Development of a large Australian alcohol beverage picture set to aid neuromodulation research for alcohol use disorders

MADELEINE HINWOOD1,2, HEATH CAIRNS1, JOSEPH FLETCHER1, NIKEISHA KLEIN1, VANESSA NG1, ADRIÁN J. DUNLOP1,2, BRYAN PATON4, AMANDA L. BROWN1,3

1School of Medicine & Public Health, University of Newcastle, Callaghan, Australia, 2Hunter Medical Research Institute, New Lambton Heights, Australia, 3Hunter New England Local Health District, Drug & Alcohol Clinical Services, Newcastle, Australia, 4School of Psychological Sciences, University of Newcastle, Callaghan, Australia.

Presenter’s email: Madeleine.Hinwood@newcastle.edu.au

Introduction/Issues: In contrast to traditional treatments, novel medication development for alcohol use disorders (AUD) targets underlying maladapted neurobiology. Magnetic resonance imaging (MRI) allows high-resolution mapping of the brain and is used to investigate addiction neural circuitry and the modifying effect of treatment. Beverage picture sets are required in task-based functional MRI (fMRI) studies to examine cognitive biases associated with alcohol-related stimuli/cues. To date, no Australian-specific picture set extensive enough to accommodate task-based fMRI experiments at multiple time-points without repetition has been developed.

Method/Approach: We developed a large Australian-specific beverage picture set (LAB-PS) incorporating photographs of alcohol and non-alcohol beverages popular in Australia in both passive (beverage only) and active (pouring/holding) contexts. An additional active context showing beverages in relevant settings (e.g., pubs and other social contexts) was also included. LAB-PS will be validated using an online survey correlating cue-elicited craving with frequency of consumption, and through their use in a neuromodulation pilot project investigating the use of an mTOR inhibitor for AUD incorporating cue-exposure and Go/No-Go tasks at pre- and post-treatment and follow up. These tasks were chosen to measure networks involved in craving and reward processing, and response-inhibition respectively.

Key Findings: It is expected LAB-PS will induce craving and anticipation of drinking in people who consume alcohol frequently and be feasible for use in a neuroimaging study that requires many images to ensure repetition of cues during tasks and follow-up time-points does not occur, thus minimising likelihood of habituation.

Discussion and Conclusions: The LAB-PS will be valid for use in Australian research where the use of a large beverage picture set is required.

Implications for Translational Research: LAB-PS can be used in experimental paradigms integrating neuroimaging into AUD treatment development, allowing for greater insight into the cognitive processes involved and effects of putative disease-modifying treatments.

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