Trait Anxiety and Conflict Adaptation
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Introduction
- Conflict Adaptation: The ability to adjust to situations where conflicting information is frequent so that the interfering effects of conflict are less and less with each encounter.
- A healthy individual adapts better to conflict when emotion is not present, as emotional conflict trials are responded to more slowly than cognitive conflict trials.
- In the conflict adaptation literature, anxiety has been shown to even further reduce adaptation effects in emotional-conflict trials.
- Only one study has investigated the impact of anxiety on conflict adaptation in a non-emotional, purely cognitive task (Larsen, Clawson, Clayson & Baldwin, 2013).
- In this study, patients with clinically diagnosed Generalized Anxiety Disorder (GAD) were compared to healthy controls. Participants completed a cognitive conflict task, the Erikson Flanker task.
- Contrary to the emotional conflict adaptation literature, GAD patients were found to have better behavioral conflict adaptation compared to controls but this required greater neural resources.
- This finding is in line with the Attentional Control Theory, which states that individuals high in anxiety can perform better in certain situations by trying harder (Eysenck, Derakshan, Santos & Calvo, 2007).
- It has been shown that moderate levels of arousal lead to better performance on a myriad of different tasks.

Objective
- This project seeks to find support for the Attentional Control Theory and the model for arousal and performance in anxiety in sub-clinical, trait levels of anxiety.

Methods
- There were 24 participants (4 males and 20 females) ages ranging from 18-22 years.
- 3 participants were excluded due to accuracy scores below that of chance (50%) leaving 21 participants total.
- Informed consent was given and basic demographic forms were filled before beginning the experiment.
- Participants completed the Erikson Flanker task. They were to focus on the center arrowhead and respond via the “m” key for a right pointing arrowhead and the “n” key for a left pointing arrow head.
- Participants also completed the basic Stroop task. They were to respond to the color the word was written in and ignore the meaning of the word. The top row of numbers was used for these responses as seen below.

<table>
<thead>
<tr>
<th>Word</th>
<th>Red</th>
<th>Yellow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Blue</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

- Once done with the tasks participants completed 3 conflict trials surveys. These were the Penn State Worry Questionnaire (PSWQ), State-Trait Anxiety Inventory (STAI) and the Mood and Anxiety Symptom Questionnaire (MASQ).
- All of this was completed on a desktop computer using E-Prime software.

Results
- Main effect seen for both accuracy and reaction time on the flanker task for previous trial (* F (1,20) = 41.334, p < .001, η² = .674; F (1,20) = 45.693, p < .001, η² = .696) and current trial (* F (1,20) = 103.313, p < .001, η² = .838; F (1,20) = 378.303, p < .001, η² = .950) conditions.
- Interaction seen for both accuracy and reaction time on the flanker task for previous trial * current trial interaction (* F (1,20) = 74.493, p < .001, η² = .788; F (1,20) = 61.643, p < .001, η² = .755).

<table>
<thead>
<tr>
<th>Accuracy Means Across Trial Types</th>
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<tbody>
<tr>
<td>Congruent</td>
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<tr>
<td>Congruent</td>
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<tr>
<td>Incongruent</td>
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<table>
<thead>
<tr>
<th>Reaction Time Means Across Trial Types</th>
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<tr>
<td>Congruent</td>
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<td>Congruent</td>
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<td>Incongruent</td>
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</table>

- In the flanker task the PSWQ was found to significantly predict reaction time for the CI (* F (1,20) = 6.932, p < .05 , R² = .267) and II trials (* F (1,20) = 6.002, p < .05 , R² = .240).

<table>
<thead>
<tr>
<th>Linear Regression for CI and II Reaction Times vs PSWQ scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroop CI RT</td>
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<td>--------------</td>
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<td>400.000</td>
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</tbody>
</table>

- There were no effects of anxiety found for the Stroop task.

Conclusions
- Evidence of conflict adaptation found in both accuracy and reaction time in the Flanker task.
- As an individual’s PSWQ score increases their reaction time decreases in incongruent trials.
- The higher their anxiety the better they are at responding to conflicting information in the Flanker task.
- Individual differences in anxiety were not found to predict performance on the Stroop task.
- This may reflect anxiety increasing the Easterbrook Effect, which is when the attentional spotlight is narrowed during the experience of stress.

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References