Are you looking at me? Effects of acute alcohol consumption on processing of facial cues of emotional expression
Alcohol and Aggression

• There is widespread consensus of a relationship between alcohol consumption and heightened aggression

• Despite this, the mechanisms that underlie this relationship are poorly understood

• One mechanism may be alcohol-induced alterations in the processing of facial expressions of emotion
Alcohol-Aggression Model

ALCOHOL

Personality Variables

Inhibitory Control

Social Perception

AGGRESSION
Alcohol and Emotional Processing of Facial Cues

- Evidence of impairment to the processing of emotional expressions in alcohol-dependent patients (Foisy et al. 2007; Townshend & Duka 2003)

- Tucker & Vuchinich 1983
  Fewer correct responses after alcohol, not stratified by emotion

- Kano et al. 2003
  Faster reaction time to identify happy facial expressions from neutral after a low dose, compared to a high dose of alcohol
Alcohol and Emotional Processing of Facial Cues

Aims of project:

- Effects of acute alcohol consumption on the processing of facial cues of emotional expression
- Effects of acute alcohol consumption on the processing of angry facial expressions – role in alcohol-induced aggression
Alcohol and Emotional Processing of Facial Cues

Aims of project:

- Effects of acute alcohol consumption on the processing of facial cues of emotional expression

- Effects of acute alcohol consumption on the processing of angry facial expressions – role in alcohol-induced aggression
Studies

Study 1: Effects of acute alcohol consumption on perception of emotional expressions in facial cues

Study 2: Effects of acute alcohol consumption on categorisation of emotionally ambiguous facial cues
Experimental Procedure

- Baseline ratings of self-report measures of personality, anxiety, mood and craving (AUDIT; EPQ-R; STAI-trait; STAI-state; VAS; AUQ)

- 10 min consumption of alcohol or placebo lime/tonic beverage (+ 10 min absorption)

- Self-report measures of anxiety, mood and craving (STAI-state; VAS; AUQ).

- Task

- Self-report measures of anxiety mood and craving (STAI-state; VAS; AUQ)
Inclusion Criteria

• Weekly alcohol drinkers (5-35 units/week if female and 10-50 units/week if male)
• Good physical and psychiatric health
• No family history of alcoholism
Study 1:  
Two Alternative Forced Choice Task
Stimuli

Neutral Face 0%  Full Exemplar 100%
2AFC Task

- Male Happy
- Male Sad
- Male Angry
- Female Happy
- Female Sad
- Female Angry
Alcohol and Emotional Processing of Facial Cues

• Study 1 $H_{(1)}$: After alcohol participants will display lower threshold for angry faces compared to placebo
Study 1: Results

Emotion × Drink ($F[2, 88] = 3.57, \ p = 0.032$)

Craig et al. (2008) *Journal of Psychopharmacology* 204: 327-34
Study 2: Categorisation Task
Alcohol and Emotional Processing of Facial Cues

- Study 1 $H_{(1)}$: After alcohol participants will display lower threshold for angry faces compared to placebo
- Study 2 $H_{(1)}$: After alcohol participants will be more likely to categorize an ambiguous face as angry compared to placebo
Study 2: Results

Significant drink x target emotion x target sex interaction ($p = 0.02$)

Attwood et al. (2009) *Psychopharmacology* 204: 327-34
Alcohol and Emotional Processing of Facial Cues

- **Study 1:** After alcohol participants will display a lower threshold for angry faces compared to placebo.

- **Study 2:** After alcohol participants will be more likely to categorize a male target face as angry compared to placebo.
Alcohol and Emotional Processing of Facial Cues

- Identifying sad facial expressions has been long linked to the inhibition of aggression (Blair et al. 1999, Eisenberg et al. 1989)

- Therefore, an alcohol-induced impairment in the ability to recognise sad emotional expressions would increase the likelihood of an aggressive response
Theoretical Framework
Theoretical Framework

- OFC has extensive neural connections with areas important in emotion and regulates behavioural and autonomic responding (to threat)

- Both amygdala and OFC dysfunction/lesion have been associated with impairments in emotional (facial) processing and aggressive responding

- Intermittent explosive disorder (impulsive, affective-driven aggression) patients show exaggerated amygdala activity and diminished OFC activity in response to angry faces (Coccaro et al. 2007)
Theoretical Framework

ALCOHOL

↓

OFC

↓

Behavioural Suppression

→ AMYGDALA

|↑ activation to threat |
Summary

• Evidence that alcohol decreases sensitivity to sadness and increases tendency to see anger

• Effects may be affected by the sex of the target although further research is needed
Future Directions

• Development of new tasks

• Social priming effects

• Individual differences (e.g., light vs. heavy drinkers, alcohol-related experiences/expectancies)
## Acknowledgements

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