Negative Emotion

Fear and Anger

A reminder . . . . .

- Multi-component view of emotion
  - Cognition/appraisal
  - Physiological/brain changes
  - Feeling states
  - Behavior

- Fear is a prototypical example because all are clearly understood
  - Unpleasant/ uncertain/ uncontrollable/ externally caused
  - Sympathetic activation
  - Clear feelings of being in danger
  - Flight or freeze behavior/ clear facial display

Component Process Theory

- Facial Display: raise eyebrows, eyes widen, mouth open, contract muscles below lips, pull cheeks down
- Component Process Theory (Scherer, 1992)
  - Explains the possible meaning of each element
- Fear
  - Unexpected event (widened eyes)
  - Displeasure (downturned mouth)
  - Desire to change situation (furrow brows)
  - Uncontrollable or low power/open mouth
  - distinguished fear from anger

Fear versus anxiety

- What is the difference?
- Fear:
  - Reaction to perceived danger
  - Subsides quickly when threat is gone
- Anxiety
  - More general expectation that ‘something will go wrong’
  - Tends to be more enduring
Where does fear come from?

- **Inborn**
  - Fear of sudden, loud noises
    - Startle response potentiated when we feel more in danger
    - Implications for anxious temperament
  - Fear of separation from caregivers

- **Learned**
  - Preparedness: learn some fears more readily than others
    - Snakes/spiders/heights
  - Single trial learning
  - Learn through observation
  - Also learn unique fears based on aversive experiences

Attention

- Fear focuses attention
- Competing attention tests
  - Photos of objects
    - Photos of faces (fearful or neutral)
    - Say whether they are the same or different
    - Low anxiety subjects: made few errors
    - High anxiety subjects: focused in on faces’ more amygdala activity
- ‘Dot-probe’ tests
  - Asked if emotion word and dot were in the same or different locations
  - High anxiety subjects: respond more quickly with both in same location

Attention can be preconconscious

- Photos of snakes and spiders are flashed quickly on the screen
  - Subjects do not consciously see the images
  - Half get mild shock after snake photos
  - Half get mild shock after spider photos
- Later photos of snakes and spiders are shown consciously
  - HR and breathing increase with photos you were earlier shocked with
- Implications:
  - We learn fears even when not consciously aware of the stimuli

Autonomic Response

- Fear is one of the best understood emotions
- Why?
- Clear autonomic response –
- An experiment
  - Serial subtraction (1,528 minus 7 minus 7)
  - Be fast and accurate (threat): see it as a challenge (challenge)
- Sympathetic NS activated in both conditions but more efficient cardiovascular response in the threat condition (faster pumps, more blood per heartbeat & less resistance in the arteries)
More on Lie Detector Tests

- Theory:
  - Fear associated with lying increases sympathetic response
  - Some people react emotionally just to the situation

- One study:
  - Correctly identified 76% of criminals
  - Incorrectly identified 37% of innocent as guilty

- Inconsistency means they aren’t allowed as evidence in court cases (American & Europe)

Ekman finds that many people make a brief, partial shrug (micromovement) when they lie.

Two Behavioral Systems in Fear

- Sympathetic arousal (flight):
  - HR increases
  - Blood flow to muscles increases
  - Sweat glands get active
  - Breathing rate increases

- Behavioral Inhibition System (freeze):
  - Decreases HR
  - Increases attention/ inhibits action
  - Parasympathetic response

Amygdala & Fear

- Plays important role in fear response
- Plays a role in fear detection
- Also integral to startle response

- Amygdala damage:
  - Poor fear detection in faces
  - Approach dangerous situations
  - (Anti-anxiety meds/ alcohol have similar impact)

- Amygdala over-activation:
  - Social phobias
  - Very high reactivity to angry or contemptuous faces
  - (Cortisol have a similar impact)

Individual differences

- Infants can be assessed at 6 months for signs of fearful temperament;
  predicts outcomes at age 2 and 6
  more amygdala reaction/ more right brain activity

- Anxiety disorders run in families
  - Serotonin reabsorbing proteins — differ genetically
  - Individual with fewer reabsorbing proteins — learn fears more readily/ more anxious

- Childhood abuse/ neglect predicts adulthood anxiety
- Females report more anxiety than males. Greater startle reaction
  no greater social anxiety or claustrophobia
Interesting…

- Two groups of subjects

  **one:** favor death penalty, support military force, guns
  - show strong startle response in clinical trials
  - slow habituation to triggers
  (see the world as a dangerous place?)

  **two:** against death penalty, low military support, control guns
  - show less startle response in clinical trials
  - quickly habituate to triggers

- Our emotional temperament can influence our thinking politically

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**Anger**

- Coming soon…

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**Remember this?**

- Component Process Theory (Scherer, 1992)
  - Explains the possible meaning of each element

- Anger has 4 components
  - Unexpected event (widened eyes)
    also present in anger and fear
  - Displeasure (downturned mouth)
    also present in sadness and disgust
  - Desire to change situation (furrow brows)
    also present in frustration and concentration
  - Sense of resolve or efficacy (tightened lips)
    also present in pride