

Tori Balog

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Summer 2023 FURSCA Experience

This summer I was able to conduct research on the relationship between trait resilience and memory using an EEG. Trait resilience refers to the ability to “bounce back” and cope with traumatic and emotional situations. People with high trait resilience tend to be more positive during turbulent situations, while those with low trait resilience pay more attention to negative details and are found to be linked with the development of Post-Traumatic Stress Disorder, or PTSD (Bensimon, 2011; Lee et al., 2014). The goal of this study was to understand the connection between resilience, which is associated with PTSD, and emotional and nonemotional memory. We did this by comparing scores of memory of those with high and low trait resilience against their readings on an EEG.

Throughout my 8 weeks of research, I was able to collect data from 32 individuals at Albion College, all registered as students. There were 7 that identified as males, 22 identified as females, and 3 that identified as nonbinary. These individuals were between the ages of 19 and 22 ($M = 20.16$, $SD = 0.85$). Participants in the study were first given a demographic questionnaire with the trait resilience scale (Smith et al., 2008). This resilience scale is composed of 6 statements that participants are asked to answer if they strongly disagree, disagree, neutral, agree, or strongly agree with. An example of a statement is “I tend to bounce back quickly after hard times.” After this was completed, they were connected to the EEG device (see picture of me wearing the device below) and exposed to a series of pictures along with a spoken story. Participants were either exposed to an emotional version or non-emotional version of the stimuli. The EEG recorded the spikes and drops in the activity of the brain while

participants were processing the story (see samples below). Following the stimulus presentation, participants completed a short memory test about what they saw and heard. Participants were asked to complete the memory test again one week after the initial study, as a measure of long term memory.

Our results are consistent with our hypothesis that individuals with low trait resilience (those that scored in the lower percentile of being able to cope and bounce back from stressful situations) would exhibit better memory scores in the emotional condition within the study compared to participants showing high resilience. No differences between resilience were found in the non-emotional condition. In addition, we predicted that individuals with low resilience levels would also show altered brainwave activity in the prefrontal cortex, similar to findings in individuals with PTSD (Shin & Liberzon, 2010).

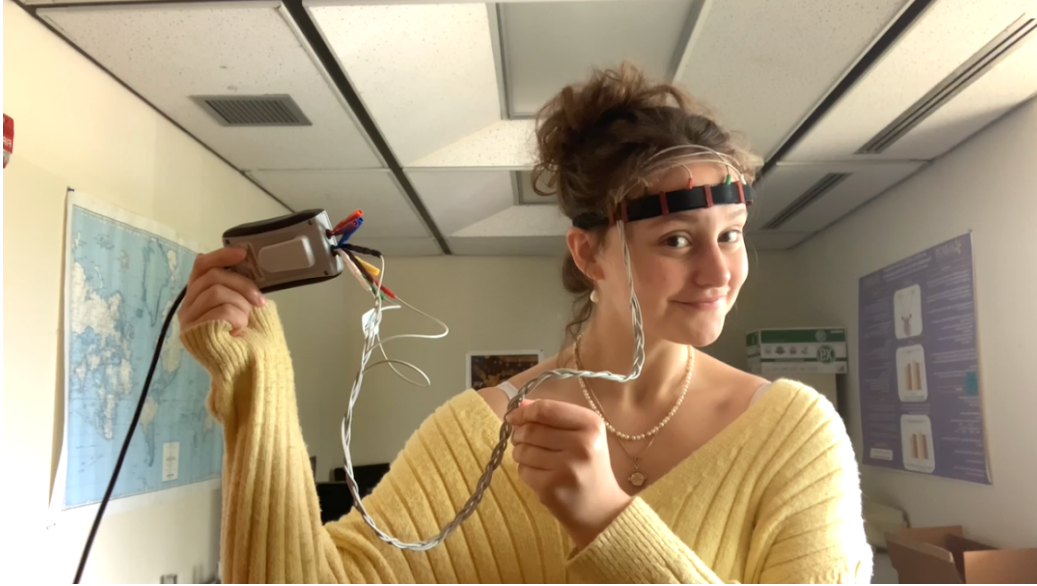
Going forward, I will use the results of this study to inform my senior thesis this coming school year. Given that this study was conducted during the summer, my sample size was limited. During the school year I will be able to conduct a follow up study with a much larger participant pool. A greater number of participants will allow me to draw more generalizable conclusions. During my senior year I also plan to present at the annual Elkin Isaac Research Symposium and any other appropriate conferences. As for the larger goal; I hope to gain admission to graduate school in a neuroscience related field to be able to further understand the brain mechanisms underlying PTSD.

My time in the 2023 summer FURSCA program was invaluable. It allowed me to understand all of the elements of a psychology research study, the inner workings that sometimes get missed when designing and running a study for class purposes. This experience will be

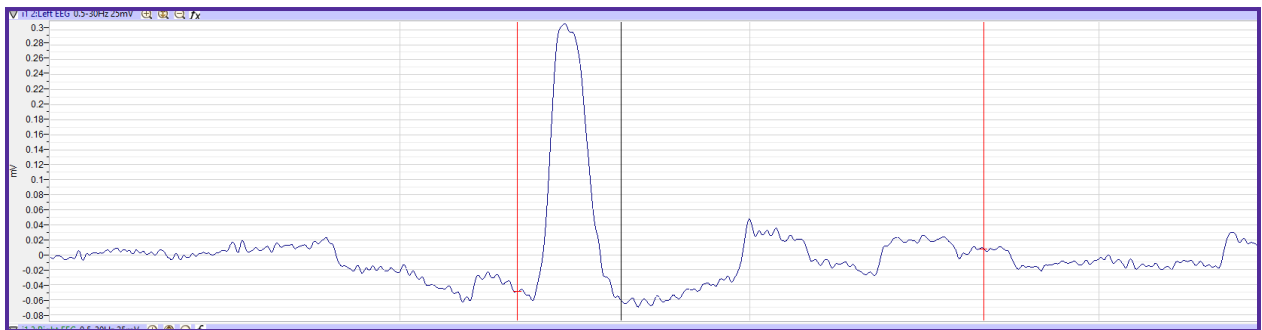
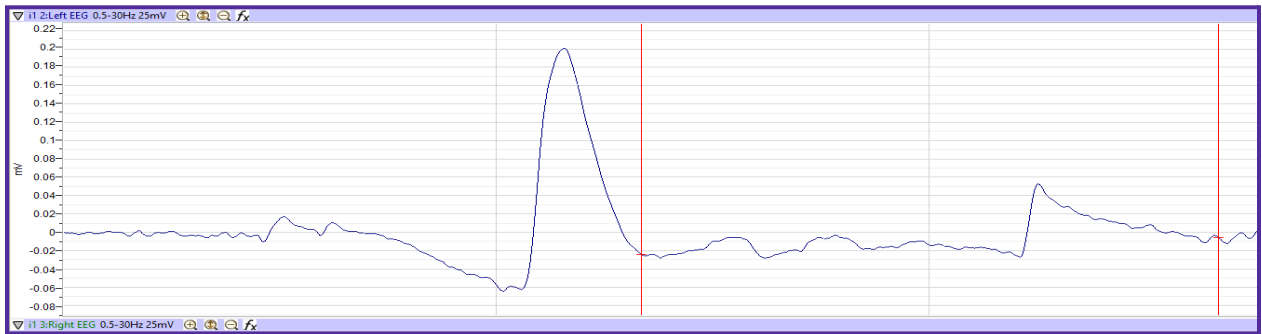
crucial to get into graduate school and when I eventually conduct more elaborate research studies.

Thank you to the Albion Psychology department, for their unending support of this research, FURSCA for the amazing opportunity to pull this into fruition, and a special thank you to my advisors for helping me with everything from developing the idea, to actually conducting the experiment, and all things in between.

I really appreciate the sponsors for allowing me this amazing opportunity, I am truly grateful. Thank You!



Pictured: The researcher wearing the 5-channel EEG



Pictured: EEG recordings of two participants