Investigating the Relationship between Social Anxiety and Face Recognition Ability

Shengtong Liu, Prof Rebecca Elliott, Dr Karen Lander
shengtong.liu@manchester.ac.uk

Introduction

Social Anxiety

- Social anxiety is a common subtype of generalised anxiety disorder (Dayan & Guillery-Girard, 2010).
- An estimated 12.1% of U.S. adults experience social anxiety at some time in their lives (Harvard Medical School, 2017).
- It is defined as an intense fear or anxiety triggered by social situations where individuals may be scrutinised by others (American Psychiatric Association [APA], 2022).
- Importantly, socially anxious individuals are more likely to avoid eye contact or even avoid looking at faces in all kinds of social interactions (Chen et al., 2020).

Face Recognition

- Facial identity and facial expression are two key information that are processed in parallel and independently (Bruce & Young, 1986).
- Normally, facial identity remains constant, while facial expressions change (Davis et al., 2011).
- However, many studies have revealed that there is an association between facial identity recognition and facial expression recognition – which disagrees with the Bruce and Young (1986) model.

Aim

Our experiment was designed to explore how social anxiety relates to both facial identity and facial expression recognition ability in the same individual. We hypothesised that increased social anxiety levels lead to more impaired ability to recognise facial identity and facial expression.

Methodology

Participants (N=144, mean age = 25.35, 64 males) recruited at the University of Manchester (N=55) and more widely via Prolific (N=89).

Material

An online experiment on Gorilla using Social Interaction Anxiety Scale (SIAS; Mattick and Clarke, 1998; 20 items); State-Trait Anxiety Inventory (STAI-6; Marteau & Bekker, 1992) and the Beck Depression Inventory (BDI; Beck et al., 1961) as covariates.

Face Recognition Tests

- The Cambridge Face Memory Test (CFMT; Duchaine & Nakayama, 2006)
- The Glasgow Face Matching Test (GFMT)
- The short version of the Amsterdam Dynamic Facial Expression Set and termed the Bath Intensity Variations (ADFES-BIV) (Wingenbach et al., 2016)

Results

We found a significant positive correlation between face memory (CFMT) and face matching (GFMT) (p<.001), a significant positive correlation between face memory (CFMT) and facial expression recognition (p<.001), and a significant positive correlation between face matching (GFMT) and facial expression recognition (p=0.04).

Facial Identity: We found a significant negative correlation between face memory (the CFMT) and social anxiety (the SIAS) (rho=-.226, n=144, p=.006). This was no significant correlation between face matching (the GFMT) and social anxiety (the SIAS) (rho=-.125, n=144, p=.134).

Facial Expression: There was no significant correlation between facial expression recognition (the facial expression task of the ADFES-BIV) and social anxiety (the SIAS) (rho=-.041, n=144, p=.628).

Conclusion

Key Findings

Overall, our findings suggested (1) facial identity recognition is positively associated with facial expression recognition in the same individual; (2) participants with higher levels of social anxiety are more likely to have impairments in recognising facial identity rather than in recognising facial expression.

Future Studies

Investigating how sensory-processing sensitivity relates to face recognition; the causal relationship between social anxiety and face recognition.

Reference


