Personalizing the alcohol-IAT with individualized stimuli: Relationship with drinking behavior and drinking-related problems

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Abstract

Research aimed at uncovering implicit cognitive processes involved in alcohol use and abuse has demonstrated that implicit attitudes toward alcohol are negative and unrelated to drinking behavior. Here, it was examined whether these findings could be due to contamination of the IAT by extrapersonal associations that are irrelevant to behavior. Participants performed a traditional alcohol-IAT as well as a personalized IAT, which has been demonstrated to reduce extrapersonal contamination. Additionally, the personalized IAT presented individualized stimuli, which should further reduce extrapersonal contamination. Consistent with this hypothesis, significantly weaker IAT effects emerged in the personalized IAT compared to the traditional IAT. However, both the traditional and personalized IAT still indicated negative implicit attitudes toward alcohol. Incremental predictive validity was demonstrated for both tasks. Importantly, these findings underscore the importance of implicit attitudes toward alcohol as determinants of alcohol use and abuse.
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1. Introduction

Contemporary dual process models state that addictive behaviors are determined by the dynamic interplay of two qualitatively different cognitive processes: fast, associative, automatic or implicit

cognitive processes and slow, deliberative, controlled or explicit cognitive processes (e.g., Deutsch & Strack, 2006; Evans & Coventry, 2006; see also Wiers & Stacy, 2006a,b). Further, it has been suggested that automatic cognitive processes become increasingly important as excessive substance use develops into an addiction (e.g., Bechara, Noel, & Crone, 2006; Deutsch & Strack, 2006; Evans & Coventry, 2006). Whereas self-report measures can be easily used to tap controlled cognitive processes, it is far more difficult to measure automatic cognitive processes since participants may not always be able to report on the automatic cognitive processes underlying their behavior. Therefore, researchers have recently started using indirect measures of alcohol-related cognitions, which are more resistant to self-presentation biases than self-report measures because they infer cognitive processes indirectly from performance on a speeded reaction-time task. Hence, indirect measures could be uniquely suited to tap automatic cognitive processes while at the same time limiting participants' ability for controlled responding. As such, indirect measures could lead to important new insights in the study of alcohol-related cognitions involved in alcohol use and abuse.

In order to reveal implicit cognitions that influence alcohol use and abuse, Wiers, Van Woerden, Smulders, and de Jong (2002) used the Implicit Association Test (IAT, Greenwald, McGhee, & Schwartz, 1998) as an indirect measure of implicit alcohol-related cognitions in light and heavy drinkers. In the IAT, the participants' task is to quickly and accurately classify stimuli into two target categories and two attribute categories using two response keys. The underlying logic is that classification performance should be better when associated target concepts and attribute categories share a response (i.e., compatible response assignment) than when target categories are paired with unassociated attribute categories (i.e., incompatible response assignment). Using the IAT, Wiers et al. (2002) found that both light and heavy drinkers were faster when alcohol and negative attributes were assigned to the same response, and soda and positive attributes to the other response than when alcohol shared a response with positive attributes and soda with negative attributes. Hence, these results indicate that both light and heavy drinkers had negative implicit attitudes toward alcohol. Wiers et al. (2002) did find a differentiation between light and heavy drinkers with a second IAT: Heavy drinkers were faster when alcohol shared a response with arousal and soda with sedation, than when alcohol and sedation were assigned to one response and soda and arousal to the other. This effect, however, was absent in light drinkers. Wiers et al. (2002) hypothesized that these results were in line with the incentive-sensitization theory of Robinson and Berridge (1993) according to which addictive behaviors such as alcohol use are related more to "wanting" (i.e., sensitized arousal) the addictive substance than to "liking" of the substance. These results were also replicated in a sample of heavy drinkers (Wiers, van de Luitgaarden, van den Wildenberg, & Smulders, 2005) as well as in a sample of patients undergoing treatment (De Houwer, Crombez, Koster, & De Beul, 2004). Further, Palfai and Ostafin (2003) showed that that alcohol is associated with implicit approach motivations (or action tendencies) in hazardous drinkers. Importantly, stronger implicit alcohol-approach associations significantly correlated with urge to drink and arousal-reactivity in anticipation of alcohol consumption. Together, these results suggest that drinking behavior is primarily determined by implicit "wanting" or implicit appetitive associations with alcohol (e.g., implicit arousal associations and implicit approach tendencies) whereas implicit attitudes toward alcohol do not appear to be involved in drinking behavior.

It is, however, possible that results with the alcohol-IAT do not reflect implicit negative attitudes toward alcohol but instead culturally shared associative knowledge about drinking alcohol and its negative consequences, which does not influence behavior. In line with such a conclusion, it was demonstrated that the IAT is sensitive to so-called extrapersonal associations that do not form the basis of