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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



3. Population • 31 university students from 18 to 24

 \succ Distinctiveness between disgust and contempt should be negatively modulated by SAD

> No differences should be observed between sadness and disgust/contempt years

• 15 SAD subjects : LSAS 65 & STAI

• 16 control subjects : LSAS 35 & STAI < 56

	Means comparison	P-value
High/low LSAS ratio	t(23) = -16,150	0.000
Anxious/control age ratio	t(23) = 1,363	0.186
Boy/girl ratio	t(23) = 0,802	0.431
Stai-T	t(23) = -0,833	0.413
Stai-E	t(23) = -0,868	0.394

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)



➤130 stimuli per bloc ;26 rare crossing between blocs

5. Results

Behavioral results (only significant results are presented)

Correct response rate

Reaction time

• ERPs recording : 32 channels \rightarrow EEProbe System

6. Discussion

- Difficulties for distinguishing contempt from disgust.
- Negative effect of sadness on overall processing on 2. 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.
- Effect of anxiety on overall behavioral performances 3. when processing contempt and disgust EFEs



ERP results on P100 and LPP 2.



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

- Rozin, P., Haidt, J., & McCauley, CR. (2000). Disgust. in M. Lewis & J.M. Haviland-Jones (Eds), Handbook of emotions, 2nd ed., 637-623. New-York: Guildford Press. - Ladouceur, C., Dahl, R., Birmaher, B., Axelson, D., & Ryan, N. (2006). Increased error-related negativity (ERN) in childhood anxiety disorders: ERP and source localization, Journal of Child Psychology and Psychiatry, 47(10), 1073-1082.