Effects of Stress-Related Changes in Pre-Encoding Intrinsic Connectivity on Subsequent Emotional Memory Biases

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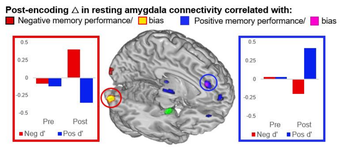
INTRODUCTION

- Individual differences in post-encoding RSFC predict emotional memory biases in a subsequent retrieval task[1].
  - RSFC between **amygdala** and **visuosensory regions** predicts **negative** memory enhancements
  - RSFC between **amygdala** and **frontal regions** predicts **positive** memory enhancements

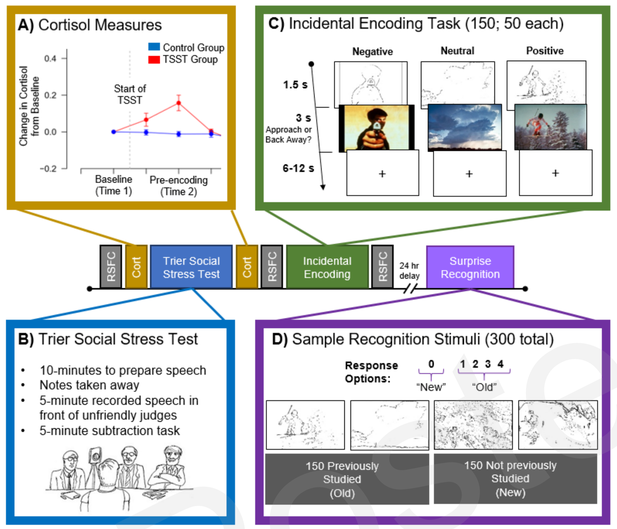


- Exposure to stress can influence how an event is later remembered[2]
- ***Does stress influence memory by altering underlying brain states prior to encoding?***

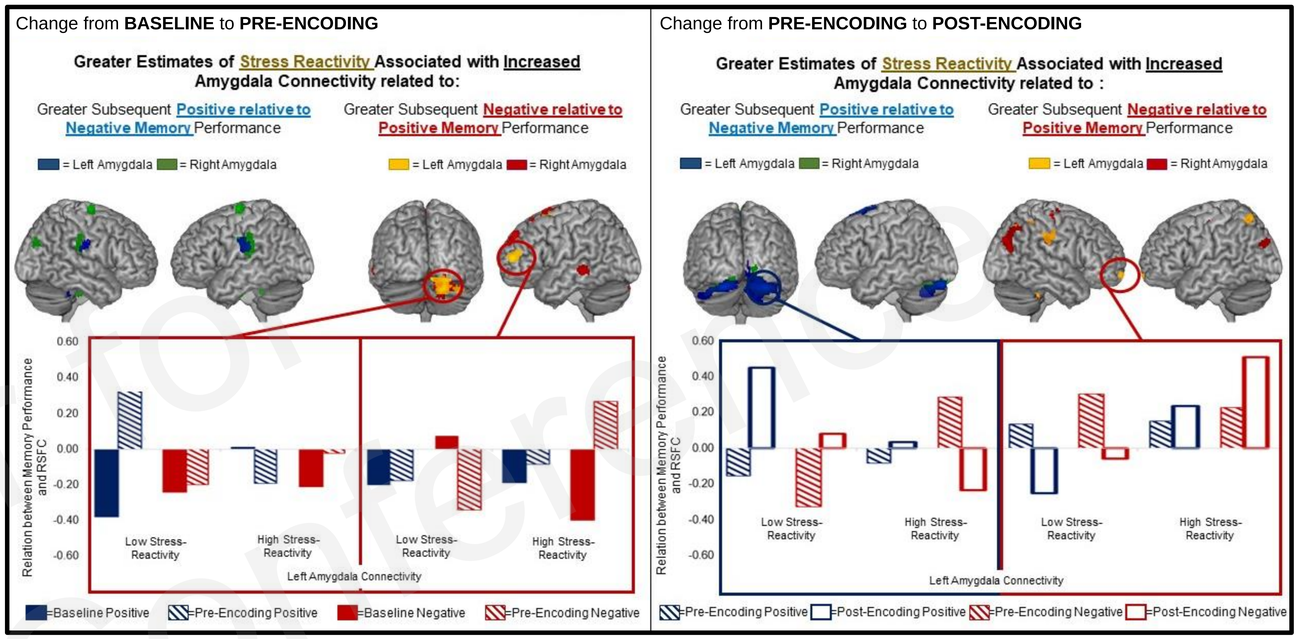
METHODS

Participants: 25 (18-27 years; 15 female)

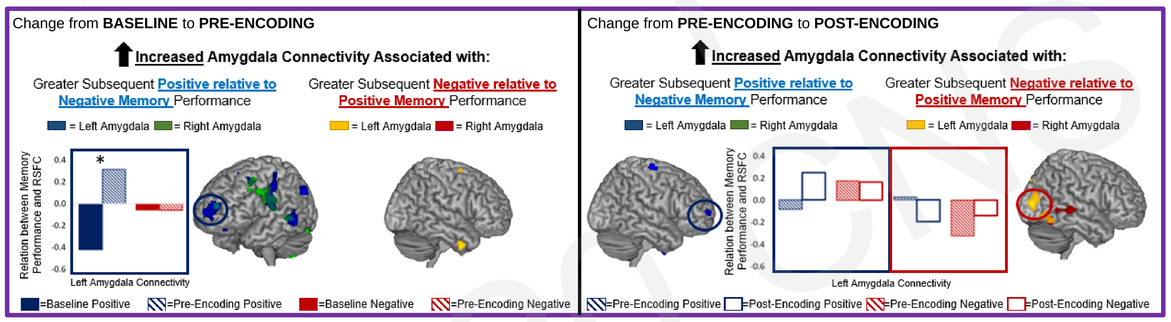
Task Procedure:



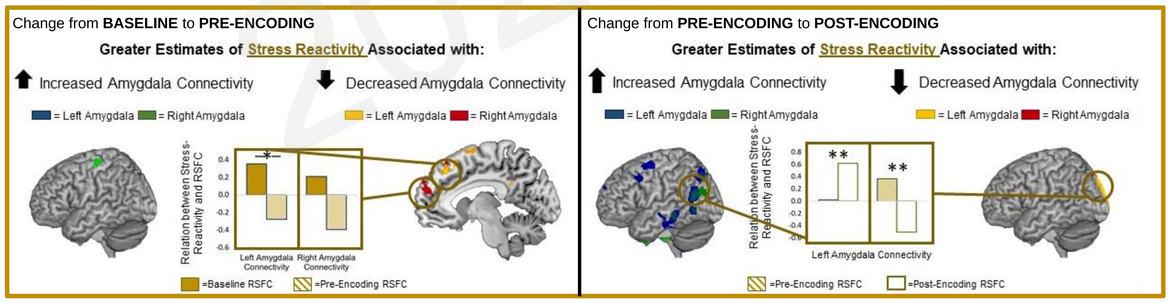
TIME-by-STRESS REACTIVITY-by-EMOTIONAL MEMORY Interactions on RSFC



TIME-by-EMOTIONAL MEMORY Interactions on RSFC



TIME-by-STRESS REACTIVITY Interactions on RSFC



CONCLUSIONS

- Replicates main findings from Kark & Kensinger (2019) in a stress-exposed sample, suggesting stress does not overwhelm effects of individual differences in emotional memory bias
  - Increased post-encoding RSFC between the **amygdala** and **visuosensory regions** was associated with greater **negative** relative to **positive** memory retrieval
  - Increased post-encoding RSFC between the **amygdala** and **frontal regions** was associated with greater **positive** relative to **negative** memory retrieval
- Stress-related shift in the timing of the peak relation between **negative** memory bias and post-encoding **amygdala-visuosensory** RSFC suggests that the *presence* of the relation is more important for driving the negativity bias than the *timing* of the relation

- *Does the timing of peak amygdala-visuosensory RSFC alter subjective/qualitative features of negative memory?*

REFERENCES

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2. Shields, G. S., Sazma, M. A., McCullough, A. M., & Yonelinas, A. P. (2017). The effects of acute stress on episodic memory: A meta-analysis and integrative review. Psychological Bulletin, 143(6), 636–675.

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