Effects of evaluative context in implicit cognitions associated with alcohol and violent behaviors☆

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ABSTRACT

Introduction: A large body of literature has substantiated the relationship between alcohol use and violent behaviors, but little consideration has been given to implicit interactions between the two. This study examines the implicit attitudes associated with alcoholic drinks and violent behaviors, and their relationship to explicit reports of problematic behaviors associated with alcohol use.
Methods: The Go/No-Go Association Task (GNAT; Nosek & Banaji, 2001) was used to test the effect of distracters (noise) on implicit cognitions associated with alcoholic drinks and violent behaviors. Data was collected from 148 students enrolled in a Midwestern university.
Results: Irrespective of contextual distractions, participants consistently exhibited negative implicit cognitions associated with violent behaviors. However, context impacted the valence of cognitions associated with alcoholic beverages. Implicit cognitions associated with alcoholic beverages were negative when nonalcoholic beverages were used as distracters, but were positive when licit and illicit drugs were used as distracters. Implicit cognitions associated with alcoholic drinks were correlated with implicit cognitions associated with violent behaviors and explicit measures of problem drinking, problem drug-related behaviors, and measures of craving, to name a few.
Conclusion: Evaluative context can have an effect on the expressed appraisal of implicit attitudes. Implications, limitations, and future directions for using the GNAT in addictions research are discussed.

1. Introduction

Alcohol consumption among young adults has become increasingly problematic in the United States. According to the National Epidemiologic Survey on Alcohol Related Conditions (NESARC), nearly 70% of young adults in the U.S. consumed alcohol in the last year (Grant et al., 2004). Additionally, the literature consistently illustrates that young adults tend to drink their heaviest in their late teens and early- to mid-twenties (Monti, Tevyaw, & Borsari, 2004), thus making them prone to heavy and/or binge drinking during this stage of life (National Survey on Drug Use and Health, 2008).

The level of binge and heavy drinking among young adults is concerning due to the known association between alcohol use and violent behaviors. Alcohol is linked to more than 696,000 physical assaults

and 97,000 sexual assaults each year in the U.S. (Giles, Champion, Sutfin, McCoy, & Wagoner, 2009; Hingson, Heeren, Winter, & Wechsler, 2005) and implicated in approximately 16% of violent crimes in the U.S. (U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics, 2010 [USDJ]). It has also been reported that between 30 to 40% of men and 27 to 34% of women who perpetuated violence against their partners were drinking at the time of the assault (Caetano, Schafer, & Cunradi, 2001). This finding is consistent with Hines and Straus (2007), who found binge drinking to be associated with the perpetration of interpersonal violence (IPV), and with other previous research demonstrating an association between alcohol use and personal violence in college samples (e.g., Caetano et al., 2001; O'Farrell, Fals-Stewart, Murphy, & Murphy, 2003; Øverup, Dibello, Brunson, Acitelli, & Neighbors, 2015; Shorey, Stuart, McNulty, & Moore, 2014).

Researchers have attempted to explain the relationship between the cognitive processes of violent behavior and the consumption of alcohol. Much of this literature aims to understand underlying causes of alcohol-related aggression and its relation to behavioral expectancies and attentional capacity (Quigley & Leonard, 2006; Rohsenow & Bachorowski, 1984; Giancola, Duke, & Ritz, 2011). In the present study, we attempt to expand this literature by investigating the nature of alcohol-related

implicit cognitions, implicit cognitions associated with interpersonal violence, and the potential interaction between the two.

1.1. Utility of implicit cognition measures

Paper–pencil measures are regularly used in clinical research for mental health issues, including perceptions on alcohol and violence. While many assessment tools produce scores with adequate reliability and validity, limitations exist in using such measures when assessing complex belief systems of sensitive topics. Namely, the face validity of paper–pencil measures limits the ability of researchers to measure constructs that have the potential to be significantly damaging to one's character (i.e., addictions and interpersonal violence).

Greenwald and Banaji (1995) defined implicit cognitions as "the introspectively unidentified (or inaccurately identified) trace of past experience that mediates a response" (p. 5). Implicit cognitions are representative of documented memory association processes rather than rational decisions or intentional behavior. Implicit cognition measures provide a causally produced index of a certain attitude or cognition that occurs automatically and subconsciously (De Houwer, Teige-Mocigemba, Spruyt, & Moors, 2009). Participants completing implicit measures are generally not consciously aware of the attitude or cognition being measured, and are thus unable to access it explicitly and/or exert control over the measurement outcome (de Houwer, 2005). One key benefit of such measures lies in their ability to alleviate factors of social desirability by nullifying learned inhibitions (rational decisions).

For the purpose of this study, the Go/No-Go Association Task (GNAT) was used to measure implicit cognitions associated with alcoholic drinks and interpersonal violence. There are two features of the GNAT that distinguish it from other implicit measures. First, the GNAT is designed to use signal detection statistics (*d-prime* or *d′*) in its calculation of automatic associations between a target (e.g., alcohol) and an attribute (e.g., good or bad). The primary value of *d-prime* is not criterion dependent, but instead is a true measure of internal response or signal detection. This approach is different from other implicit measures (e.g., IAT, EAST, etc.) which operate as a function of response latency to determine the strength of implicit associations. By requiring both accurate and time-constrained responding, the GNAT actively restricts cognitive resources and thereby eliminates the potential to override implicit processing with conscious control.

Second, the GNAT provides flexibility in the measurement of contextual characteristics for a given evaluative situation. It is assumed that the closer the relationship between target and evaluative variables, the shorter the response time would be and the greater the accuracy of signal detection. While theories of aggression have sought to explain the relationship between alcohol and violence through traditional correlation methods, implicit cognitive measures allow researchers to hone in on subconscious belief systems, while potentially avoiding confounds stemming from individual's propensities toward the self-preservation of social capital.

1.2. Alcohol- and violence-related implicit attitudes

Prior literature regarding implicit alcohol-related attitudes has yielded mixed findings. Negative implicit attitudes toward alcohol have been evidenced in nonclinical samples of heavy and light drinkers (Wiers, Stacy, et al., 2002; Campos-Melady & Smith, 2012), and clinical samples of heavy drinkers (De Houwer, Crombez, Koster, & De Beul, 2004). However, unipolar implicit measures have suggested that positive alcohol-related implicit attitudes are more predictive of drinking behavior (Houben & Wiers, 2008; Jajodia & Earleywine, 2003). Considering these conflicting findings, Houben and Wiers (2006) suggest that the strength of measured implicit negative associations with alcohol is related to the contrast category (context) utilized. Scherer and Lambert (2012) further highlight the importance of context to indicate

the strength of implicit attitudes, whereby evaluative consistency across contexts indicates stronger implicit attitudes than inconsistent evaluations. The state-like nature of implicit attitudes has also been acknowledged in the literature, challenging previous assumptions that implicit cognitions are highly stable and robust traits (Gawronski, LeBel, & Peters, 2007; Dasgupta & Greenwald, 2001). Indeed, implicit cognitions related to alcohol may be more malleable and susceptible to change than previously thought (Coronges, Stacy, & Valente, 2011). Despite these notions, context effects in implicit alcohol-related cognitions have not been assessed. However, explicitly-based assessments of alcohol use attitudes evidence variability across situational contexts (e.g., Ham, Zamboanga, Bridges, Casner, & Bacon, 2013; Monk & Heim, 2013), in accordance with situational-specificity hypotheses (Wall, McKee, & Hinson, 2000).

Implicit cognitions associated with interpersonal violence have also been investigated. Among children, implicit aggressive attitudes (vs. peaceful) have been positively associated with aggressive behavior (Grumm, Hein & Fingerie, 2011; Richetin, Richardson & Mason, 2010; Gollwitzer, Banse, Eisenbach, & Naumann, 2007). Compared to nonviolent counterparts, violent offenders tend to hold more positive implicit attitudes toward violence, which are often at odds with their explicit reports (Eckhardt, Samper, Suhr, & Holtzworth-Munroe, 2012; Eckhardt & Crane, 2014; Gray, MacCulloch, Smith, Morris, & Snowden, 2003). These findings suggest that implicit measures of violence may not only be useful in predicting violent behavior, but may also help discriminate violent offenders from nonoffenders above and beyond explicit measures. Despite such potential utility, this research base relies heavily on the IAT to determine violence-related implicit attitudes. Using a computationally different measurement tools, such as the GNAT, may therefore be useful in supplementing existing findings.

To our knowledge, there is no published research that has investigated the potential relationship between implicit cognitions associated with alcoholic beverages and interpersonal violence. However, implicit effects of alcohol primes on violence have received some limited attention. Semantic activation of alcohol can increase the accessibility of aggressive thoughts and social disinhibition (Bartholow & Heinz, 2006; Freeman, Friedman, Bartholow & Wulfert, 2010). Moreover, implicit exposure to alcohol-related primes can enhance aggressive behavior, particularly among those who hold strong alcohol outcome expectancies of violent behavior (Brown, Coyne, Barlow & Qualter, 2010; Friedman et al., 2007; Pedersen et al., 2014). These findings collectively suggest that the semantic memory networks associated with alcohol and violence may be closely linked. Because it is not uncommon for violence and alcohol use to co-occur, it is possible that these behaviors may be preceded by overlapping implicit networks that uniquely impact behavioral output. Therefore, further investigation of the implicit association between the two may be helpful in identifying such overlap and thereby delineating behavioral mechanisms between alcohol consumption and aggressive behavior.

1.3. Present study

The purpose of this study was threefold. First, we wanted to further the findings of Houben and Wiers (2006) and investigate the impact salient stimuli (context) has on the activation of alcohol-related implicit cognitions. We hypothesized that the valence of implicit alcohol-related cognitions would depend on the context in which it is evaluated (e.g., nonalcoholic drinks vs. licit and illicit drugs). That is, implicit cognitions associated with alcoholic drinks would be perceived as being "bad" when alcohol is presented in the context of "nonalcoholic drinks". Conversely, implicit alcohol-related cognitions would be "good" when alcohol is presented in the context of "licit and illicit drugs" (Cavanagh & Obasi, in press).

Second, we wanted to begin to build a literature examining implicit cognitions associated with interpersonal violence and their potential interaction with implicit alcohol-related cognitions. While this research