The strength of adaptation to negative versus positive emotional information depends on social anxiety status

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**QUESTION:** How does social anxiety status, state affect, and face gender alter biases in perceiving emotions pre- & post-adaptation?

Facial expressions represent a crucial source of information about others’ emotions. But, the process of interpreting facial expressions may be disrupted in people with social anxiety (e.g., Yoon & Zinbarg, 2007). Studies have shown that socially anxious individuals tend to have a negative bias in interpreting emotional expressions (Heimberg, Brozovich, & Rapee, 2014). Other factors that can also contribute to a negative bias in perceiving emotion are Negative Affect (NA) and gender of the face. In the current study, we adapt perception to quantify how individuals high in social anxiety process emotional information in a face. We also investigated how Negative Affect and the gender of the face biases perception of emotions before and after adaptation.

**METHODS**

**Procedure**

Baseline Adaptation to Happy or Angry Faces

Participants viewed faces morphed along an emotional continuum (i.e., 80%, 40%, 20%, and 10% happy to neutral with complementary morphs for angry). They judged each face as happy or angry. After adaptation to 100% happy or angry faces, they judged the same morphs. We quantified each individual’s pre- and post-adaptation Point of Subjective Equality (PSE), where a face is equally likely perceived as happy or angry.

**Determining Social Anxiety Status**

We assessed social anxiety status using the Brief Fear of Negative Evaluation (BFNE) and a follow-up phone interview screening. Scores ≥ 25 were categorized high in social anxiety (HSA); scores < 12 were categorized as low in social anxiety (LSA).

**Stimuli**

Face stimuli were selected from NimStim (Tottenham et al., 2009). Adaptation consisted of 30 unique faces (15 female and 15 male), in 100% happy or angry. Probe images faces presented as test stimuli consisted of four unique female faces and four unique male faces, each morphed along a continuum from fully affective (80%) angry face to the complementary neutral face for that same identity and from a fully affective happy face to the complementary neutral face.

**RESULTS**

Baseline Biases

At baseline, High Socially Anxious (HSA) individuals tend to perceive faces more negatively compared to Low Socially Anxious (LSA) individuals. The faces they judge neutral has more positive emotion, a negative bias.

**Negative Affect Influences Baseline Bias**

The stronger negative affect, the stronger negative perceptual biases, but only in HSA individuals.

**Gender Influences Baseline Biases**

At baseline, male faces are perceived more negatively than female faces, in both HSA (p = .0005) and LSA (p = .001) individuals.

**DATA ANALYSIS**

Predictions – Baseline

Before adaptation, we measure baseline PSE, the Point of Subjective Equality, or the point at which the individual is equally likely to judge a face as either happy or angry, which is also the unique neutral for each participant.

**Predictions – Post-Adaptation**

We expect both groups, HSA and LSA, to adapt less to angry relative to happy emotions.

- We expect that the larger the NA the stronger would be the negative perceptual bias, especially in HSA.
- We expect less adaptation to anger male compared to angry female faces and more adaptation to happy female compared to happy male faces, especially in HSA individuals.

**Stimuli**

**CONCLUSIONS:**

- Negative Affect and face gender may account for differences in baseline bias with social anxiety.
- Adaptation is weaker for negative vs positive emotions in socially anxious individuals, and weaker for angry male faces vs angry female faces.

**Sample References:**


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