Attachment and social relationships: influence on the hypothalamus-pituitary-adrenal axis functioning in patients with eating disorders

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Attachment and Eating Disorders

- Shared domains: interpersonal style, emotion regulation and reflective functioning (Tasca et al, 2014)
- Higher prevalence compared to HC (Back, 2011)
- Transdiagnostic perspective (Tasca et al, 2014; Gander et al, 2015)

Caglar-Nazali et al, 2014
Attachment and interpersonal relationships

- Safe haven behavior
- Separation distress
- Proximity seeking
- Secure base behavior

Distress alleviation → Affect and arousal regulation
Attachment and social stress

Bowlby, 1969
Attachment, stress and HPA axis

• **Anxiety-buffering function** *(Mikulincer and Shaver, 2012)*

• **ATT and HPA axis: mixed data** *(Oskis et al, 2011; Powers et al, 2006; Quirin et al., 2008; Pierrehumbert et al., 2012; Rifkin-Graboi, 2008; Kidd et al., 2011; Smyth et al, 2015; Cameron CA et al, 2016)*

• **Social support and HPA axis:**
  - in animals *(Wang et al, 1996; Suomi, 1999; Harlow 1979)*
  - in infants *(Gunnar et al, 1996; Spangler and Groosman, 1993)*
  - Epigenetic regulation of GR *(Romens et al, 2014)*
Interpersonal relationships and EDs

- Fear of negative evaluation
- Reduced reflective functioning
- Social anxiety
- Reduced social support
- Relationship between acute social stress and eating behaviour in BED and HC
- Alexithymia: social emotion dysregulation
Study Design

• **Baseline** assessment:
  
  – Adult attachment style (*Experience in Close Relationships*)
  
  – ED psychopathology (*Eating Disorder Inventory-2*)
  
  – Emotion recognition and expression ability (*Toronto Alexithymia Scale-20*)
  
  – Sensitivity to punishment trait (*Behavioral Inhibition System*)

• **TSST**

<table>
<thead>
<tr>
<th>Forbidden</th>
<th>N hours before</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food</td>
<td>3</td>
</tr>
<tr>
<td>Drink</td>
<td>3</td>
</tr>
<tr>
<td>Exercise</td>
<td>24</td>
</tr>
<tr>
<td>Caffeine</td>
<td>24</td>
</tr>
<tr>
<td>Alcohol</td>
<td>24</td>
</tr>
</tbody>
</table>
Trier Social Stress Test

Preparation

-20' T0
-10' T1

STRESS

0' T1
10' T2
20' T3
40' T4

Recovery

60' T5

BMI (kgm⁻²)

<table>
<thead>
<tr>
<th>Group</th>
<th>BMI (±SEM)</th>
<th>Number</th>
<th>AN</th>
<th>BN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secure EDs</td>
<td>19.31 ± 2.09</td>
<td>10</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Anxious EDs</td>
<td>19.57 ± 2.45</td>
<td>9</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Avoidant EDs</td>
<td>18.45 ± 1.56</td>
<td>13</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Secure HC</td>
<td>22.3 ± 1.34</td>
<td>16</td>
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</tbody>
</table>

STAI-Y

↑

T = saliva sample collecting
Results TSST: cortisol

Legend:
- Secure Eds
- Anxious Eds
- Avoidant Eds
- Secure HC

Graph showing cortisol levels during the TSST (Trier Social Stress Test) across different stages: Preparation, STRESS, and Recovery.
Results TSST: anxiety

- Secure EDs
- Anxious Eds
- Avoidant Eds
- Secure HC
## Correlation Analyses

**Alexithymia and IA: opposite correlation with anxiety and cortisol response**

### AVOID

<table>
<thead>
<tr>
<th>AVOID</th>
<th>Δ Cortisol</th>
<th>EDI-2 IA</th>
<th>TAS-1</th>
<th>TAS-2</th>
<th>TAS-tot</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAI – T1</td>
<td>0.526 (0.06)</td>
<td>0.566 (0.04)</td>
<td>0.591 (0.03)</td>
<td>0.533 (0.06)</td>
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</tr>
<tr>
<td>STAI – T2</td>
<td>0.567 (0.04)</td>
<td>0.501 (0.08)</td>
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<td></td>
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<tr>
<td>AUC t</td>
<td>-0.606 (0.029)</td>
<td>-0.537 (0.05)</td>
<td>-0.547 (0.05)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUC i</td>
<td></td>
<td>-0.537 (0.05)</td>
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</tbody>
</table>

**Positive correlation between anxiety and cortisol**

### ANX

<table>
<thead>
<tr>
<th>ANX</th>
<th>Δ Cortisol</th>
<th>EDI-2 IA</th>
<th>TAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAI – T1</td>
<td>0.748 (0.02)</td>
<td></td>
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</tr>
<tr>
<td>STAI – T2</td>
<td>0.700 (0.036)</td>
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<tr>
<td>AUC t</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Δ Cortisol</td>
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</table>
Conclusions

ANXIOUS style

• Increased Anxiety and Cortisol
• Attentional Bias towards social rejection

Concordant response
Clinical Implications

Attachment styles

Moderator of social stress response

Insecure styles

- Different psychological domains: from emotion and body recognition to rejection sensitivity

Take Home

Therapeutic perspectives

- Psychotherapy: interpersonal problems
- Oxytocin: stress reactivity – information processing
Thanks

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