Self-referential Processing Biases in Patients with Anorexia Nervosa

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DISCLOSURES

I, Serena Gu, have no commercial relationships to disclose.

Self-evaluation and eating disorders

Theoretical Models

Eating disorder models suggest relationship between low self esteem and eating disorder symptoms

Empirical Evidence

- In existing self report studies: individuals with eating disorders report lower self-esteem and related constructs
- Prior neurocognitive study: more negative self-evaluation

Current Measures

Self-report primarily

Kaestner et al., 2019; Mendoza et al., 2022

Self-referential processing

- **Self-referential processing =** how people perceive self-relevant information

- **Self-referential encoding task**
  - Measures self-evaluation at the neurocognitive and behavioral levels
  - Among a list of adjectives, people are more likely to
    - endorse and recall words that are consistent with their own self-perception

Self-referential processing

Aims and Hypotheses

Endorsement, Recall, Recognition, Bias scores	• Anorexia Nervosa (AN) endorse/recall/recognizes more negative and fewer positive words than HC • AN has higher negative bias scores and lower positive bias scores
Reaction Time (RT)	• AN shorter reaction time to endorsed negative words and longer reaction time to endorsed positive words than HC • AN longer reaction time to reject negative words and shorter reaction time to reject positive words than HC
Drift Rate (Responses + RT)	• AN will exhibit a faster drift rate to negative words and slower drift rate to positive words, compared to HC

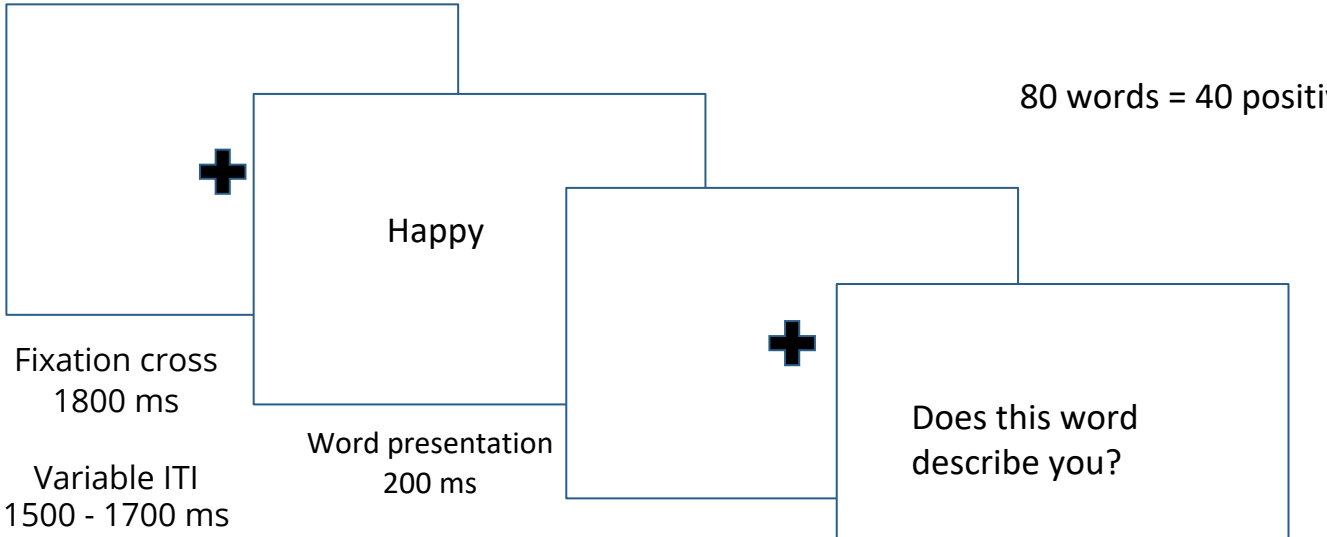
Method

Participants:
38 cisgender female adolescents/adults healthy control;
35 cisgender female adolescents/adults receiving inpatient or outpatient treatment for anorexia nervosa

Procedure

Evaluation and Baseline Assessment	Study day measurement
Eating disorders diagnosis: - Eating Disorder Assessment for DSM-5	Weight and height: - Body Mass Index
Psychopathology: - The Structured Clinical Interview for DSM-5 - Kiddie Schedule for Affective Disorders and Schizophrenia	Task: - Self-referential Encoding Task

Method – Task



80 words = 40 positive + 40 negative words

Fixation cross
1800 ms

Variable ITI
1500 - 1700 ms

Word presentation
200 ms

Respond
'c' for Yes or 'm' for No

80 trials

Count backwards from 50

Dependent Variables:
Endorsement, Recall, Recognition,
Reaction Time, Drift Rate

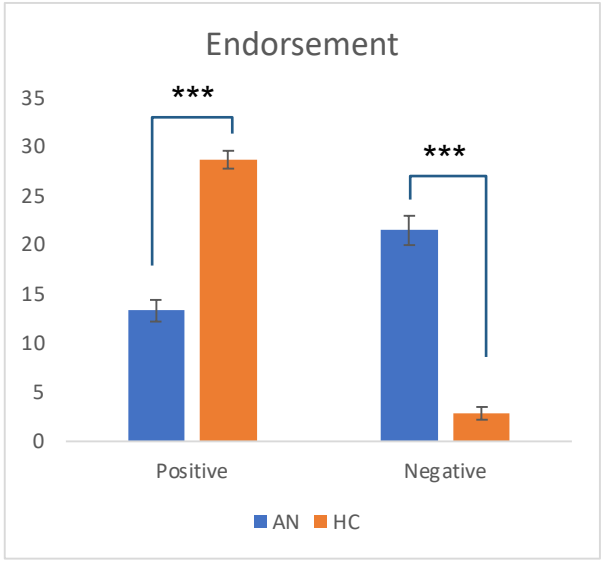
$$\text{Bias score} = \frac{\text{negative/ positive words both recalled and endorsed}}{\text{total words endorsed}}$$

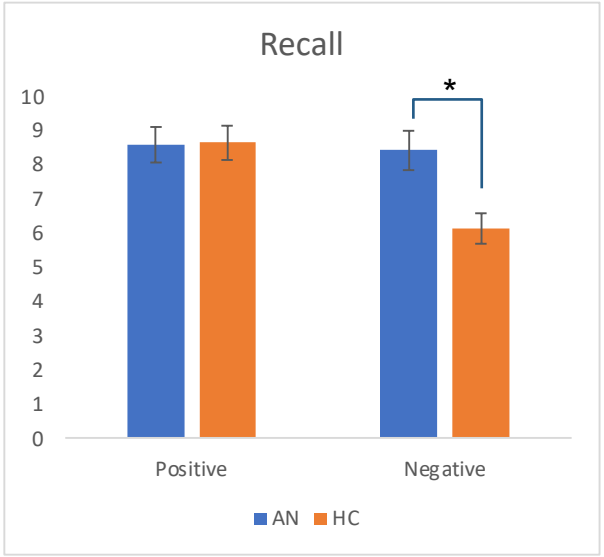
Sample characteristics

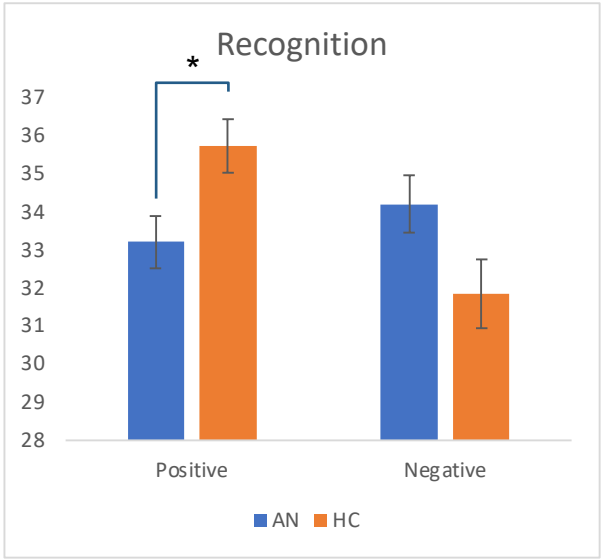
	HC (n = 38)			AN (n = 35)		
	Mean ± SD		Range	Mean ± SD	Range	*p*
Age (years)	23.8	6.0	14-37	22.4 6.5	14-35	0.44
BMI (kg/m^2)	22.3	2.1	19.2-28.4	19.1 2.1	13.2-22.9	**<.001**
Race/Ethnicity	**N**	**%**		**N**	**%**	0.005
African American	6	16		0	0	
Asian	10	26		2	6	
Caucasian	13	34		24	68	
Hispanic	6	16		8	23	
Hispanic/AA	0	0		1	3	
South Asian	1	3		0	0	
Middle Eastern	2	5		0	0	

Endorsement, recall, and recognition
of negative and positive words

two-way repeated measure ANOVAs







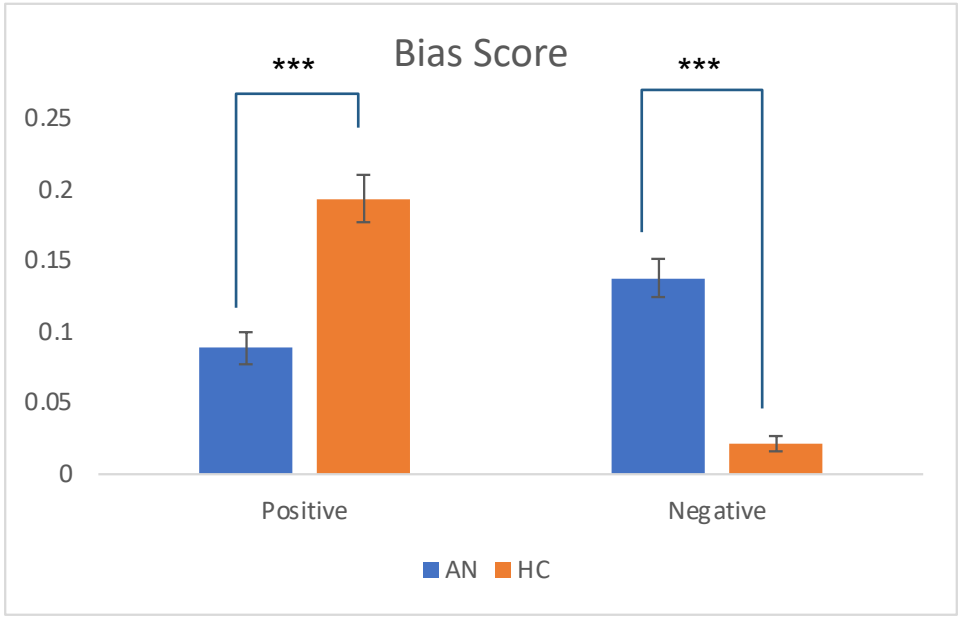
$p_{interaction} < 0.001$

$p_{interaction} = 0.003$

$p_{interaction} < 0.001$

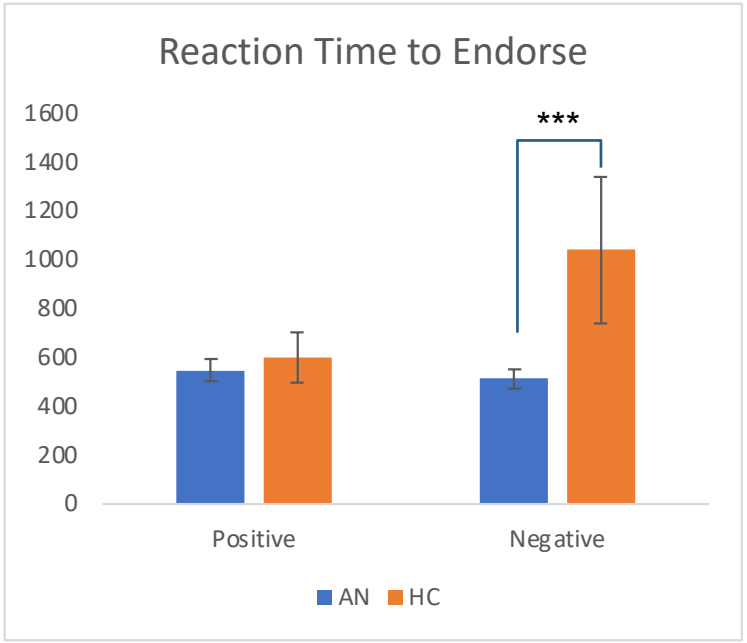
Bias score

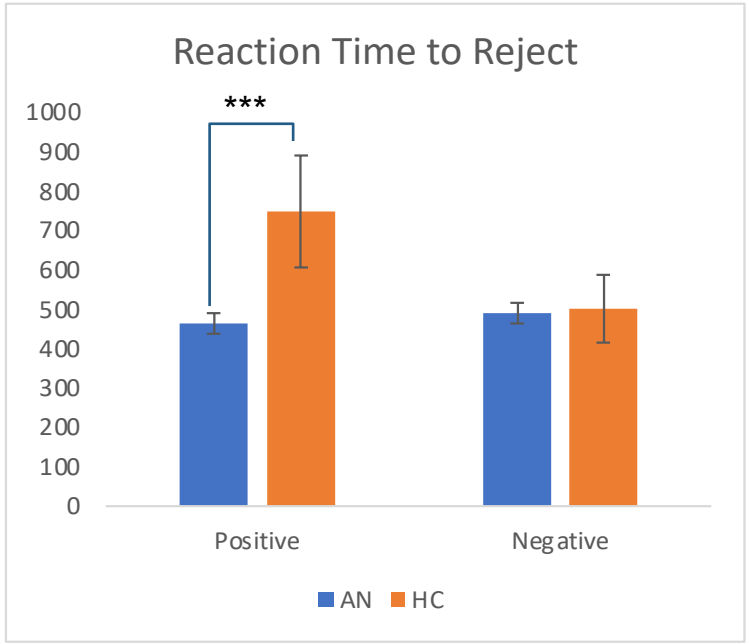
$$\text{Bias score} = \frac{\text{negative/ positive words both recalled and endorsed}}{\text{total words endorsed}}.$$



$$p_{interaction} < 0.001$$

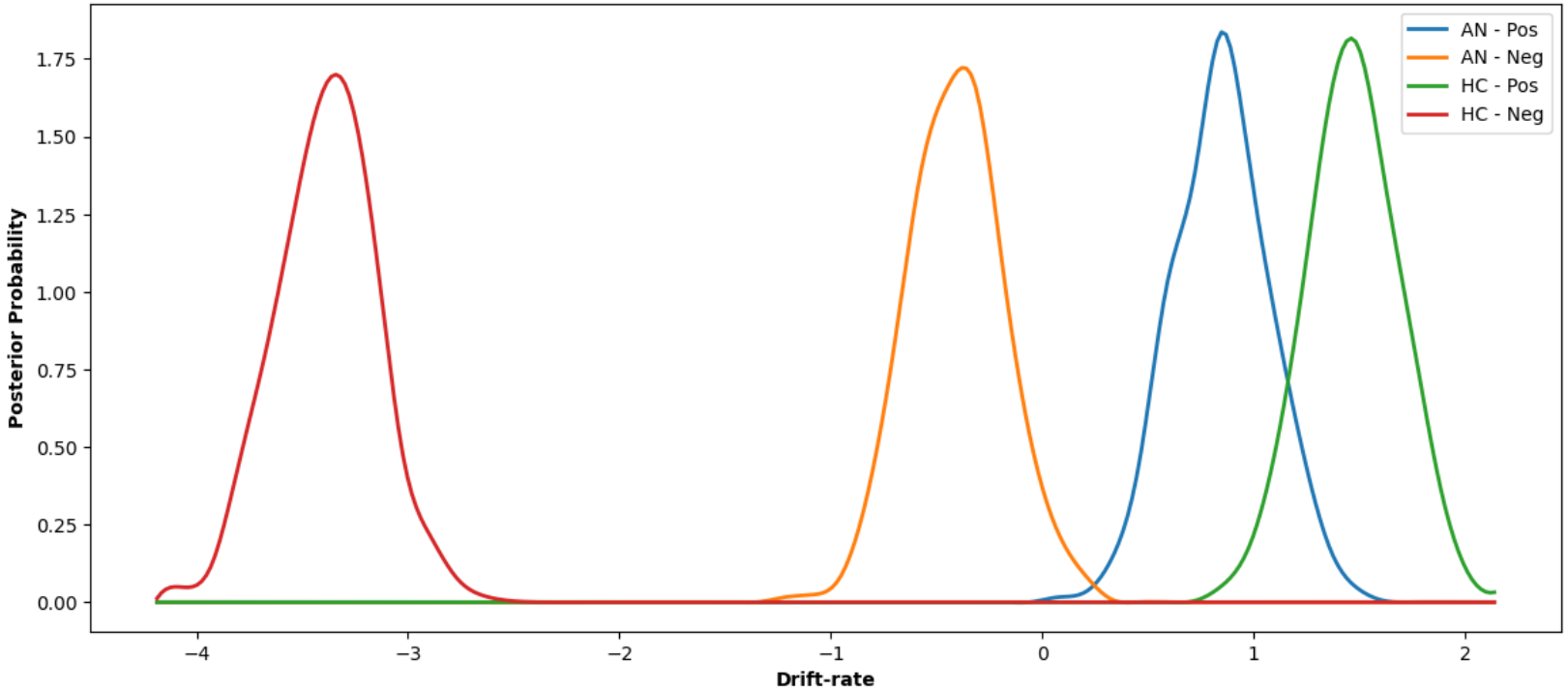
Reaction Time





$p_{interaction} = 0.001$

$p_{interaction} = 0.004$



Drift away from a Negative word

Drift toward a Negative word

Drift away from a Positive word

Drift toward a Positive word

Summary

- AN tended to show more negative processing bias reflected by nearly all the indicators we measured
  - Endorsement, recall, recognition,
  - Bias score
  - Reaction time
  - Drift rate
- These findings are consistent with self-report literature and adds to the current neurocognitive literature

Limitation and Discussion

- Limitations
  - Causality cannot be inferred
  - Correlate? Risk factor? Predictor of relapse?
  - Heterogeneity in the timing of when participants did the task

- Discussion
  - Tendency toward negative self-evaluation may be an underlying behavioral phenotype associated with AN
  - Longitudinal studies and studies investigating neural underpinnings will further clarify the role of self-evaluation bias in anorexia nervosa

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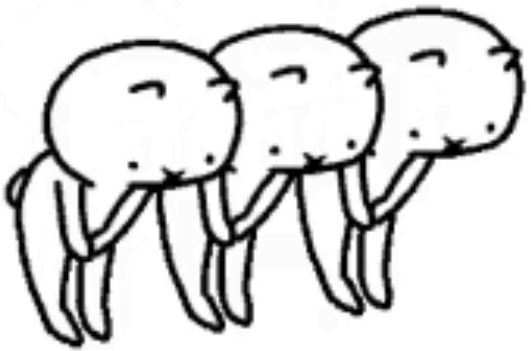

thank you

so much for listening!