression model with TAP scores as the dependent variable. All main effects were entered into the model on the first step, followed by two-way effects in the second step, and then by the three-way effect in the third step. This resulted in a full model comprising seven variables. Finally, according to the procedures in Aiken and West (1991), significant interaction terms were interpreted by plotting the effect and testing to determine whether the slopes of the simple regression lines (one standard deviation above and one standard deviation below the overall mean) differed significantly from zero.

Aggression

The full model was significant, $F(7, 510) = 14.27, p < .001; R^2 = .18$. The three-way effect was not significant and thus the model was trimmed (the three-way effect was removed) and recalculated. The second model was also significant, $F(6, 511) = 16.32, p < .001; R^2 = .18$. Within this model, Aggressive Personality \times Beverage ($b = -.23, p < .05$) was the only significant two-way effect. As can be seen in Figure 1, the relation between an aggressive personality and aggression was significantly stronger for the alcohol group ($b = .50, t = 6.23, p < .001$) compared with the placebo group ($b = .24, t = 3.41, p < .001$). In other words, alcohol increased aggression to a significantly greater extent in persons with higher aggressive personality scores than did the placebo beverage. The model containing only the main effects was also significant, $F(3, 514) = 25.90, p < .001; R^2 = .17$. Analyses of the main effects in the first step of the model revealed that alcohol significantly increased aggression compared with the placebo ($b = -.47, p < .001$), men were significantly more aggressive than women ($b = -.63, p < .001$), and higher aggressive personality scores were significantly associated with increased aggression ($b = .30, p < .001$).

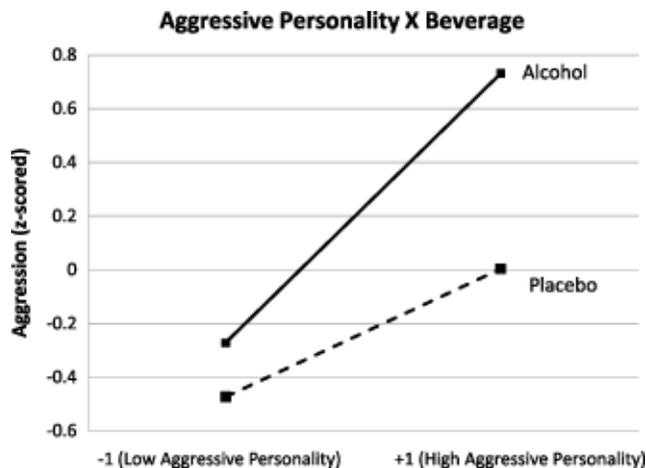


Figure 1. Plot of regression slopes depicting the relation between aggressive personality and physical aggression for participants who consumed an alcoholic or a placebo beverage.

Discussion

As noted earlier, a multitude of specific traits that fall under the rubric of an aggressive personality have been identified as risk factors for intoxicated aggression. Yet, to date, most research in this area has examined these traits separately from one another under the presumption that what they were measuring was reasonably distinct from other associated traits. Thus, the first aim of the present experiment was to test the latent structure of eight variables that putatively fall under the rubric of an aggressive personality. Factor analysis indicated that these eight personality traits—spanning behavioral, emotional, and cognitive domains—are best conceptualized as a unitary construct. This finding is consistent with the view that aggression is a complex construct with a strong underlying common component (Carlson et al., 1989) and helps explain the high intercorrelations typically found between different aggressive personality–related constructs such as hostility, anger, and aggression. In fact, Martin et al. (2000) conducted a factor analysis of 24 different self-report instruments that assessed dispositional anger, aggression, and hostility. As observed in the present investigation, their results also provided the best support for a unitary factor solution.

The second aim of our investigation was to determine the extent to which our general aggressive personality trait moderated the effects of acute alcohol intoxication on physical aggression in a controlled laboratory setting. Results indicated that alcohol increased physical aggression to a much greater extent for persons who had higher, as opposed to lower, levels of an aggressive personality. This finding is in keeping with the extant literature inasmuch as specific traits that have been hypothesized to reflect behavioral (e.g., trait aggression: Bailey & Taylor, 1991), affective (e.g., trait anger: Parrott & Zeichner, 2002), and cognitive (Giancola et al., 2003)

components of an aggressive personality have been identified by separate laboratory experiments as moderators of the alcohol-aggression link. These data are complemented by studies that employed survey methodologies on this topic and reported similar results (e.g., Borders et al., 2007; Leonard et al., 2003; Tremblay et al., 2008).

However, building upon these previous studies, the present investigation is new and important because it represents a unique addition to the research literature in that it focused on the combined influence of a set of eight theoretically related variables that loaded onto a unitary factor. This is a critical finding because it represents the first step in bringing much-needed conceptual clarity and parsimony to the individual impact of the numerous personality traits (i.e., the “jangle” of traits) that have been observed in the alcohol-aggression literature to date. While these divisions clearly have merit from a descriptive standpoint, we should consider that a multifaceted behavior such as aggression might be better predicted by an “unjangled” combinatory index of traits.

Prior to concluding, we should highlight some limitations. The first limitation involves the ecological validity of laboratory measures of aggression such as the TAP. As noted above, while numerous studies have found the TAP to partner well with real-world criterion variables (e.g., higher scores in violent vs. nonviolent inmates, physical fights, felonies, and cruelty to animals; see Giancola & Chermack, 1998; Phillips & Giancola, 2009), there is no doubt that a competitive reaction-time task where people are not allowed to be in the same room with their “opponent” is not a situation often encountered by most provoked intoxicated individuals. Despite our arguments supporting the validity of the TAP (e.g., Giancola & Chermack, 1998, Giancola & Parrott, 2008), there have been some critics of laboratory aggression paradigms (e.g., Ferguson & Rueda, 2009). Interestingly, however, despite these criticisms, our results demonstrate that even under these “conservative” circumstances, our predictions were still upheld. While empirical data show that the TAP does generalize to more extreme forms of aggressive behavior (Giancola & Parrott, 2008; Phillips & Giancola, 2009), further research on this topic is required. Another limitation has to do with the nature of our sample. Due to ethical concerns, we had to exclude participants who indicated a possible alcohol problem. Furthermore, participants’ average level of education was relatively high and reflects the geographical location in which our project was conducted. Thus, the degree to which our results generalize to persons who are heavier drinkers with less education or those who live in more rural settings is uncertain. However, we see these limitations as actual advantages. As with our argument regarding the limitations of the TAP, the fact that we found a predicted robust effect in a sample of light drinkers with a relatively high socioeconomic status only heightens the probability that our effects will be even stronger in populations where alcohol-related violence is more prevalent.

While our results clearly demonstrate that an aggressive personality is an important variable in understanding alcohol-related aggression, there are many other contributing factors that play important moderating and mediating roles. Future studies might examine how an aggressive personality works in synergy with environmental factors to bring about aggressive acts. For example, determining how social context interacts with an aggressive personality in a barroom brawl would help predict, and possibly help prevent, such behavior. Furthermore, as noted above, systematic research is needed to connect the literature on risk factors for alcohol-related aggression with broader dimensions of personality. Such efforts will constitute the next major advancement in the construction of a psychological profile for persons at greatest risk for intoxicated aggression. Finally, another line of research that will help elucidate the nature of an aggressive personality will involve examining biomarkers of this trait, such as the relation between violence and mutations of the monoamine oxidase A (MAO-A) gene (Brunner, Nelen, Breakefield, Ropers, & Vanoost, 1993; Buckholtz & Meyer-Lindenberg, 2008), reductions in serotonin levels (Coccaro et al., 1989), as well as a variety of structural brain variations (Hoskins, Roth, & Giancola, 2010).

In closing, in keeping with our initial quote by Thomas de Quincy, who stated that the true nature of men is disguised by sobriety (although we found this to be true in women as well), is the assertion that alcohol intoxication removes this disguise to reveal our most basic tendencies. Coupled with the well-established finding that alcohol disinhibits behavior (reviewed in Giancola, 2000; Steele & Josephs, 1990), the findings of the present investigation support de Quincy's view. Specifically, the underlying tendency of persons with higher levels of an aggressive personality is indeed unleashed by alcohol intoxication.

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