**EXPERIMENTAL TASK**
- Modified Eriksen Flanker task
- ITI randomly varied between 800ms, 1,000ms, 1,200ms
- 798 total trials; 354 congruent, 444 incongruent

**EEG ACQUISITION AND ANALYSIS**
- 128 channel Geodesic sensor net
- Ocular artifact removed using independent components analysis
- Average window from 250ms pre- to 1000ms post-stimulus
- Baseline correction from -250 to -50ms pre-stimulus
- Temporalspatial PCA
  - Temporal PCA with promax rotation
  - Spatial PCA with infomax rotation

**METHOD**

**INTRODUCTION**

**CONFLICT ADAPTATION**
- Conflict adaptation involves alterations in cognitive control to improve performance based on previous-trial conflict
- Consecutive incongruent (ii) trials require less neural processing than a congruent trial followed by an incongruent trial (ci), marked by reduced RTs for ii vs. ci trials
- Consecutive congruent trials (cc) result in faster RTs than congruent followed by incongruent trials (ci) due to task switching
- These processes can be measured using the N2 event-related potential associated with activation within the anterior cingulate cortex

**ANXIETY DISORDERS**
- Anxiety may lead to a reduced ability to detect conflict and adjust behavior
- Poor ability to detect conflict may underlie dysfunctional emotional regulation behaviors
- Clinically-high anxiety has been associated with decreased control following conflict
- The role of comorbid psychological disorders in cognitive control processes is unclear, but may elucidate the relationship between psychological disorders

**HYPOTHESIS**
- Individuals with generalized anxiety disorder (GAD) will display decreased behavioral and electrophysiological conflict adaptation relative to controls
- Individuals with GAD and comorbid major depressive disorder (MDD) will display decreased conflict adaptation relative to controls and individuals with GAD alone

**CONFLICT ADAPTATION PROCESSES IN ANXIETY: IMPLICATIONS FOR PSYCHIATRIC AND NON-PSYCHIATRIC POPULATIONS**

**RESULTS**

**RECOVERY TIMES**
- Significant Group x Previous trial x Current trial interaction, \( p<0.001 \)
  - Controls \( p=0.002 \), individuals with GAD \( p=0.001 \), and individuals with GAD and comorbid MDD \( p=0.001 \) displayed reliable conflict adaptation

**ERROR RATES**
- No main effects or interactions with Group

**N2 AMPLITUDE**
- Significant Group x Previous trial x Current trial interaction, \( p=0.04 \)
  - Controls showed significant conflict adaptation, \( p<0.001 \)
  - Individuals with GAD \( p=0.64 \) and individuals with GAD and comorbid MDD \( p=0.29 \) did not display reliable conflict adaptation

**CORRELATIONS**
- Mean N2 conflict adaptation scores were significantly correlated with BDI scores \( r=-0.29 \) and levels of trait anxiety \( r=-0.28 \)
  - Among all participants, mean RT conflict adaptation scores were significantly correlated with BDI scores \( r=0.32 \), and levels of state \( r=0.40 \) and trait \( r=0.44 \) anxiety

**CONCLUSION**
- Individuals with GAD and those with GAD and MDD displayed reduced N2 conflict adaptation relative to controls
- Anxiety may be associated with reduced ACC activation, leading to impaired top-down control during cognitive conflict
- Increased levels of trait anxiety and depression may be related to decreased N2 conflict adaptation, regardless of diagnosis
  - This may support a more dimensional view of anxiety

**ACKNOWLEDGEMENTS**
- Funded by the BYU College of Family, Home, and Social Sciences. Correspondence address: michael_larson@byu.edu
  - The findings presented in this poster differ slightly from those submitted in the abstract for this presentation