Social Cognition: Affective Recognition & Evaluation

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How I got involved

Kevin Ochsner can’t be at the meeting

Sorry! Ann can fill in… I tried to get her up to speed

Ha, ha, ha…Seriously? I am no Kevin Ochsner!? I will give it a go, but I am not a social cognitive neuroscientist…
Background

Socio-emotional processing stream

1. Acquisition of social-affective values and responses

2. Recognizing and responding to affective stimuli

3. “Embodied” simulation or low level mental state inference

4. High level mental state/trait inference

5. Context-sensitive regulation

Ochsner (2008), *Biological Psychiatry*
From CNTRICS 1st meeting

Affect Recognition and Evaluation

**Strengths**
- Linked to neural systems
- Readily measured in humans
- Use in imaging
- Associated with functional outcomes
- Impaired in schizophrenia (especially faces)

**Limitations**
- Animal models limited
- Cognitive mechanisms unclear
- Only limited evidence about link to neuropsychopharmacology
Affective Recognition and Evaluation: The ability to detect, recognize and judge the affective value of both linguistic (e.g., seen or spoken words and their prosodic contour) and nonlinguistic (e.g., images of people, facial expressions, eye gaze, scenes) stimuli.
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1. Acquisition of affective value/response

**Amygdala** responds to:
- Fear conditioning
- Affective significance of stimulus
- Ambiguity, novelty

**Nucleus Accumbens** responds to:
- Prediction, anticipation of rewards; temporal (mis)prediction

**Medial PFC, OFC** respond to:
- Receipt of rewards; values
- Valence of outcomes
2. Recognizing Affective Stimuli

Amygdala responds:
- When viewing emotional faces, not asked to report experience
- Viewing untrustworthy faces, whites of eyes, direct eye gazes,

Rostral, ventral ACC and medial PFC respond when:
- Viewing emotional faces and asked to report experience
- Asked to give like/dislike judgments
2. Recognizing Affective Stimuli

Fear faces
- May be attention-independent (Anderson, Vuilleumier, Whalen)
- Influenced by anxiety, depression (Bishop, Sheline)
- Response enhancement related to short 5-htt allele (Hariri)
- Arousing stimuli in general (Anderson, Hamann)
- Affective Salience? Potential threats?

Disgust faces
- Inputs from viscera (Craig)
- Disgusting Odors (Keysers)
- Responds to other negative face types and aversive memories, images (Phan, Wager)
- Aversive stimuli in general?
More on Amygdala

- More activation in perception than emotional experience (Wager et al 2008 meta-analysis)
- Salience (Liberzon, Whalen)
More Background

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Ochsner (2008), *Biological Psychiatry*
4. High Level Mental State/Trait Inference

Why is this man smiling?

Happy?
4. High Level Mental State/Trait Inference

Why is this man smiling?

Happy?

Or manipulative?
Context Modulation

Likely requires higher level inferences than facial affect recognition w/o context

Activations in mPFC

(Gallagher & Frith; Mitchell; Saxe)
Affect Recognition in Schizophrenia

- Most studies use tests of facial affect recognition; some on vocal prosody recognition (e.g., Kerr & Neale; Leitman et al)
- Behavioral and fMRI studies, most w/o context
- Important links to functional outcome
- Methodological considerations
  - Judgment related to the self?
  - Differential versus generalized deficit
Differential vs. Generalized Deficit

Silverstein presentation at 2\textsuperscript{nd} CNTRICS meeting

- Matching on discriminating power (reliability, task difficulty; cf. Chapman & Chapman, 1978)
  - Could unravel sensitivity to detect between group differences

- Process-oriented approach (cf. Knight, 1984; Knight & Silverstein; 2001)
  - Requires clearly stipulating the specific deficit (e.g., facial affect recognition) from general deficit (e.g., face recognition)
Facial Affect Recognition in Schizophrenia

Differential Deficit?

- **Some say yes** (e.g., Borod et al., 1993; Edwards et al., 2001; Gaebel & Wolwer, 1992; Heimberg et al., 1992; Kosmidis et al., 2007; Poole et al., 2000; Shaw et al., 1999; Walker et al., 1984)

- **Some say no** (e.g., Addington and Addington, 1998; Baudouin et al., 2002; Hooker & Park, 2002; Kerr & Neale, 1993; Kohler et al., 2000; Mueser et al., 1996; Salem et al., 1996; Schneider et al., 1995).

- **Keep this in mind....**