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Examining a Neural Measure of Attentional Bias to Emotional Faces in Social Anxiety and Depression

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INTRODUCTION:

- Theories suggest social anxiety and depression are related to attentional biases (AB's) toward or away from certain types of information (Clark & McManus, 2002; Lemoult & Gotlib, 2019)
- A neural measure called the N2pc (an event-related potential) may clarify discrepancies in the AB research literature
 - AB toward angry and disgusted faces in social anxiety (Judah et al., 2016; Reutter et al., 2017)
- Limitations in N2pc research:
 - Little consideration of depression or its common comorbidity with social anxiety
 - Fail to directly compare AB for various types of emotional faces

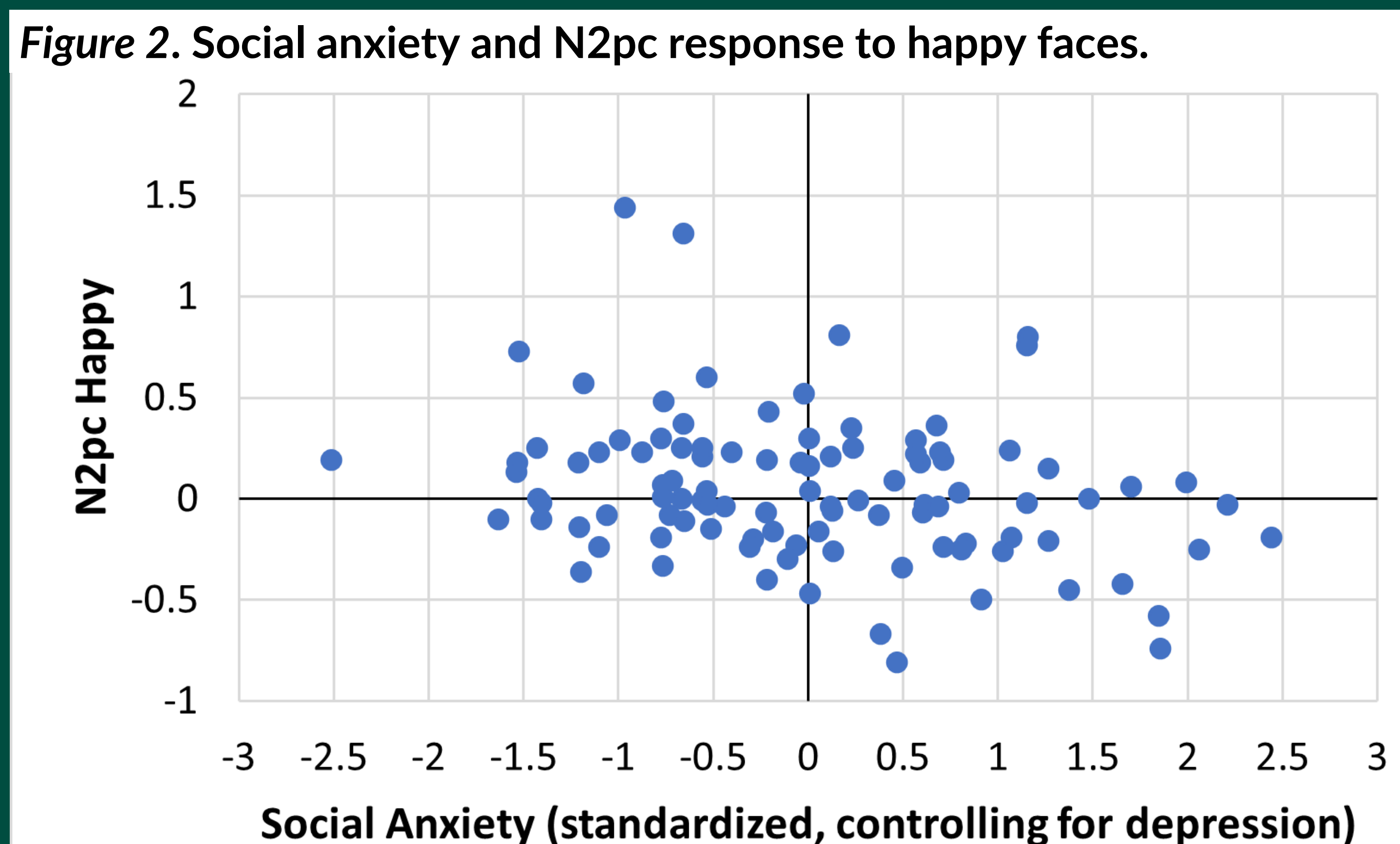
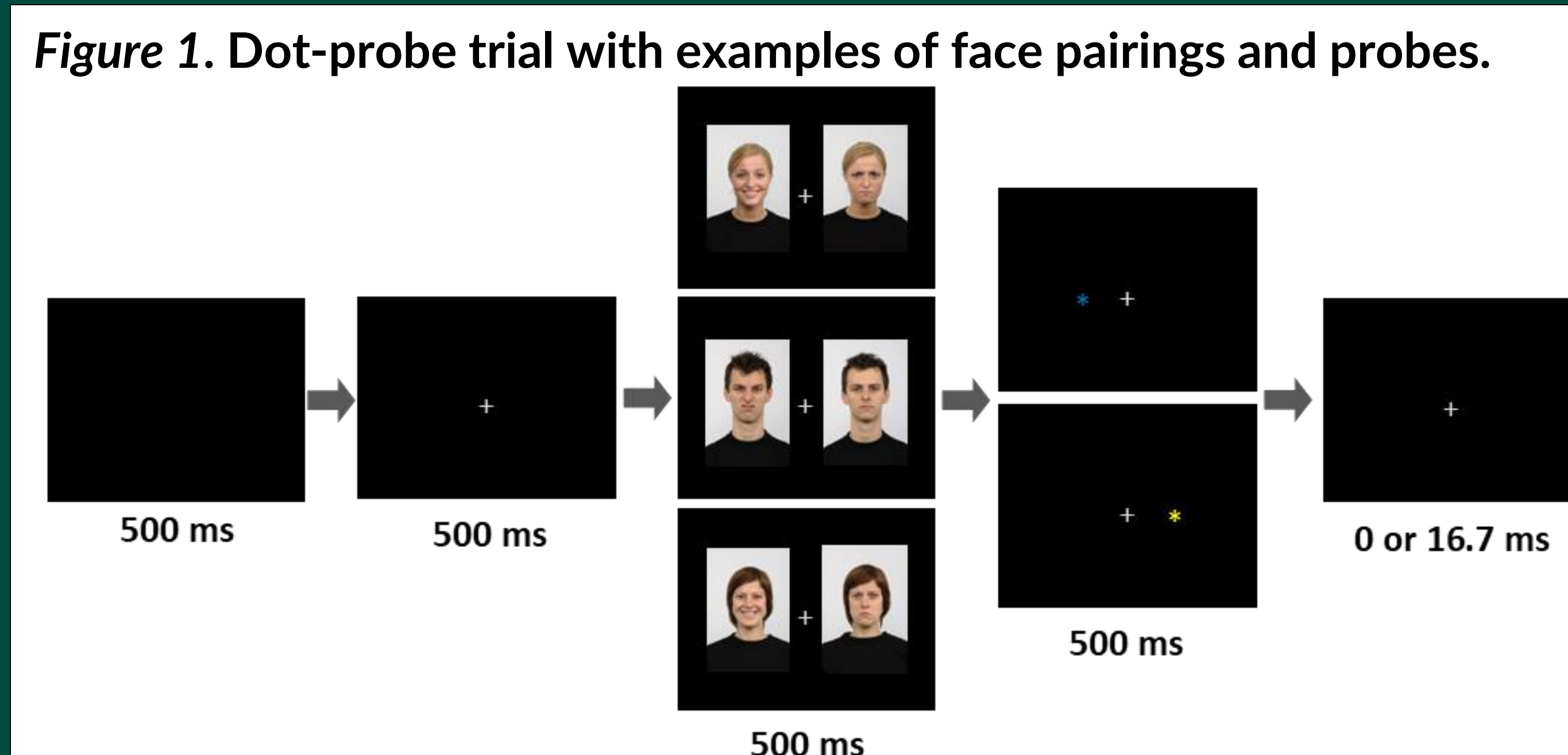
HYPOTHESES:

1. Social anxiety will be associated with AB's toward both angry and disgust faces compared to other faces
2. Depression will be associated with AB's away from happy faces and toward sad faces compared to other faces
3. AB's will attenuate with co-occurring social anxiety and depression

METHODS:

- Participants: 102 undergraduates
- Depression: Patient Health Questionnaire-9
- Social anxiety: Social Interaction Anxiety Scale-6
- Modified Dot-probe Task (see Figure 1)
 - Participants focused on center screen while emotional (disgust, angry, sad, happy) or neutral faces appeared on each side
 - Participants pressed a button to indicate the color of the probe behind the faces
 - 640 trials (256 for each facial expression)
 - Continuous EEG was measured during the task to measure the N2pc (200-300 ms after faces)

Social anxiety is associated with more attention to happy faces than other emotional faces



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ANALYSIS:

- Hierarchical linear regressions with depression and social anxiety (step 1) and their interaction (step 2) predicting N2pc response to each face type

RESULTS:

Social Anxiety

- Social anxiety significantly predicted a more negative N2pc for (i.e., greater bias toward) happy faces ($\beta = -.32, p < .01$; see Figure 2)
- Social anxiety did not predict attention for disgust, angry, sad, or neutral faces ($ps > .12$)

Depression

- Depression marginally predicted a more negative N2pc for sad faces ($\beta = -.20, p = .09$)
- A marginal interaction indicated that bias toward sad faces was not significant at high levels of social anxiety ($\beta = .21, p = .08$)
- Depression was not associated with bias for happy, disgust, angry, or neutral faces ($ps > .19$)

CONCLUSIONS:

- AB toward happy faces supports the fear of positive evaluation theory of social anxiety (Weeks et al., 2008)
 - Socially anxious individuals may rapidly attend to positive evaluation because it signals being pulled further into an anxiety provoking situation
- Results give some support for cognitive theories that posit attention toward depressive information influences negative thoughts and depressed mood
- In contrast to previous literature, directly comparing attention for various emotional faces may reveal different patterns of AB's
- Attentional Bias Modification may be adapted to target these biases in treatment

REFERENCES:

- Clark, D. M., & McManus, F. (2002). Information processing in social phobia. *Biological Psychiatry*, 51(1), 92-100. [https://doi.org/10.1016/S0006-3223\(01\)01296-3](https://doi.org/10.1016/S0006-3223(01)01296-3)
- Judah, M. R., Grant, D. M., & Carlisle, N. B. (2016). The effects of self-focus on attentional biases in social anxiety: An ERP study. *Cognitive, Affective, & Behavioral Neuroscience*, 16(3), 393-405. <https://doi.org/10.3758/s13415-015-0398-8>
- LeMoult, J., & Gotlib, I. H. (2019). Depression: A cognitive perspective. *Clinical Psychology Review*, 69, 51-66. <https://doi.org/10.1016/j.cpr.2018.06.008>
- Reutter, M., Hewig, J., Wieser, M. J., & Osinsky, R. (2019). Attentional bias modification in social anxiety: Effects on the N2pc component. *Behaviour Research and Therapy*, 120, 1-9. <https://doi.org/10.1016/j.brat.2019.05.001>
- Weeks, J. W., Heimberg, R. G., Rodebaugh, T. L., & Norton, P. J. (2008). Exploring the relationship between fear of positive evaluation and social anxiety. *Journal of Anxiety Disorders*, 22(3), 386-400.