Interoception and Metacognition Anorexia Nervosa

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BACKGROUND

Interoception is defined as the process of sensing, interpretation and integration of physiological signals that arise within the body [1]. Signals arise from major visceral systems, including the cardiovascular and provide a real-time mapping of how one experiences their body.

- Interoception is a multi-dimensional process.
- Different hierarchical levels of signal processing.

AIMS

The present study will examine whether AN psychopathology is driven by first-order deficits in interoceptive and visual signal processing or if metacognitive difficulties also play a role. To investigate this, we will use standardised tasks to assess task performance in cardiac and visual perception modalities, generating measures of metacognition (meta d'). By comparing performance and metacognitive abilities across three groups: AN, post-acute AN, and healthy controls - we aim to determine whether potential deficits stem from malnutrition in the acute phase or represent enduring traits that persist after weight restoration.

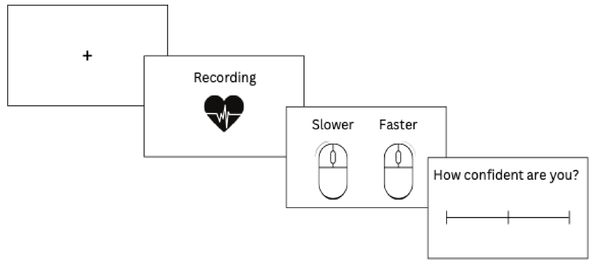
Additionally, we have incorporated validated questionnaires (SAI-ED) to explore whether insight into illness contributes to differences within clinical groups.

METHODS

SAMPLE

GROUP	*N*
HC	69
AN	19
AN post-acute	26

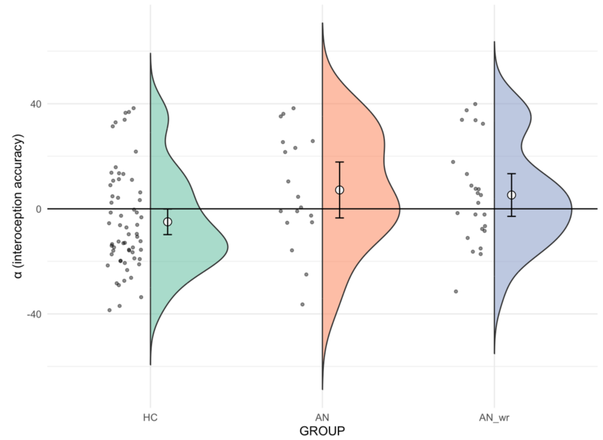
INTEROCEPTION - HRD TASK[2]



INSIGHT INTO ILLNESS (SAI-ED)[3]

ITEMS	DESCRIPTION	SCORING
SAIED Q1	Recognition of mental illness	0-2
SAIED Q2	Awareness of need for treatment	0-2
SAIED Q3A	Recognition of body weight concerns	0-4
SAIED Q3B	Relabelling of body weight concerns	0-4
SAIED Q4A	Recognition of eating pathology	0-4
SAIED Q4B	Relabelling of eating pathology	0-4
SAIED Q5	Hypothetical contradiction	0-4
SAIED Q6	Treatment engagement	0-5

RESULTS



Saied Q4A ~ m ratio

Saied Q4B ~ α (Interoception accuracy)

Predictors	*Estimates*	*95% CI*	*p-value*
Intercept	-4.89	-9.84 - 0.06	0.053
AN	10.98	0.37 - 21.60	**0.043**
AN post-acute	10.89	1.47 - 20.30	**0.024**
Observations	102		
R^2 / R^2 adjusted	0.084/0.057		

CONCLUSIONS

- Both AN and AN weight restored performed worse in the heart rate discrimination task by overestimating their heart rate as an α closer to 0 indicates better performance.
- ED related psychopathology (Q4A & Q4B) insight measures predicted metacognitive efficiency and task performance.
- Findings point towards a potential trait like interoceptive deficiency in AN as it is present post weight-restoration. This deficiency can be explained by the lack of insight relating to eating in interoception rather than a more general insight deficit about mental illness and treatment.

References:: 1. Khalsa SS, Portnoff LC, McCurdy-McKinnon D, et al. What happens after treatment? A systematic review of relapse, remission, and recovery in anorexia nervosa. *Journal of Eating Disorders*. 2017; 5(1): 20. 2. Legrand N, Nikolova N, Correa C, et al. The heart rate discrimination task: A psychophysical method to estimate the accuracy and precision of interoceptive beliefs. Biological Psychology. 2022; 168: 108239. 3. Konstantakopoulos G, Georgantopoulos G, Gonidakis F, et al. Development and validation of the schedule for the assessment of insight in eating disorders (SAI-ED). *Psychiatry Research*. 2020; 292: 113308.