



Published in final edited form as:

Subst Use Misuse. 2009 ; 44(9-10): 1263–1279. doi:10.1080/10826080902960049.

Applying the Attention-Allocation Model to the Explanation of Alcohol-Related Aggression: Implications for Prevention

Peter R. Giancola¹, Robert A. Josephs², C. Nathan DeWall¹, and Rachel L. Gunn¹

¹ Department of Psychology University of Kentucky

² Department of Psychology University of Texas – Austin

Abstract

The primary purpose of this article is to apply the attention allocation model (AAM; Steele & Josephs, 1990) to the explanation, as well as the prevention, of alcohol-related violence. The AAM contends that alcohol has a “myopic” effect on attentional capacity that presumably facilitates aggression by narrowing attentional focus on the most salient provocative cues, that are naturally present in hostile situations, rather than less salient inhibitory cues. Data are presented to demonstrate support for the AAM with regard to alcohol-related aggression. The model has also been expanded to suggest some intermediary mechanisms that may account for how distracting attention away from provocative cues might be involved in the reduction of aggression. Finally, a number of practical suggestions are put forth regarding how the AAM can be applied to the prevention of intoxicated aggression.

Keywords

Alcohol; Aggression; Attention; Prevention

Pihl and Sutton (this issue) correctly and succinctly distilled a mass literature on alcohol-related aggression/violence into two simple sentences: “*The evidence is clear and substantial. The acute use of alcohol/drugs and interpersonal aggression readily mix*” (pg. XX). In fact, data from the *National Crime Victimization Survey* indicate that alcohol was present, during the time of the transgression, in 63% of intimate partner violence incidents, 39%–45% of murders, 32%–40% of sexual assaults, and 45%–46% of physical assaults (Greenfeld & Henneberg, 2001). Furthermore, a review of 26 studies carried out in 11 countries corroborated these findings by demonstrating that 63% of violent criminals committed their offenses while under the influence of alcohol (Murdoch, Pihl, & Ross, 1990). The alcohol-aggression relation brings with it economic costs that have been estimated to exceed \$205 billion, with 85% of these costs attributable to violent crime and with alcohol being responsible for more than double the costs of all other drugs combined (Miller, Levy, Cohen, & Cox, 2006). Research has also determined that it is alcohol’s acute, rather than its chronic, effects that have the greatest impact on aggressive behavior (e.g., Fals-Stewart, 2003; Murphy, Winters, O’Farrell, Fals-Stewart, & Murphy, 2005).

Although alcohol and aggression “readily mix,” this relation is not ubiquitous. Alcohol consumption facilitates aggression for some, but not for all, persons. Meta-analytic studies indicate that alcohol has a “medium” effect size ($d = .47$ to $.61$) on aggression (Bushman, 1993; Bushman & Cooper, 1990; Ito, Miller, & Pollock, 1996). By not taking into account key

moderating factors, this effect size obfuscates alcohol's true effect on aggressive behavior. In other words, alcohol has a very strong effect on increasing aggression for some individuals, but relatively little effect for others. Given this complex relation between alcohol and aggression, researchers have focused on identifying variables that moderate the alcohol-aggression link.

Numerous studies have identified individual difference variables that serve as risk factors for alcohol-related aggression, including dispositional aggressivity (Heyman, O'Leary, & Jouriles, 1995; Smucker-Barnwell, Borders, & Earleywine, 2006), irritability (Giancola, 2002), trait anger (Parrott & Zeichner, 2002), hostile rumination (Aviles, Earleywine, Pollock, Stratton, & Miller, 2005; Borders, Smucker-Barnwell, & Earleywine, 2007), hostility, permissive beliefs about aggression (Leonard & Senchak, 1993), deviant attitudes (Zhang, Wiczorek, & Welte, 1997), sensation seeking (Cheong & Nagoshi, 1999), as well as lower levels of anger control (Parrott & Giancola, 2004), self-awareness (Bailey & Taylor, 1991; Berman et al., this issue), socialization, self-control (Boyatzis, 1975), dispositional empathy (Giancola, 2003), intelligence (Welte & Wiczorek, 1999), and executive cognitive functioning (Giancola, 2004a). Moreover, alcohol has been found to potentiate aggression for persons who are heavy drinkers (Hines & Straus, 2007; Parrott & Giancola, 2006), those who have a difficult temperament (Giancola, 2004b), a high desired image of power (Quigley, Corbett, & Tedeschi, 2002), beliefs that alcohol causes aggression (Dermen & George, 1989; Smucker-Barnwell et al., 2006) as well as high marital conflict (Quigley & Leonard, 1999) and dissatisfaction (Leonard & Senchak, 1993).

Clearly, identifying variables that place an individual at risk for intoxicated aggression offers useful information, but it is equally important to understand how and why alcohol leads to such behavior. Although researchers have proposed some mechanisms that possibly underlie the alcohol-aggression relation, empirical studies testing such mechanisms are scarce. Given that approximately 50% of violent interpersonal interactions involve alcohol (Lunetta, Penttila, & Sarna, 2001; U.S. Bureau of Justice Statistics, 2003) and considering the exorbitant costs associated with such behavior (Miller et al., 2006), it is critical to understand the risk factors and the mechanisms involved in this relation. By understanding these risk factors and mechanisms, researchers will be in a position to develop better explanatory theories as well as improve upon existing clinical and public health safety/awareness interventions for alcohol-related violence.

Attention-Allocation Model (AAM)

Theory

Contemporary theorists postulate that alcohol influences aggression through an indirect path involving the disruption of intermediary mechanisms that then determine whether alcohol will, or will not, facilitate aggression (e.g., Klostermann & Fals-Stewart, 2006). One of the most well-accepted contemporary theories of this type is the Attention-Allocation Model (AAM). The AAM was advanced in earlier forms by Pernanen (1976) and Taylor and Leonard (1983) and then significantly expanded by Steele and Josephs (1990). The model postulates that acute alcohol consumption impairs controlled effortful cognitive processing; in other words, abilities that are heavily dependent on good attentional capacity. This alcohol-induced impairment creates a narrowing or "myopic" effect on attention that restricts the range of internal and external cues that can be perceived and processed. As a result, remaining attentional resources are allocated to only the most salient cues in the environment. As such, alcohol facilitates aggression by narrowing attentional focus on the most salient provocative cues that are naturally present in hostile situations, rather than less salient inhibitory cues. As a consequence of this myopic effect, the full meaning of less salient inhibitory cues is never

fully processed, or possibly even perceived, thus increasing the probability of an aggressive reaction.

In addition to specifying when alcohol will increase aggression, the AAM makes the counterintuitive prediction that alcohol consumption can actually *decrease* aggression. The model maintains that if attention is distracted away from provocative cues and diverted toward even more salient inhibitory cues, then aggression will be suppressed (see Giancola & Corman, 2007). In other words, in a situation where inhibitory cues are most salient, the alcohol myopia effect will focus remaining attentional resources on those inhibitory cues and therefore leave no “space” in working memory to allocate to any less salient provocative cues, thus decreasing the likelihood of an aggressive reaction. In such a scenario, the model predicts that alcohol will actually *suppress aggression even below that exhibited by a sober individual*. Inasmuch as attentional capacity is unimpaired in sober persons, they can simultaneously allocate their attentional resources to both salient inhibitory cues as well as less salient provocative cues. Theoretically, the result will be a more aggressive response than that seen in their intoxicated counterparts who, due to their narrowed attentional capacity, can only attend to more salient, “attention-grabbing,” inhibitory cues.

Empirical Findings

The AAM is general in scope, and as such, it has been tested with regard to a number of alcohol-related behaviors. Specifically, following an anxiety induction manipulation, alcohol significantly decreased anxiety (even below levels exhibited by sober subjects) for persons whose attention was distracted away from stressful thoughts by performing a cognitive task. However, for those assigned to a no-distraction condition, alcohol actually increased anxiety (Josephs & Steele, 1990; Steele & Josephs, 1988). Others have shown that whereas alcohol increased intentions to engage in risky sexual behavior in the presence of permissive or highly sexually arousing cues, alcohol intoxication decreased such intentions (again, even below levels seen in sober subjects) in the presence of inhibitory or low sexually arousing cues (MacDonald, Fong, Zanna, & Martineau, 2000a; MacDonald, MacDonald, Zanna, & Fong, 2000b). Persons given a placebo beverage had intentions that were intermediary to the two alcohol groups. Relatedly, a recent study demonstrated that focusing on sexually arousing cues, versus inhibitory cues, fully mediated the relation between alcohol intoxication and intentions to engage in risky sex (Davis, Hendershot, George, Norris, & Heiman, 2007). Furthermore, the AAM has been useful in explaining behaviors such as disinhibited eating (Mann & Ward, 2004; Ward & Mann, 2000), the anxiety-reducing effects of cigarette smoking (Kassel & Shiffman, 1997; Kassel & Unrod, 2000), as well as drinking and driving (MacDonald, Zanna, & Fong, 1995).

These findings suggest that the AAM offers a useful conceptual framework for explaining the effect of alcohol on a wide variety of behaviors. Several established alcohol researchers have invoked the AAM, in one form or another, to explain alcohol-related aggression (Abbey, 2002; Aviles, Earleywine, Pollock, Stratton, & Miller, 2005; Chermack & Taylor, 1995; George & Norris, 1991; Leonard, 2002; Murphy et al., 2005; Pernanen, 1976; Pihl & Peterson, 1995; Sayette, 1999; Taylor & Leonard, 1983; Testa, Livingston, & Collins, 2000; Wood & Sher, 2002). Unfortunately however, direct and programmatic empirical tests of the model with respect to alcohol-related aggression are actually quite scarce.

Zeichner, Pihl, Niaura, Zacchia (1982) assessed the impact of attentional processes on intoxicated aggression. Their results indicated that forced attention on a behavioral laboratory aggression task increased aggression under alcohol whereas distraction from the task had the opposite effect. Furthermore, Leonard (1989) demonstrated that alcohol increased aggression when subjects were primed with explicit cues from a fictitious opponent’s intentions to behave aggressively on a laboratory aggression task, even when those cues were followed only by the

most non-aggressive behavioral responses. This suggests that intoxicated subjects did not pay attention to the implicit non-aggressive behavioral cues and instead attended to the explicit aggressive cues prior to the task. Sober subjects, on the other hand, did attend to the implicit cues as evidenced by suppressed aggression. Relatedly, a recent laboratory study found that alcohol increased aggression following a minor “trigger” provocation when that trigger was preceded by a more constant moderate provocation (Aviles et al., 2005). A follow-up study demonstrated that alcohol’s effect on aggression was stronger when the minor provocative trigger stimulus was highly salient (Denson, Aviles, Pollock, Earleywine, Vasquez, & Miller, 2008). The results of these two latter studies suggest that alcohol might increase aggression by focusing attention on a salient proximal trigger stimulus (Denson et al., 2008) or by ruminating about a more distal salient provocation (Aviles et al., 2005). Taken together, these findings are clearly consistent with the AAM. Three recent investigations, reviewed below, add to this growing body of evidence and represent the beginning of a programmatic research effort aimed at directly testing and expanding the AAM as it relates to intoxicated aggression [Giancola & Corman, 2007 (2 studies); Phillips & Giancola, 2008].

In these investigations, aggression was measured with a laboratory task in which subjects administered and received mild electric shocks to/from a fictitious opponent (actually a computer program) under the guise of a competitive reaction-time task. Aggression was indexed as the shock intensity and duration administered by the subject to the fictitious opponent. Giancola and Corman’s (2007) first study demonstrated that alcohol suppressed aggression (even below levels exhibited by a placebo group) when subjects were distracted from the provocative cues of the aggression task by simultaneously engaging in a moderately difficult cognitive task that taxed working memory abilities (see Figure 1). The distraction task involved attending to a 3 x 3 matrix of 2cm x 2cm black squares on a white computer screen. Within each block of trials, the squares would illuminate four times in a different random sequential order. Subjects were told that they had to remember the sequence within each block and then immediately respond with the correct sequence using a computer mouse pointer. Subjects were engaged in this task for the entire duration of the aggression task which lasted approximately 15 minutes. Their second study was designed to assess the effect of the magnitude of difficulty (i.e., cognitive work load) of the distracting cognitive task on aggression under alcohol and placebo (again, subjects simultaneously worked on the cognitive distraction task during the aggression task). Results indicated that the moderate level of distraction used in the first study (i.e., holding 4 elements in sequential order in working memory) best suppressed aggression. Magnitudes of less, or more, than 4 elements (0, 2, 6, or 8) were not successful in attenuating aggression. Magnitudes of 6 or 8 elements increased aggression, presumably due to the negative affect elicited by the stress and other aversive emotional effects caused by the excessive difficulty of those conditions (see Figure 2).

Following-up on these first two studies, Phillips and Giancola (2008) conducted a third investigation on a group of men. Instead of using a cognitive distractor (i.e., a working memory task), Phillips and Giancola used an emotional distractor task that involved an anxiety induction manipulation. Prior to consuming any beverages, men in the anxiety induction group were informed that following the laboratory aggression task, they would have to stand before a video camera and give a speech about what they liked and disliked about their bodies. They were also told that the speech was going to be recorded and it would be evaluated by a panel of sorority women at a later date on a number of dimensions including attractiveness and dating potential. Control subjects received no such information. Anxiety induction subjects were then asked to sit and think about what they were going to say during their speech while control subjects simply sat and read magazines. This waiting period was included to give the anxiety induction subjects a chance to worry about their upcoming speech. Following the six minute waiting period, subjects received either an alcohol or placebo beverage after which aggression was assessed. The video recordings never took place due to supposed “equipment

malfunction.” Consistent with previous findings, results indicated that the anxiety manipulation decreased aggression in intoxicated subjects similar to levels seen in sober individuals. One could argue that the worry elicited by the anxiety manipulation presumably served to distract intoxicated subjects from the provocative cues of the aggression task, which subsequently attenuated aggression.

How Does Distraction Reduce Aggression?

As just noted, if an intoxicated individual’s attention is distracted away from a provocative stimulus, the result is a reduction in aggression. This finding supports the basic tenants of the AAM. However, a question not addressed by the AAM is exactly how distraction decreases aggression. Below, is a brief description of some possible mechanisms that might underlie this relation. These variables are clearly not exhaustive yet were chosen on the basis of sound theoretical and empirical research to support their role as potential mechanisms.

Reducing Negative Affect

Briefly stated, Berkowitz’s (1990; 1993) cognitive neoassociationistic theory of aggression asserts that aversive events such as provocation produce negative affect which, in turn, leads to aggressive inclinations by activating an associative network of aggression-related thoughts, feelings, memories, expressive motor reactions, and physiological responses. The implication of this theory is that aggression depends on factors that enhance the activation of the associative network to produce negative affect. Conversely, aggression should be reduced when people are exposed to factors that limit the activation of the associative network and therefore reduce the spread of negative affect. Reducing working memory capacity, through distraction, may represent one such factor that decreases the ability of the associative network of aggression-related thoughts, feelings, and memories to exert a strong influence on aggression. As a result, distraction might reduce aggression by diverting attention away from aggression-related thoughts and feelings that frequently enhance negative affect.

Reducing Anger

A more specific hypothesis based on the above negative affect prediction is that distraction reduces aggression by diverting attention away from anger-provoking cues onto non-provocative cerebral matters such as the cognitive distractor task used in Giancola and Corman’s (2007) study. Thus, distraction might reduce aggression by diverting attention away from angry affect.

Reducing Cognitive Rumination

Research has shown that ruminating about a prior provocation increases anger and aggression (Bushman, 2002; Bushman, Bonacci, Pedersen, Vasquez, & Miller, 2005). Rumination requires that individuals have adequate mental resources to focus on their thoughts and feelings (Lyubormirsky & Nolen-Hoeksema, 1995). When persons are charged with an assignment that tasks their mental resources, they will be less able to ruminate. Therefore, distraction might reduce aggression by decreasing the extent to which individuals are able to ruminate about prior provocations.

Self-Awareness

Increased self-awareness has an attenuating effect on aggression (Berman et al., this issue; Carver, 1975; Scheier, Fenigstein, Buss, 1974). Self-awareness refers to a state in which individuals focus on their thoughts, feelings, attitudes, and values – or more generally, on their conception of themselves (Carver & Scheier, 1981; Duval & Wicklund, 1972). According to theory, self-awareness often reduces aggression because one’s inclination to aggress is

compared with personal norms and standards as to what action is desirable under the given circumstances, and aggression is often judged to be “wrong” or otherwise undesirable (Carver & Scheier, 1981; Hull, 1981; Mann & Ward, 2007). Therefore, distraction from provocation might reduce aggression by allowing one’s “freed-up” attention to be focused upon pre-existing self-relevant thoughts about appropriate social behavior.

Empathy

By virtue of its inherent components such as compassion, sympathy, and caring for the well-being of others, empathy has been shown to be inversely related to aggression (reviewed in Bjorkqvist, Osterman, & Kaukiainen, 2000; Miller & Eisenberg, 1988). In addition, there is a large literature demonstrating casual evidence between feelings of empathy and prosocial behavior (for review, see Batson, 1998). As with self-awareness, distraction from provocation might reduce aggression by allowing persons “freed-up” attention to be focused upon pre-existing empathic thoughts and feelings for a provocateur.

With regard to self-awareness and empathy, we are not arguing that distraction will “increase” or “activate” these processes. There are obviously pre-existing individual differences in these traits. It is simply our hypothesis that provocative cues will direct attention away from considering and acting upon the cognitions/affect brought about by self-awareness and empathy in persons who already possess these traits. Thus, distraction from provocation will afford these individuals the capability to focus their “freed-up” attention onto these pre-existing traits, and perhaps consider and act upon them, to reduce aggression.

Suggestions for the Prevention of Alcohol-Related Aggression

The AAM is easily applied to the prevention of intoxicated aggression. In this regard, the model calls for frequent, vivid, and salient anti-violence cues that will direct the inebriate’s attention away from hostile provocative cues onto more salient non-provocative, or even inhibitory, cues in situations where violence is often the result of alcohol intoxication (e.g., bars, sports venues, college campus parties, etc.). The development of such violence prevention efforts can follow from the seminal work of MacDonald and colleagues (2000a) who applied the AAM to risky sexual behavior. Their study found that intoxicated bar patrons who received a salient hand stamp that read “AIDS KILLS” were less likely to report intentions to have risky sex compared with intoxicated patrons who received a less salient hand stamp that read “SAFE SEX” or one that had a picture of a smiling face (MacDonald et al., 2000a). Following this lead, one can imagine a series of easy-to-process vivid messages designed to compete successfully with potential provocations. For example, in a sports arena, a message consisting of five words --“**Drink; Fight; Go to Jail**”-- might be flashed on a screen or JumboTron at periodic intervals, echoing the state of Texas’s highly successful anti-drunk driving billboard campaign featuring the liberal use of large billboards with the words: “**Drink; Drive; Go to Jail.**” At sporting events, beverage vendors and servers might wear T-shirts that also read “**Drink; Fight; Go to Jail**” in large letters. Because each sporting event has many beverage vendors and servers who have access to all areas of stadiums and bars, having such employees wear such apparel would provide intoxicated fans with frequent and salient cues that would distract them from provocative stimuli. The same logic could be applied to placing coasters on tables in bars that are again printed with the same “**Drink; Fight; Go to Jail**” slogan. Finally, research has also shown that persons are more likely to obey individuals dressed in official or authoritative uniforms, compared with non-authoritative uniforms (Bickman, 1974; Geffner & Gross, 1984). Thus, rather than dressing bar or nightclub bouncers in jeans and a T-Shirt, the salience of anti-violence inhibitory cues can additionally be highlighted if the owners of such establishments could hire certified security guards in full uniform or at least have bouncers wear similar “authoritative” apparel.

A related intervention could make use of the fact that most bars and taverns have several television screens (some restaurants and bars even have television screens above male urinals). These screens could display a rotating series of brief, entertaining, captivating, and humorous 15 to 30 second public service announcement broadcasts. These broadcasts could possibly depict two individuals getting into an argument that escalates into violence and then culminates in an embarrassing arrest in which they are made to look foolish. Such vignettes could be shown periodically during regular broadcasts or at predetermined times. Ideally, these announcements would be visual, lacking any audio component, in order to maximize the likelihood of the message being received in a noisy environment. To increase the amount of cognitive resources people divert away from a provocative situation and toward anti-violence public service announcements, these vignettes could include factors that have been shown to capture peoples' attentional resources. For example, physically attractive persons capture attention more so than persons who are average in their level of physical attractiveness (e.g., Maner, DeWalt, & Gailliot, 2007). Selecting highly attractive actors for the public service announcements would strengthen their ability to serve as salient anti-violence cues.

Given the chief premise of the AAM, distraction from provocation is the central factor involved in mitigating the link between alcohol intoxication, provocation, and a violent response. Such distraction can be achieved in a number of ways. For example, envision a barroom setting in which alcohol-related violence is threatening to erupt due to a verbal altercation. Removing an intoxicated individual from the provocative situation and attempting to distract the person using any one of a variety of means might ward off potential aggression. Specifically, staff members, other trained personnel, or friends might escort a provoked individual outside or to a "cool-down" room where s/he can be distracted through the use of any number of simple interventions. The cool-down room might contain a chair designed to give patrons a massage if they wished; the person might also be encouraged to engage in deep-breathing exercises (with popular soft music playing in the background) to relax any muscles that may have become contracted during the provocative encounter. Additional distracting activities in the cool-down room might involve giving patrons the option of playing video games that are engaging, fun, and humorous yet are neither aggressive nor arousing in content (e.g., "seek and find" games, "difference between two pictures," trivia, "name that celebrity," etc). Patrons can also be told that if they perform well on these games they will win a "no cover charge" voucher to return to the establishment after two weeks with a friend. As noted earlier, laboratory research has shown that providing persons with a motivating reason (such as a no cover charge voucher) to engage in a distracting task is a successful technique for maximizing distraction and reducing aggression (Giancola & Corman, 2007). Other similar distraction techniques can involve watching a 20 minute video of a popular comedian performing a non-violence related comedy act (especially if an act can be found discussing the negative consequences as well as the foolishness and embarrassment of violent behavior), watching a funny attentionally-engaging television show, or simply engaging in a distracting, and even humorous, conversation with a friend or a staff member from the establishment. While the person is engaged in these activities, they can also be offered free food items (chips and dip, nachos with cheese, soft-drinks, etc.) which might also help re-direct their attention away from the initial provocative incident.

Another possibility is that, while in the cool-down room, angered patrons could be distracted from the provocative incident through the use of simple exercises designed to increase their level of mindfulness. Mindfulness refers to intentionally attending to current experiences in a nonjudgmental and accepting manner (Kabat-Zinn, 1990). Mindfulness practices have a long history in a variety of world religions and were originally intended to reduce suffering and to improve awareness, insight, and compassion/empathy for others. Within the context of the AAM, having simple mindfulness activities on hand would provide angered patrons with an opportunity to be removed from the provocative situation and to have their attention distracted away from the provocative cues and re-focus them onto more salient non-aggressive cues.

Moreover, empirical research has also demonstrated the utility of mindfulness-based techniques to reduce aggression by increasing self-control and self-awareness through a process of distraction from provocation (Heppner et al., 2008). Finally, as just noted, mindfulness techniques can be helpful in distracting attention away from provocative thoughts and feelings and re-directing them onto more empathic ones. In fact, a laboratory study by Giancola (2003) demonstrated that acute alcohol consumption was more likely to increase aggression in persons with lower, rather than higher, dispositional levels of empathy. Interestingly, a follow-up study by Phillips and Giancola (2007) found that an empathy induction manipulation helped to suppress aggression. As such, persons with a pre-existing empathic disposition could be encouraged to focus on such thoughts and feelings whereas those low in dispositional empathy could still be encouraged, if deemed appropriate, to identify with the affective state, assume the cognitive perspective, and even possibly share the emotional experience(s) of their provocateur (Feshbach, 1975; Feshbach & Roe, 1968). If approached in the correct manner, such methods might prove effective in reducing alcohol-related aggression by re-directing an intoxicated person's attention away from a provocative situation and onto more salient cues that prompt the consideration of personal standards for treating others with empathy.

Given the proper training for establishment staff, more involved distraction techniques could employ identifying, challenging, and restructuring dysfunctional thoughts, as well as the development of more adaptive alternative solutions for the patron's current situation. In such cases, distraction could be achieved by having the person engage in cognitive coping techniques, strategic planning, previewing abilities, evaluating the consequences of potentially harmful behaviors and their costs, goal-setting, as well as hypothesis generation and social problem-solving exercises (Beck & Freeman, 1990; Dodge & Schwartz, 1997; Kazdin, Siegel, & Bass, 1992; Kazdin, 2003; Lochman & Wells, 1996).

It can be argued that all of the distraction interventions described heretofore may suppress violence by reducing negative affect, anger, hostile rumination, and by possibly increasing empathy. However, as noted earlier, increased self-awareness has also been found to be significantly related to the attenuation of aggressive behavior. As such, trained bar/nightclub staff can add to their repertoire of distraction techniques for use in the cool-down room by initiating conversations with provoked patrons that are aimed at increasing their self-awareness and self-monitoring skills. Specifically, Hull, Levenson, Young, and Sher (1983) suggested that inappropriate alcohol-related behaviors, including aggression, can be lowered by providing "...the individual with a cognitive repertoire of self-relevant encoding schemes to employ when he or she has been drinking" (e.g., "what is my behavior saying about the kind of person I am?" or "how would I react if someone were behaving this way toward me?") (pg. 471). In fact, laboratory studies have found that a momentary manipulation designed to increase self-awareness by virtue of adding mirrors and video cameras to a room was effective in suppressing aggression toward others (Bailey, Leonard, Cranston, & Taylor, 1983) and toward one's self (Berman et al., this issue). The implication is that boosting self-awareness distracts the inebriate from the provocative situation because the person is forced to compare their initial impulse to aggress with personal and social norms that admonish such inappropriate behavior. Bolstering this research are other empirical findings showing that an effective means of increasing self-awareness is to place people in front of a mirror (Carver & Scheier, 1978; Wicklund & Duval, 1971; Silvia, 2002). Therefore, mounting mirrors and video cameras in bars and nightclubs, especially those establishments where alcohol-related aggression is most prevalent, would be an easy and effective means of providing patrons with a salient reminder of their self-concept. Placing mirrors in a cool-down room would also be a particularly effective way of increasing self-evaluation especially if the patron agrees to have a conversation with a staff member about the provocative incident (during this conversation would be an excellent time for the staff member to discuss some mindfulness techniques to help increase the patron's

self-awareness, insight, and empathy for others). To maximize this effect, the staff member and the patron can be seated on a couch placed directly in front of a large mirror while the patron is being asked to reflect upon their thoughts and actions before, during, and after the incident. Given that the person will be under a state of alcohol myopia when engaging in this conversation, self-evaluation will be maximized as will the probability that s/he will be distracted from his/her initial provocation.

Particularly with intoxicated and belligerent patrons, self-awareness can be further enhanced during such a conversation by having it take place in front of a mirror painted with “prison-like” vertical bars simulating the possibility of being in jail with a slogan above the mirror that reads: **“Drink; Fight; See Yourself Behind Bars.”** Again, as with the success of the MacDonald et al. (2000a) study using the “AIDS KILLS” hand stamp, this particularly salient intervention (i.e., jail bars and slogan) can use the patron’s acute state of intoxication, or alcohol myopia, as an advantage to focus his/her attention onto the possible negative consequences of his/her potential actions. These salient “jail mirrors” can also be placed in key locations throughout bars with the same **“Drink; Fight; See Yourself Behind Bars”** slogan printed above them along with obvious video cameras mounted even further above (and out of reach) to draw intoxicated persons’ limited attentional resources toward these objects so that the alcohol myopia effect can be used to make patrons even more self-aware of themselves as well as proper standards of behavior (Hull, 1981). More interestingly, if recordings of a provocative encounter were actually recorded on these cameras, they could then be played back to patrons in the cool-down room. This would serve to direct patrons attention on their foolish and potentially dangerous behavior which would hopefully have the effect of embarrassing them and helping them to realize the potential damage that could have resulted from a violent encounter (e.g., arrest, serious or permanent injury, jail time, etc.).

Finally, another very vivid way in which to highlight self-awareness, as well as the foolishness of violence, is to institute a **“Fight Alarm”** in bars and nightclubs. Specifically, if a physical altercation were to erupt, the bar staff could immediately stop all music, turn on bright white lights, and call out over a loud speaker that a fight has broken out followed by the words **“Stop or we Call the Cops...; Stop Acting Like Jerks!”** During, and following, this announcement, nightclub/bar staff would obviously attempt to stop the altercation. However, this message would hopefully have the effect of making the fighters aware that all attention has just been focused on them, that they are acting in a foolish manner, and that they might also be arrested.

These interventions represent only a few ways in which the AAM can be used to reduce alcohol-related aggression. Future work may profitably explore how other activities that involve frequent exposure to salient, non-violent cues may divert attention away from provoking situations and, in turn, reduce alcohol-related aggression. Of particular interest would be developing distracting activities that target our five proposed mechanisms—negative affect, anger, cognitive rumination, self-awareness, and empathy—individually or in combination with one another. For example, researchers may test whether a distracting activity that boosts self-awareness and empathy would have as strong of an impact on reducing alcohol-related aggression compared with a distracting activity that only involved increasing self-awareness. Thus, the AAM provides a useful framework for understanding the alcohol-aggression relation and, more importantly, how alcohol-related aggression can be attenuated.

Acknowledgments

This research was supported by grant R01-AA-11691 from the *National Institute on Alcohol Abuse and Alcoholism*

Glossary

- Alcohol Myopia** A restriction of attentional capacity caused by alcohol intoxication
- Alcohol-Related Aggression** Aggression that occurs under the influence of alcohol
- Attentional Processes** Cognitive functions that involve attention
- Coasters** Paper or cloth ornaments placed under cold beverages in bar/nightclubs/restaurants
- Cover Charge** Monetary charge to enter into a bar/nightclub
- Hand stamps** An ink stamp received on one's hand, following payment, when entering a bar or nightclub. If departure and re-entry is required, re-payment is not required upon showing one's hand stamp
- JumboTron** A very large screen used in large stadiums that house sporting events. Such screens are typically used to display information about a game, its players, or even for advertising purposes
- Mechanisms** Variables that better account for the relation between other variables. In the case of this article, distraction might decrease aggression through the mechanism of reduced anger
- Risk Factors** Individual difference variables that place a person at greater risk for a particular behavior such as aggression. Low empathy would be a risk factor for aggression
- Rumination** Constantly obsessing about a particular topic. In the case of this article, one might ruminate about having been insulted or provoked by another person

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Biographies

Peter R. Giancola is a professor of clinical psychology at the University of Kentucky. He received his doctorate in 1996 from the University of Georgia. His research is focused on identifying risk factors and underlying mechanisms for the relation between acute alcohol consumption and aggressive behavior. Dr. Giancola is an associate editor for the journal *Aggressive Behavior* and also serves as a consulting editor for other journals as well as being a reviewer for a number of *National Institutes of Health* grant panels. He has authored nearly 100 scholarly publications.

Bob Josephs was born on Long Island, and is a product of the New York State public school system, remaining within that system from K through college (he went to Cornell University, the largest of the Ivy's and the only "hybrid" Ivy combining private and public colleges within one University). After graduating, he remained true to his public school roots, obtaining an M.S. from the University of Washington under the supervision of Claude Steele. When Steele relocated to the University of Michigan in 1987, Josephs followed him to Ann Arbor, receiving

the Ph.D. in Social Psychology in 1990. He was hired the same year by the psychology department at the University of Texas-Austin, and has been there ever since, recently having been promoted to full professor. Amongst the accomplishments he is most proud of are his two beautiful children (Ben, aged four, and Juliana, aged two), and his beautiful wife Shana who is a child and adolescent psychiatrist in Austin, TX. Other accomplishments include recognition as the 2nd most highly-cited associate professor of social psychology (back while Josephs was still an associate professor) and his election as a Fellow in the Association for Psychological Science. He is the recipient of multiple National Science Foundation grants and currently serves on a scientific review panel for the National Institutes of Health.

C. Nathan DeWall is an Assistant Professor in the Department of Psychology at the University of Kentucky. In 2007, he received his Ph.D. in social psychology from Florida State University. His research specializes in the study of self-regulation, aggression, emotion, social rejection, and romantic relationships. He has authored over 40 scholarly publications.

Rachel L. Gunn is an undergraduate student in the Department of Psychology at the University of Kentucky. She is extensively involved in the conceptualization and design of current research projects in Dr. Giancola's laboratory. Her interests and future goals include conducting research in the areas of eating and substance use disorders in adolescents. She is planning to pursue these interests in a doctoral graduate program in Clinical Psychology upon her graduation from the University of Kentucky.

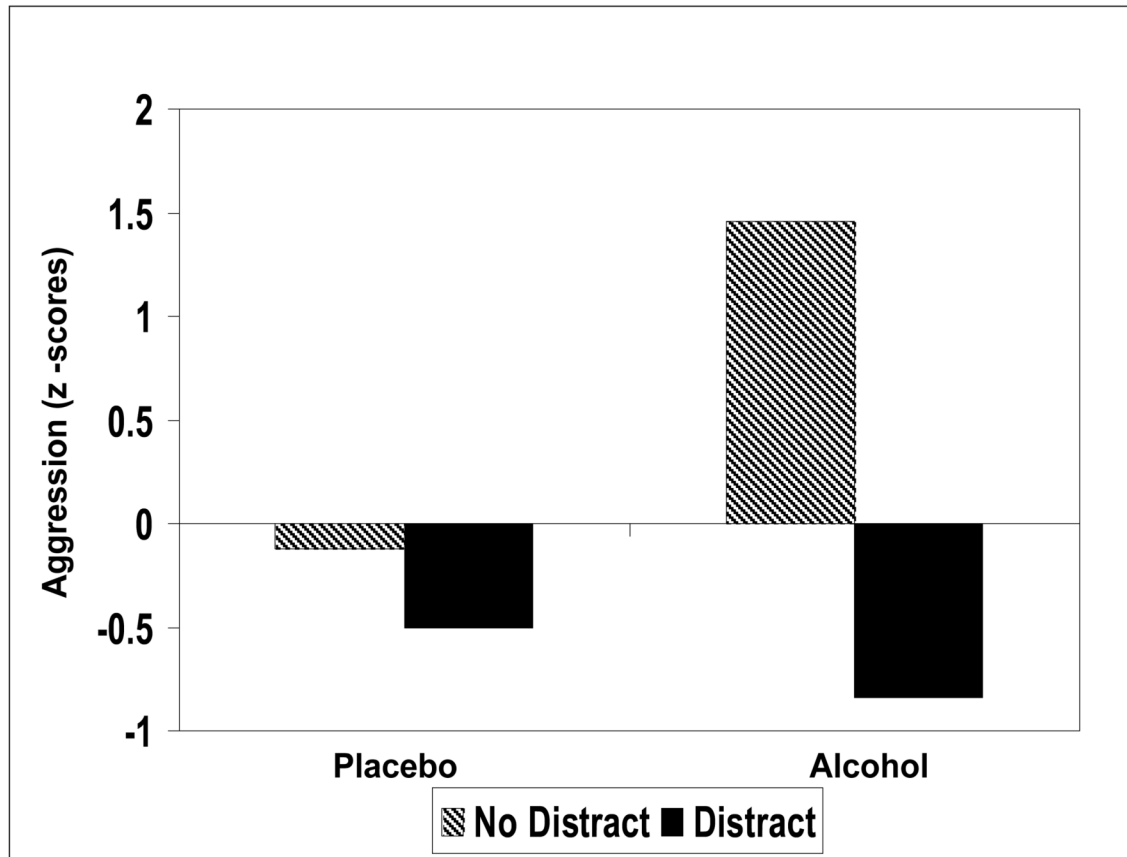


Figure 1.
Study 1. The influence of distraction on aggression (shock intensity and shock duration, summed and then standardized) under alcohol and placebo.

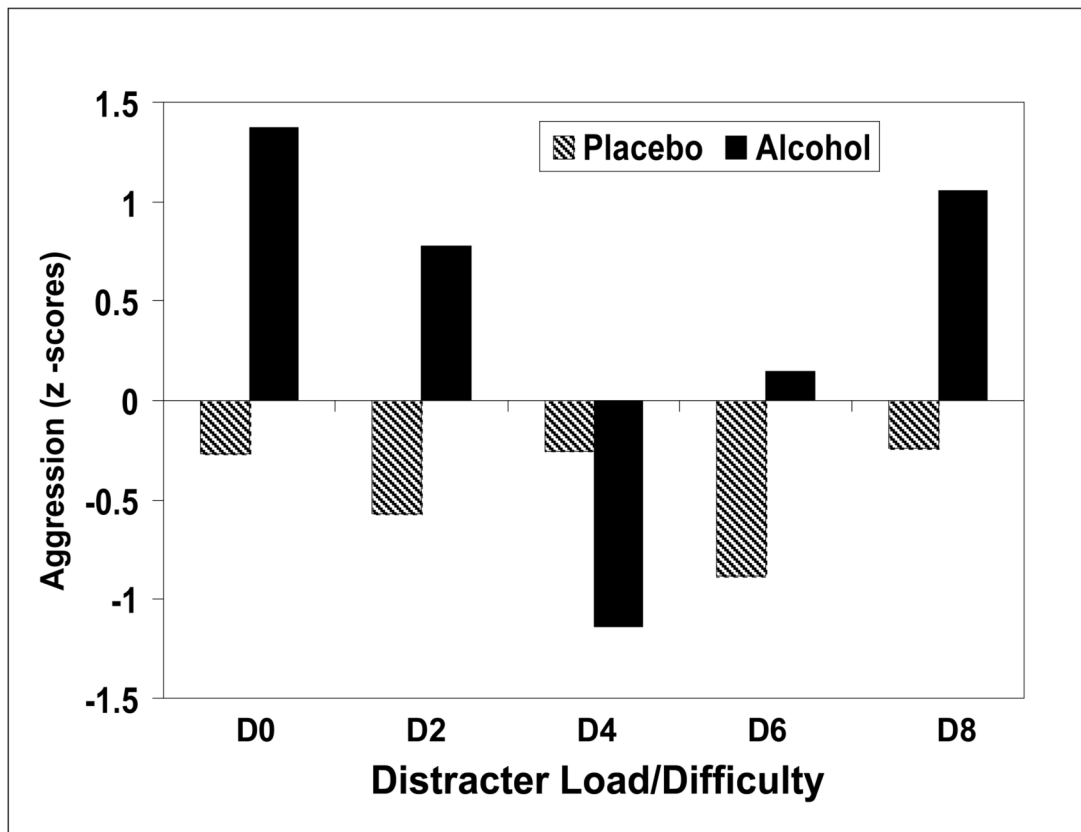


Figure 2. Study 2. The influence of different magnitudes of distracter difficulty on aggression (shock intensity and shock duration, summed and then standardized) under alcohol and placebo.