

level of specific face (N170) and voice (N2) perceptive processing. Moreover, while patients with alcoholism did not show impaired processing of happy and neutral audio-visual stimuli, they did have a specific impairment in the cross-modal processing of anger. A source location analysis was used to confirm and illustrate the results. Conclusion: These results suggest that the specific deficit that people with alcoholism demonstrate in processing anger stimuli, widely described in clinical situations but not clearly identified in earlier studies (using unimodal stimuli), is particularly obvious during cross-modal processing, which is more common than unimodal processing in everyday life.

doi:10.1016/j.ijpsycho.2008.05.059

Visual processing of emotional facial expressions in mixed anxious-depressed subclinical state: An ERPS study

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Aims: Controversy remains about the existence and the nature of a specific bias in emotional facial expression processing in mixed anxious-depressed state (MAD). **Material and methods:** Event-related potentials were recorded in the following three types of groups defined by the Spielberger State and Trait Anxiety Inventory (STAI) and the Beck Depression Inventory (BDI): a group of anxious participants, a group of participants with depressive and anxious tendencies, and a control group. Participants were confronted with a visual oddball task in which they were to detect, as quickly as possible, deviant faces amongst a train of standard neutral faces. Deviant stimuli changed either on identity, or on emotion (happy or sad expression). **Results:** Anxiety facilitated emotional processing and the two anxious groups produced quicker responses than control participants; these effects were correlated with an earlier decisional wave (P3b) for anxious participants. Mixed anxious-depressed participants showed enhanced visual processing of deviant stimuli and produced higher amplitude in attentional complex (N2b/P3a), both for identity and emotional trials. P3a was also particularly increased for emotional faces in this group. **Conclusion:** Anxious state mainly influenced later decision processes (shorter latency of P3b), whereas mixed anxious-depressed state acted on earlier steps of emotional processing (enhanced N2b/P3a complex). Mixed anxious-depressed individuals seemed more reactive to any visual change, particularly emotional change, without displaying any valence bias.

doi:10.1016/j.ijpsycho.2008.05.060

Fast processing of pleasant emotional information

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From behavioral and psychophysiological studies there is evidence that negative, i.e. unpleasant, information is processed “faster” and activates more attentional resources than neutral and positive information (negativity bias). In most occasions however, no positive, i.e. pleasant category is included or studies did not employ equal values of emotional salience and arousal for positive and negative stimuli. In the present study addressed the processing of pleasant information using an ERP and a behavioral measure. We used equal arousal values for positive and negative stimuli. In addition, we used only biological relevant emotional stimuli (erotic and mutilated bodies). These experiments indicate that, both on the cognitive and electrophysiological level, pleasant stimuli are processed equally “fast and strong” as unpleasant stimuli if arousal values of the stimuli are high. Implications of these findings for theories of emotion and psychopathology are discussed.

doi:10.1016/j.ijpsycho.2008.05.061

Fibromyalgia: A psychophysiological disorder

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Fibromyalgia is a chronic pain syndrome where clinicians are confronted by patients with a physical condition marked by multiple subjective psychological complaints. The aim of the study was to test for a psychophysiological profile specific for fibromyalgia (FM). 16 FM patients and matched controls were studied. Patients were diagnosed by the American College of Rheumatology criteria for FM. Psychological assessments included the Fibromyalgia Impact Questionnaire (FIQ), Review of Current Symptoms Questionnaire, Experiences in Close Relationships (Revised) and hemisphere dominance. Physiological assessments included Review of Current Symptoms Questionnaire (RCS), heart rate variability (HRV) through time and frequency domain analyses, and salivary cortisol levels. Results showed significant differences between patients and controls for number of symptoms scored (51.7 SD 23.29 vs 4.33 SD 5.33; $p=0.0001$), number of traumatic events (5.5 SD 4.44 vs 2.07 SD 0.96; $p=0.0071$), anxiety and avoidance subscales of ECR-R (anxiety: 3.45 SD 1.46 vs 1.62 SD 0.49; $p=0.0001$; avoidance: 3.59 SD 1.57 vs 1.95 SD 0.88; $p=0.0015$) and FIQ anxiety and depression scores (depression: 4.1 SD 2.9 vs 0.1 SD 0.5; $p=0.0001$, anxiety: 5.3 SD 2.9 vs 0.1 SD 0.4; $p=0.0001$). The majority of patients had insecure attachment styles and were right-brain orientated, with thinking style preferences influenced by emotion. Emotionality increased under stress. Significant differences in cortisol were seen between patients and controls (9.6 ng/ml SD 2.8 vs 5.6 ng/ml SD 2.3; $p=0.0003$), FIQ total scores (57.7 SD 15.2 vs 4.9 SD 7.6; $p=0.0001$), and scores for scales within the FIQ (pain: 7.1 SD 1.8 vs 0.6 SD 1.8; $p=0.0001$; fatigue: 7.16 SD 2.46; vs 0.75 SD 1.86; $p=0.0001$; physical impairment: 3.75 SD 2.26 vs 1.44 SD 2.08; $p=0.0001$; unrested: 7.88 SD 2.0 vs 0.31 SD 0.72; $p=0.0001$; stiffness: 6.69 SD 1.7 vs 0.19 SD 0.77; $p=0.0001$). RR spectral analysis showed lower HRV in patients, especially in the standing position (total power: 173.21 SD 309.57 vs 473.59 SD 548.73; $p=0.0437$), and subnormal sympathetic responses to standing. **Summary:** Patients' psychological profiles were characterised by a high prevalence of adverse events, insecure attachment styles and thinking styles marked by high emotionality in the absence of rationality. Emotionality increased during stress. Physiological profiles showed altered stress-axis function, reflected in low heart rate variability, poor autonomic responses to acute stressors and elevated basal cortisol levels. Orthostatic tests revealed subnormal shifts towards sympathetic dominance upon standing. Anxiety and depression correlated with severity of fibromyalgia symptoms. Results thus showed a distinct psychophysiological profile.

doi:10.1016/j.ijpsycho.2008.05.062

Is visual experience necessary for the functional development of the mirror neuron system? An fMRI study in sighted and congenitally blind individuals

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Visuomotor cortical regions of the mirror neuron system (MNS) become active both when the individual performs a goal-directed action and when it observes another individual performing the same action. Auditory-visual MNS activates also when subjects hear action sounds. While these findings indicate that MNS may be activated also by hearing, they do not exclude that MNS recruitment may be a mere consequence of visually-based motor imagery. The present study was designed to address the role of visual experience on MNS functional development, and