

Interactive Effects of Naturalistic Drinking Context and Alcohol Sensitivity on Neural Alcohol Cue-**Reactivity Responses**

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BACKGROUND

There is substantial inter-individual variability in alcohol's acute pharmacological and subjective effects (e.g., Sher & Wood, 2005).

· Low level of subjective response (i.e., low sensitivity; LS) is a potent risk factor for AUD (e.g., Morean & Corbin, 2010; Newlin & Thompson, 1990; Pollock, 1992; Quinn & Fromme, 2011).

Mechanism linking LS to heavy drinking:

Enhanced reactivity to alcohol cues among LS individuals, relative to their higher-sensitivity (HS) peers (e.g., Bartholow et al., 2007; 2010).

Translational research of sign-tracking:

· Among LS drinkers, alcohol cues appear to elicit conditioned appetitive motivational responses reminiscent of sign-tracking.

The current study:

Aim: To examine the extent to which variability in two alcohol response phenotypes (ASQ-L and ASQ-H) is associated with enhanced alcohol cue-reactivity, as well as whether this reactivity varies according to contexts in which cues are presented.

METHOD

The final sample included data from 80 participants (47 females; 90% White; 18-33 years-old). The EEG was recorded while they viewed images depicting drinking in naturalistic contexts (one person drinking and more than one person drinking), alcohol and nonalcohol beverages in isolation (devoid of naturalistic drinking context), and neutral non-beverage control images .



Participants also completed a computerized survey using Qualtrics:

- Background and basic demographic information
- Drinking Motives Questionnaire-Revised (Cooper, 1994)
- Alcohol Sensitivity Questionnaire (Fleming et al., 2016) Emotion Regulation Questionnaire (Gross & John, 2003)
- Affect Balance Scale (Bradburn, 1969)
- BIS/BAS scales (Craver & White, 1994)
- Dampening of Positive Emotions Scale

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RESULTS



- To test the hypothesis whether ASQ-L and ASQ-H scores would be associated with enhanced alcohol P3 reactivity but not P3 reactivity to nonalcohol cues, a MLM controlling for sex, age, and AlcQF was estimated.



Waveforms as a Function of Image Type, Broken by HS versus LS



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Alcohol P3 Reactivity, Alcohol Sensitivity, and People Drinking

- To test the hypothesis whether associations between alcohol sensitivity and alcohol P3 reactivity are potentiated when alcohol cues are shown in naturalistic drinking contexts, we estimated a MLM controlling for sex, age, and AlcQF.
- Image Type, F(1, 73.838) = 6.42, p = .013 --> People > Only Alcohol
- ASQ-H × Image Type (People vs. Only Alcohol), F(1, 73.692) = 3.22, p = .077 --> People (b = -.42, p = .612) vs. Only Alcohol (b = .64, p = .459)
- To test whether ASQ-L and ASQ-H scores were differentially associated with P3 responses to images of multiple people drinking in social settings vs. people drinking alone in more private settings, we estimated a MLM controlling for sex, age, and AlcQF.
- We failed to find that ASQ scores were differently related to P3 elicited by images differing in social (more than one person) vs. private settings (one person).

TAKE HOME MESSAGE

- The relationship between alcohol sensitivity and alcohol P3 reactivity is primarily driven by blunted sensitivity to the higherdose/sedation-like effects.
- This association emerges for alcohol cues presented without people, but not when the cues depict people drinking
- The findings are consistent with the idea that individuals with blunted sensitivity to higher-dose/sedation-like effects might be particularly susceptible to incentive salience sensitization.
- The possibility that individuals at increased AUD risk due to blunted alcohol sensitivity show reduced reactivity to natural reinforcers, such as social interactions.

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