UNIVERSITY OF WEST LONDON
The Career University

UWL REPOSITORY

repository.uwl.ac.uk

Facial emotion recognition in people with different patterns of alcohol consumption: an eye-tracking study

Cocran, Carmel, Townshend, Julia, Milani, Raffaella Margherita ORCID logoORCID: https://orcid.org/0000-0003-1683-2410 and Hunt, Frances (2016) Facial emotion recognition in people with different patterns of alcohol consumption: an eye-tracking study. In: BPS Cognitive Psychology Section Annual Conference, 31 Aug - 02 Sep 2016, Barcelona, Spain. (Unpublished)

This is the Accepted Version of the final output.

UWL repository link: https://repository.uwl.ac.uk/id/eprint/2966/

Alternative formats: If you require this document in an alternative format, please contact: open.research@uwl.ac.uk

Copyright:

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy: If you believe that this document breaches copyright, please contact us at open.research@uwl.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.

Rights Retention Statement:

Facial Emotion Recognition with Different Patterns of Alcohol Consumption: An Eye Tracking Study

Carmel Corcoran, Dr. Julia Townshend, Dr. Raffaella Milani, Dr. Frances Hunt

University of West London

Introduction

Alcohol is implicated in cognitive, emotional and behavioural impairments. A pattern of drinking linked with striking cerebral changes is binge drinking (Parada et al., 2012).

The brain is flooded by high levels of alcohol followed by withdrawal, similar to multiple detoxifications in those with alcohol dependence (Townshend & Duka, 2003).

Aims

The study aimed to identify if there are differences between the ability of occasional drinkers and regular binge drinkers to recognise emotions through facial expressions. Also to identify if they scan faces for processing in a qualitatively different way.

Participants

Participants were a convenience sample of students from the University of West London. N=54, 18 males, and mean age =24.1 (SD: 6)

Two groups of 27 each were created: above, High Binge Score (HBS) and below, Low Binge Score (LBS) using the median score from the AUQ. The binge score is derived from speed of drinking, the number of times drunk and % of time becoming drunk. The median score of this sample was very low at 16 and as such results should be treated with caution.

Materials

Eye Tracker

A Tobii eye tracker was used to track gaze as participants are presented with faces with different expressions. Along with neutral expressions, high and low intensities of happy, sad, fearful and angry expressions are presented. A total of 18 faces were presented for 5 seconds each, 9 male. The facial expressions were drawn from the GUR45 database.

CANTAB – Emotion Recognition Task (ERT)

Participants completed the ERT which involved identifying 6 key emotions with 15 different intensities each; Anger, Fear, Happiness, Sadness, Surprise and Disgust. Images were shown in 2 blocks of 90 each. The emotion was shown for 200ms and was then masked for 250ms.

Procedure

Participants completed the demographics and PANAS (mood) questionnaires followed by the ERT. They then completed the AUQ, (alcohol use) BIS (impulsivity) and TAS (Alexithymia) questionnaire before viewing the faces on the eye-tracker.

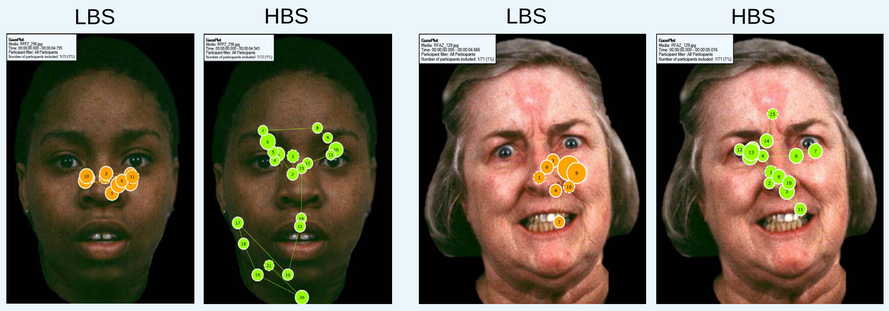
Results

Table 1: Demographics for low and high binge score groups

N=54	Low Binge Score	High Binge Score
Age	24.3 (5.6)	24 (6.2)
Age first drink	14.5 (3.8)	14.3 (2.4)
Units in week	9.4 (6.7)	23.3 (17.95)
Binge score	8.8 (4.7)	40.4 (17.9)
Time to first fixation – fear*	1.08 (.63)	0.76 (.30)
Fixation duration – fear*	0.37 (.17)	0.28 (.10)
First fixation duration – anger*	0.35 (.15)	0.28 (.08)
Visit count – anger*	33.8 (15.1)	42.4 (14)
ERT correct	120 (17.7)	115 (27)

* p>.05

A one-way ANOVA on the eye tracking data found a significant difference between groups in gaze patterns with HBS being quicker to fixate on fearful faces [$F(1,53)= 5.24$, $p<.05$] and disengage quicker [$F(1,53)=5.04$, $p<.05$]. HBS also have shorter first fixation on angry faces [$F(1,53)=4.37$, $p<.05$] but come back more often than LBS [$F(1,53) =4.85$, $p<.05$].



Gaze patterns for Fear and Anger in high and low groups

Discussion

Whilst there was no difference between groups on ability to recognise emotions the gaze patterns of those in the HBS and LBS did differ significantly with respect to fear and anger. These gaze patterns suggest hyper-vigilance and anxious behaviour towards the negative emotional facial expressions of fear and anger. Impaired emotion recognition has also been indicated in people with an alcohol dependence (Timary, 2009). A limitation of the current study is the low mean binge score of the group compared with similar studies. Further research is required with a larger cohort and one with a higher mean binge score to replicate and extend the findings.

Impact

The study has real world application as hyper-vigilance and anxiety may lead to misinterpretation of situations and social interactions, thus exacerbating anxiety and possible mental health problems.

Acknowledgements: Thank you to my supervisors and the University of West London for their continued support with this research. References on reverse of hand-out.

Contact: Carmel.Corcoran@uwl.ac.uk