

Implicit Associations and Alcohol: What Grabs Our Attention?

Marijana Musić*, Valentina Piccoli, Andrea Carnaghi, Giovanna Pelamatti, Corrado Cavallero

University of Trieste, Department of Life Sciences, Psychology Unit *Gaetano Kanizsa*, Trieste, Italy

*musicmarijana@yahoo.it

Abstract

The Incentive Sensitization Theory of Addiction claims that drug induced sensitization of the mesocorticolimbic system increases the salience of the drug related stimuli. In so doing, drug related stimuli become attention grabbing for an addictive person. We tried to understand the socio-cognitive underpinnings of this process in case of alcohol addiction. The present study involves a group of participants that had alcohol related problems and a non clinical sample. We suggest that two implicit automatic mechanisms could predict the attention towards alcohol related stimuli: the self relevance of the alcohol related stimuli and the evaluation attributed to the same stimuli. The Implicit Association Task was used to determine the strength of these mechanisms (i.e., self-relevance and alcohol evaluation). The attention toward alcohol related stimuli was assessed with the Visual Dot Probe Task. Results showed that the two groups significantly differed on the IAT scores, indicating stronger associations between self and alcohol, and between alcohol and positive words for participants that had alcohol related problems. Moreover a stronger association between the self and the alcohol was a significant and positive predictor of the attentional salience of the alcohol stimuli for the clinical sample, but not for the control group.

Keywords: Sensitization; Addiction; Implicit association; Attention;

Introduction

The incentive sensitization theory of drug addiction posts that this pathological condition is a consequence of drug-induced changes in the brain and in particular in the mesocorticolimbic system (Robinson & Berridge, 2001). Repeated drug consumption sensitizes these brain areas and increases the salience of the drug-related stimuli compared to drug-unrelated stimuli (Robinson & Berridge, 2008). As a consequence, drug-related stimuli acquire the ability to grab alcohol-consumer's attention. The present study analyzes the underlying mechanisms involved in the drug-related stimuli salience and the attentional bias towards these stimuli, comparing a group of alcohol-addicted individuals with controls. We suggest that the enhanced salience of drug-related stimuli can be accounted by two distinct factors. First, the automatic self-relevance of alcohol stimuli that indicates the association between the concept of Self and Alcohol. Second, the automatic evaluation of the alcohol stimuli, which refers to the association between the evaluative attributes and the concept of alcohol. We hypothesize that the stronger the self-alcohol association the stronger is the power of these stimuli to grab the attention, at least in the alcohol addicted individuals. We alternatively put forward that the stronger the automatic evaluation of the

alcohol, the stronger is the power of these stimuli to grab the attention, at least in the alcohol addictive individuals.

Materials and Methods

Participants

The present study included two groups of participants, a clinical group that had alcohol abuse problems and a control group with no alcohol related problems. The two groups were equivalent for age, gender and social status and differed on the screening test for detection of alcoholism (C.A.G.E.).

Measures

Implicit Association Test (IAT). We used the IAT to assess automatic associations regarding the self relevance of alcohol stimuli and the evaluation of the same stimuli. The IAT is a word sorting task that requires the categorization, with two response keys (e.g. D and K) of words that belong to 2 target categories and 2 attribute categories. The difference in the performance (e.g. accuracy and categorization speed) in these two conditions gives us the strength of the implicit association between the target and the attribute category (Greenwald, Banaji, & Nosek, 2003).

The IAT for the self relevance consisted of 2 target categories (Alcohol and Soft drinks) and 2 attribute categories with words indicating the concept Self and Others. The IAT for the evaluation of alcohol had the same structure as the one for the self relevance. The words for the category of Alcohol and Soft Drinks were the same as in the previous task. The attribute categories in this task were Positive and Negative words.

Visual Dot Probe Task. We used the Visual Dot Probe Task to assess the attentional bias toward alcohol related stimuli. In this task participants had to determine a position (left or right) of a target (a black dot) with two response keys (S or L). Before the target appeared on a computer screen, the participants were presented with two words indicating an alcohol and a soft drink. The task had 50 trials that appeared twice, in one condition the target appeared on a location of the alcohol word (50 congruent trials) and in the second on a location of the soft drink (50 incongruent trials). Trials were presented in random order.

Procedure

Both groups were presented with the same procedure. They were asked to fill out the two questionnaires AUDIT and C.A.G.E. and perform two Implicit Association Tasks,

self relevance and evaluation. The order of presentation of explicit and implicit measures was counterbalanced between participants for both groups. The last task for all participants was The Visual Dot Probe Task.

Results and Discussion

The IAT scores were calculated applying the D600 scoring algorithm (Greenwald et al., 2003) where higher scores indicated stronger associations between Self and Alcohol and stronger association for Alcohol and Positive words. For the clinical group we found that the averaged score of the IAT self-relevance was positive, indicating a stronger association between Self and Alcohol. The results on the same IAT for the control group showed a negative score even though it wasn't significant. More important the clinical and control group differ significantly on scores for the IAT self relevant. The score of the IAT evaluation for the clinical sample was positive, thus showing a stronger association between Alcohol and Positive words. On the same task the control group obtained a negative score, indicating a stronger association between Alcohol and Negative words. The score on The Visual Dot Probe Task was calculated so that negative scores indicated faster response when the target appeared on the location of the alcohol drink names, while positive scores indicated slower response when the target appeared on the location of the alcohol drink names. We found that the control group was faster on the Visual Probe Task than the clinical sample. However, this effect was not moderated by the congruency/incongruency of the trial. For the clinical group only the IAT self relevance was significantly associated with the attentional bias. A strong automatic association between the Self and Alcohol predicted the salience of the alcohol related stimuli, and determined a faster response when the target appeared on the location of the alcohol name. The IAT evaluation was not significantly associated with the attentional bias. The same analyses on the control group was not significant: neither the IAT self relevance nor the IAT evaluation was significantly associated with the attentional bias.

To conclude, the association between the Self-concept and the Alcohol predicts the salience of the alcohol stimuli, which in turn gain strength to grab perceivers' attention. The fact that this relationship emerges only in participants that had a clinical condition of addiction is in line with considerations that alcohol consumption and abuse is a precondition for the incentive sensitization of alcohol-related stimuli (Robinson & Berridge, 2008).

References

- Robinson, E. T., Berridge, C. K., (2008), The incentive sensitization theory of addiction: some current issues. *Philosophical Transactions of the Royal Society B*, 363, 3137-3146
- Robinson, E. T., Berridge, C. K., (2001), Mechanisms of action of addictive stimuli: Incentive-sensitization and addiction. *Addiction*, 96, 103-114

Greenwald, A. G., Banaji, M. R., Nosek, B. A., (2003), Understanding and Using the Implicit Association Test: I. An Improved Scoring Algorithm. *Journal of Personality and Social Psychology*, 85, 197-216.