Theories and Physiology of Emotion

Module 29
Emotions, Stress, and Health

Theories of Emotion

Embodied Emotion

- Emotions and The Autonomic Nervous System
- Physiological Similarities Among Specific Emotions
- Physiological Differences Among Specific Emotions
- Cognition And Emotion
Emotion

Emotions are our body’s adaptive response.
Theories of Emotion

Emotions are a mix of 1) physiological activation, 2) expressive behaviors, and 3) conscious experience.
Controversy

1) Does physiological arousal precede or follow your emotional experience?

2) Does cognition (thinking) precede emotion (feeling)?
Commonsense View

When you become happy, your heart starts beating faster. First comes conscious awareness, then comes physiological activity.
James-Lange Theory

William James and Carl Lange proposed an idea that was diametrically opposed to the common-sense view. The James-Lange Theory proposes that physiological activity precedes the emotional experience.
Cannon-Bard Theory

Walter Cannon and Phillip Bard questioned the James-Lange Theory and proposed that an emotion-triggering stimulus and the body's arousal take place simultaneously.
Two-Factor Theory

Stanley Schachter and Jerome Singer proposed yet another theory which suggests our physiology and cognitions create emotions. Emotions have two factors—physical arousal and cognitive label.
Embodied Emotion

We know that emotions involve bodily responses. Some of these responses are very noticeable (butterflies in our stomach when fear arises), but others are more difficult to discern (neurons activated in the brain).
Emotions and the Autonomic Nervous System

During an emotional experience, our autonomic nervous system mobilizes energy in the body that arouses us.

<table>
<thead>
<tr>
<th>Autonomic Nervous System Controls Physiological Arousal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sympathetic division (arousing)</td>
</tr>
<tr>
<td>Pupils dilate</td>
</tr>
<tr>
<td>Decreases</td>
</tr>
<tr>
<td>Perspires</td>
</tr>
<tr>
<td>Increases</td>
</tr>
<tr>
<td>Accelerates</td>
</tr>
<tr>
<td>Inhibits</td>
</tr>
<tr>
<td>Secrete stress hormones</td>
</tr>
</tbody>
</table>
Arousal and Performance

Arousal in short spurts is adaptive. We perform better under moderate arousal, but optimal performance varies with task difficulty.
Physiological Similarities

Physiological responses related to the emotions of fear, anger, love, and boredom are very similar.

Excitement and fear involve a similar physiological arousal.
Physiological Differences

Physical responses, like finger temperature and movement of facial muscles, change during fear, rage, and joy.

The amygdala shows differences in activation during the emotions of anger and rage. Activity of the left hemisphere (happy) is different from the right (depressed) for emotions.
Cognition and Emotion

What is the connection between how we *think* (cognition) and how we *feel* (emotion)?

Can we change our emotions by changing our thinking?
Cognition Can Define Emotion

An arousal response to one event spills over into our response to the next event.

Arousal from a soccer match can fuel anger, which may lead to rioting.
Cognition Does Not Always Precede Emotion

A subliminally presented happy face can encourage subjects to drink more than when presented with an angry face (Berridge & Winkeilman, 2003).

Emotions are felt directly through the amygdala (a) or through the cortex (b) for analysis.
Cognition Does Not Always Precede Emotion

When fearful eyes were subliminally presented to subjects, fMRI scans revealed higher levels of activity in the amygdala (Whalen et al. 2004).
Two Routes to Emotion

Zajonc and LeDoux emphasize that some emotions are immediate, without conscious appraisal. Lazarus, Schachter, and Singer emphasize that appraisal also determines emotions.