The Manipulation of Attentional Biases in a Sample of Young Adult Social Drinkers

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INTRODUCTION

• Attentional biases to alcohol-related stimuli represent the preferential allocation of attention to these stimuli in the environment. Frequent drinkers exhibit higher levels of bias than occasional and social drinkers, and these biases may in turn be important contributors to the development and maintenance of problem drinking (Field & Cox, 2008).

• Recent research has demonstrated that attentional biases can be modified through attentional bias modification (ABM) techniques in which drinkers are repeatedly trained to direct their attention away from alcohol-related stimuli and toward neutral stimuli (see, e.g., Field & Eastwood, 2005; Schoenmakers, Wiers, Jones, Bruce, & Jansen, 2007).

• While ABM training effects have been observed in heavy and dependent drinkers (e.g., Fadardi & Cox, 2009; Field et al., 2007), less research has focused on the efficacy of ABM in social drinkers (Wiers, Gladwin, Hofmann, Salemink, & Ridderinkhof, 2013).

• The present study sought to extend ABM research to a cohort of young adult social drinkers to investigate whether ABM might be an appropriate tool for reducing biases in this group of individuals who may be at risk for the future development of problematic drinking habits.

HYPOTHESES

1. Completion of a single, laboratory-based session of ABM training will reduce attentional biases in young adult social drinkers as measured by both an alcohol-Stroop and visual dot probe task.

2. Pre-treatment attentional bias will be correlated with the actual drinking behavior of our participants, as revealed by a timeline follow-back interview (Sobell & Sobell, 1992).

METHOD

Participants

• Participants were 31 young adult social drinkers (61% female) with an average age of 22.6 (SD=2.1) years.

• Participants began drinking at an average age of 18.8 (SD = 2.5) years and consumed an average of 3.7 (SD = 1.9) drinks per drinking episode with 2.3 (SD = 1.2) drinking episodes per week.

Alcohol Stroop Task

• Attentional bias to alcohol-related words was assessed via pre- and post-training alcohol-Stroop tasks (Field, Mogg, Mann, Bennett, & Bradley, 2012; Sharma, Albery, & Cook, 2001).

• The task consisted of one block of 25 alcohol-related words and one block of 25 neutral (nature-related) words presented in each of four different colors (blue, green, red, and yellow) for a total of 100 word presentations per block.

• Stroop interference score = average alcohol word RT – average neutral word RT), so that positive scores indicate that responses to the alcohol words took longer than responses to the neutral words.

Dot Probe Task

• Attentional bias to alcohol-related images was assessed via pre- and post-training dot probe tasks modified from the visual probe task described in Miller and Fillmore (2010).

• Participants completed 80 trials in which images of alcoholic beverages (40 trials) or non-alcoholic beverages (40 trials) were paired with neutral filler images. In half of the trials, the probe replaced the beverage image (the congruent condition); during the other trials, the probe replaced the filler images (the incongruent condition).

• Attentional bias score = (average alcohol incongruent RT – average alcohol congruent RT), so that positive scores indicate a bias toward the alcohol-related stimuli.

RESULTS

Post-Training Alcohol-Stroop Task

Consistent with our hypotheses, after ABM training, and when controlling for pre-training scores, participants in the active training condition exhibited significantly lower Stroop interference scores than participants in the sham training group, F(1,26) = 5.70, p = .025.

Post-Training Dot Probe Task

The ABM training did not result in significant changes to dot probe-based attentional bias scores.

However, after ABM training, and when controlling for pre-training scores, participants in the active training condition became significantly faster at identifying the location of the probe when it replaced neutral stimuli (the alcohol incongruent condition) than participants in the sham training group, F(1,26) = 4.796, p = .039.

DISCUSSION

Changes in Attentional Allocation

• We found that a single session of ABM training can affect the allocation of attention in a cohort of young adult social drinkers.

• Participants in the active training condition had significantly lower post-training Stroop interference scores than participants in the sham training condition, suggesting that the active training was able to reduce the attentional impact of the alcohol-related words on those participants.

• Participants in the active training condition also became significantly faster than participants in the sham training condition at identifying the location of a visual probe that appeared in a separate location from an alcohol-related image, again suggesting that the active training was able to lessen the attentional salience of the alcohol-related images used during the task.

Measuring Bias in Young Adult Social Drinkers

• Our ABM training program did not result in significant differences in dot probe-based attentional bias scores between our active and sham training groups.

• However, the fact that we observed significant post-training differences in reaction times to the alcohol incongruent condition of the dot probe task and also established a relationship between those reaction times and past drinking days suggests that alcohol-incongruent reaction times may be a useful measure of attentional bias in young adult social drinkers.

REFERENCES


