Electrophysiological evidences for a deficit in distinguishing facial expressions of contempt and disgust in social anxiety disorder

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1. Introduction
• Social Anxiety Disorder (SAD) = Associated with altered processing of emotional facial expressions (EFE) signaling disapproval or hostility
• Disgust, food-related expression, linked to contempt in SAD (Rozin, Haidt & McCauley, 2000)
• ERPs provide a powerful tool to investigate the “time-course of higher level cognitive processes” (Rugg & Coles, 1997) enabling the study of emotional processing for EFEs in SAD

2. Aims
• Distinctiveness between disgust and contempt should be negatively modulated by SAD
• No differences should be observed between sadness and disgust/contempt

3. Population
• 31 university students from 18 to 24 years
• 15 SAD subjects : LSAS 65 & STAI
• 16 control subjects : LSAS 35 & STAI < 56

4. Methodology
• Emotional oddball paradigm task: detection of rare (r) EFEs among frequent (f) EFEs + identity variation
• 3 blocs : Disgust (D), contempt (C), and sadness (S)
• ERPs recording : 32 channels → EEProbe System

5. Results
1. Behavioral results (only significant results are presented)

<table>
<thead>
<tr>
<th>Correct response rate</th>
<th>Reaction time</th>
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<tbody>
<tr>
<td>fCrD &lt; fCrS</td>
<td>F(1,29) = 7.156 ; p=0.000</td>
</tr>
<tr>
<td>fDrC &gt; fDrS</td>
<td>F(1,29) = 4.531 ; p= 0.000</td>
</tr>
<tr>
<td>ANX &lt; CTRL in fD</td>
<td>F(1,28) = 3.470 ; p= 0.073</td>
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<tr>
<td>ANX &gt; CTRL in fD</td>
<td>F(1,28) = 4.166; p= 0.051</td>
</tr>
</tbody>
</table>

2. ERP results on P100 and LPP

3. Effect of anxiety on overall behavioral performances when processing contempt and disgust EFEs corroborated by ERP measures :
   1. Enlarged amplitudes for overall SAD subjects and between SAD subjects when disgust is involved : more effortful processing of disgust EFEs for SAD subjects.

6. Discussion
1. Difficulties for distinguishing contempt from disgust.
2. Negative effect of sadness on overall processing on behavioral results corroborated by ERP measures :
   1. Potentiated amplitudes for P100 and LPP to distinguish disgust from other EFEs ;
   2. Increased early attention for emotional stimuli & sustained emotional attention when confronted with disgust and contempt.
3. Effect of anxiety on overall behavioral performances when processing contempt and disgust EFEs corroborated by ERP measures :
   1. Enlarged amplitudes for overall SAD subjects and between SAD subjects when disgust is involved : more effortful processing of disgust EFEs for SAD subjects.

7. Prospective
• N170 ERP component : effect of SAD on cortical processing of faces ?
• Further investigation of P300.
• Explore negative effect of sadness on overall processing in SAD
• Control for boy/girl ratio

Bibliographie