Local processing bias in individuals recovered from anorexia nervosa

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Background

- Adults with anorexia nervosa (AN) are better at locating details embedded in a complex visual stimuli relative to healthy controls.¹,²
- This may suggest a local bias in visually guided attention, yet limited research has probed the mechanism of this finding.
- Further, it is unclear whether noticing details interferes with processing more global, configurual stimuli.

Purpose: Investigate whether adults recovered from anorexia nervosa (R-AN) demonstrate a local processing bias relative to healthy controls.

Hypotheses

1. R-AN will demonstrate a local advantage in naming time relative to healthy controls.
2. R-AN will demonstrate local interference when processing global, configurual stimuli.

Participants

R-AN
Previously met diagnosis for anorexia nervosa, but have recovered (i.e., they have maintained weight in the healthy range and have not engaged in restrictive eating, purgative behavior, or binge eating for at least one year). Such requirements minimize the effects of malnutrition on cognitive processing.

Controls
Match R-AN on the basis of gender, age, years of education, and ethnicity as closely as possible, and have no eating disorder history.

<table>
<thead>
<tr>
<th>Group</th>
<th>Average Age</th>
<th>Years of Education</th>
<th>Ethnicity</th>
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<tbody>
<tr>
<td>R-AN (N=11)</td>
<td>22.4</td>
<td>15.4</td>
<td>Asian: N=1 Indian: N=1 Caucasian: N=9</td>
</tr>
<tr>
<td>Healthy Controls</td>
<td>24.7</td>
<td>15.8</td>
<td>Asian: N=2 Caucasian: N=7</td>
</tr>
</tbody>
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Table 1: Participant demographic information

Methods

Forced-choice task:
- Congruent and incongruent Navon-type hierarchical numerals (i.e. large numbers composed of small numbers)
- Consistent exposure duration
- Individuals told to name the small number (local) or the large number (global)

Results

Forced-choice task:
Group x Task (local, global) x Congruence (congruent, incongruent) Mixed Design ANOVA
- Results indicate a significant main effect of task, F(1,18)=12.46, p=.01, with local stimuli named more quickly than global stimuli across all participants.

- However, there was also a significant task x group interaction, F(1,18)=4.92, p=.04. Specifically, R-AN responded significantly slower to global stimuli than local stimuli, F(1,10)=14.76, p<.01. In contrast, the difference in naming time by task for controls was not significant, F(1,8)=1.12, p=.32.

Conclusions and Future Directions

- These findings did not support a local processing bias for R-AN relative to controls, but did support local interference on global tasks among R-AN, which could have implications for other clinical features of AN, including increased perfectionism and failure to grasp the “big picture” in complex social interactions.
- Local bias and local interference on global tasks should be further investigated to inform future clinical interventions and research studies.

Acknowledgments and References

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References: