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BACKGROUND

Incubation of drug craving has been observed in humans and animals across numerous abusive substances. Craving in response to drug-related cues has been shown to follow a parabolic pattern¹. Previous work has demonstrated an increase in craving after cue presentation compared to baseline¹. Electroencephalogram (EEG) has been used to measure levels of motivated attention in response to cues².

OBJECTIVES

- To determine the trajectory of cue-induced craving in individuals addicted to methamphetamine
- To determine the pattern of cue-induced craving over time from abstinence using EEG and subjective reporting.

Expected Results

- We anticipate that the EEG data will show cue-induced craving in a parabolic pattern
- We further predict that this pattern will not reflect individuals' subjective reporting

References

1. Wang G, Shi J, Chen N, et al. Effects of length of abstinence on decision-making and craving in methamphetamine abusers. *PLoS One*. 2013;8(7): e68791.
2. Parvaz MA, Moeller SJ, Goldstein RZ. Incubation of Cue-Induced Craving in Adults Addicted to Cocaine Measured by Electroencephalography. *JAMA Psychiatry*. 2016;73(11):1127-1134. doi:10.1001/jamapsychiatry.2016.2181
3. Krigolson, O. E., Williams, C. C., Norton, A., Hassall, C. D., & Colino, F. L. (2017). Choosing MUSE: Validation of a low-cost, portable EEG system for ERP research. *Frontiers in neuroscience*, 11, 109. https://images-na.ssl-images-amazon.com/images/I/61ha9XupUOL_AC_SX425.jpg
4. <https://www.wearable.com/media/imager/201504/4026-original.jpg>

Methods

Sample

- Individuals currently part of the ROAR CANADA study who use stimulants

Procedure

- Participants complete a computer task
- They are shown an image followed by a series of prompts (Figure 1)

Measures

- Participant responses to prompts during computer task
- EEG recording via the Muse headband (Figure 2)

Muse Headband

- Portable EEG headband
- Provides several advantages not afforded by traditional EEG systems
- Allows access to a wider population
- Advantageous for use in inpatient populations with restrictions on travel
- Shown to be effective in prior research³
- Allows ERP research and real-time EEG³

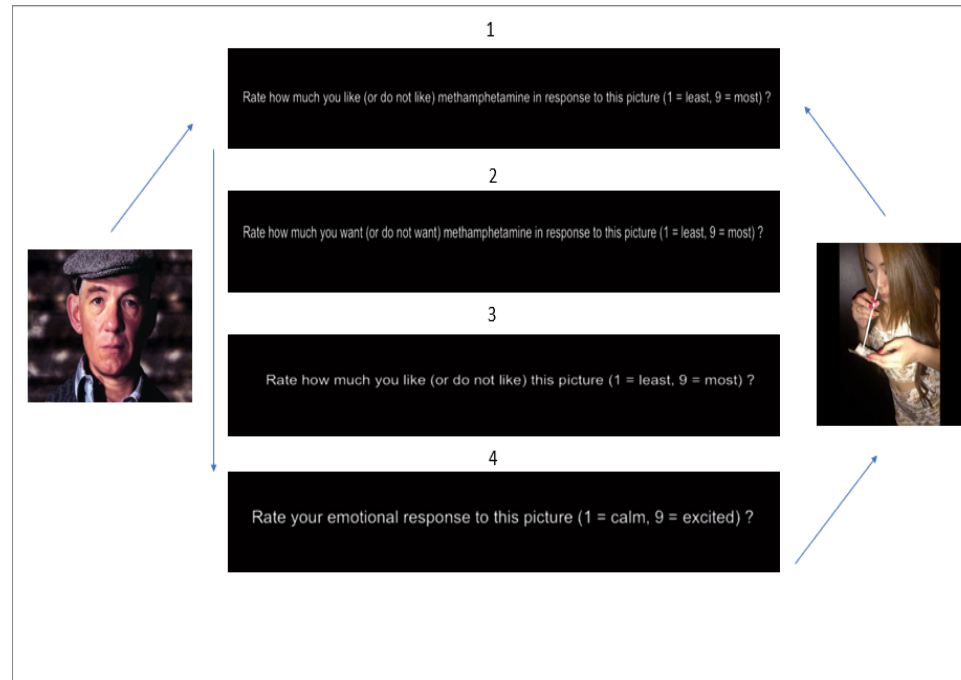


Figure 1. Computer task completed by participants



Figure 2. Muse headband