

COGNITION AND EMOTION

On-campus Session – Emotion and Attention

Emotion and Clinical Disorders



COGNITIVE
BIASES



METHODS OF
INVESTIGATION

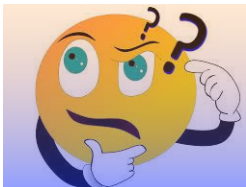


EMPIRICAL
RESEARCH
STUDIES



EVALUATION

Emotion and Clinical Disorders



- Discussion of research thus far has involved
 - manipulating emotions of healthy participants to investigate cognitive processing

- We must also consider emotion and cognition in those with clinical disorders

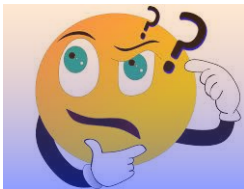
- E.g., anxiety and depression

- Why?

Emotion and Clinical Disorders

- Patients differ cognitively, behaviourally, physiologically, and perhaps biochemically from healthy individuals.
- Understanding symptoms and role played by cognitive factors is crucial for treatment implementation.
- Theorists (e.g., Beck & Dozois, 2011) assume clinical anxiety and depression depend in part on various cognitive biases.

Cognitive biases

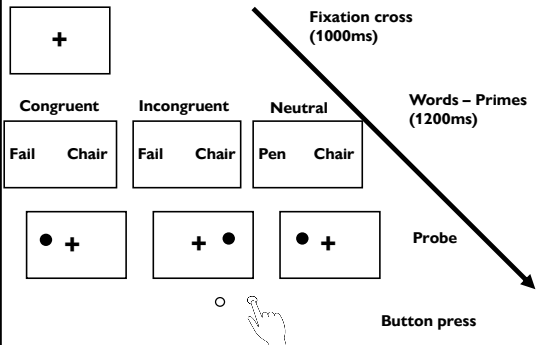


- + • Attentional Bias (AB)
- o • Interpretive bias
- o • Explicit & Implicit Memory Bias (MB)
- Key Question is whether cognitive biases play a role in triggering disorder, or does disorder enhance the cognitive bias?
- Various tasks used to assess AB.....

Dot-probe task

- Allocation of attention assessed by recording speed of detecting and responding to a dot that replaces a stimulus.
- Detection latencies shorter (i.e., quicker) in attended areas
- AB shown through detection latencies being shorter when dot replaces negative stimulus.

Dot-probe task



Emotional Stroop

- Traditional Stroop task (Stroop, 1935) involves assessing competition between colour word and colour of print a word is presented.

Green
Black
Red
Purple
Orange
Blue

VS.

Green
Black
Red
Purple
Orange
Blue

Emotional Stroop

- In the emotional Stroop task, people are required to name the colour of the ink.

➤ However, words will either be negative or neutral.

SAD	SKY
HATE	TABLE
DEPRESSED	CAR
CRYING	PEN
ANXIOUS	FOOD

Emotional Stroop

- ▶ People with anxiety take longer to name the colour of the emotionally negative words compared to the neutral words.

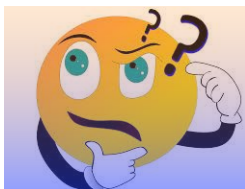
SAD	SKY
HATE	TABLE
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- Thus, showing an attentional bias effect.

Research evidence: Anxiety and Depression

- Bar-Haim et al. (2007): Meta-analysis on studies involving subliminal and supraliminal presentation of stimuli.
 - Strong evidence of AB across all types of anxiety disorders and in high-trait anxious healthy individuals.
- Cisler and Koster (2010): AB depends on an automatic threat-detection mechanism.
 - Anxiety produces difficulty in disengaging attention from threat stimuli due to poor attentional control.

Research evidence: Anxiety and Depression



- Peckham et al. (2010): Meta-analysis on studies involving patients with diagnosed depression.
 - Clear evidence for AB with dot-probe task
 - Marginal evidence for AB with Emotional Stroop task
- Why is there a difference?

Evaluation

- Dot-probe and Emotional Stroop only provide RT data

- Thus, difficult to know if anxiety/depression affects attentional engagement or disengagement (Clarke et al., 2013).

- Eye-tracking can help



Evaluation

- Armstrong and Olatunji (2012): meta-analysis on studies involving measuring eye movements during visual search task

- Anxious Patients = increase vigilance for threat and found it harder to disengage from threat compared to controls.
 - But less evidence in depressed Patients.

- Instead depressed Ps took longer to engage with and spent less time looking at positive stimuli.



Memory biases

- Useful to understand, as it could help treat patients with anxiety/depression

- Memory biases may play role in maintaining negative/worrisome moods

- Can occur through automatic process: *Implicit* memory bias

- Or when the individual is aware: *Explicit* memory bias

Memory biases

- **Implicit memory bias:**
 - Superior performance for negative/threatening than neutral or positive information on memory tests not involving conscious recollection.
- **Explicit memory bias:**
 - Tendency to retrieve negative or unpleasant rather than positive or neutral information on memory tests involving conscious recollection.

Research evidence

- **Williams et al. (1997):** Explicit memory bias in depressed compared to anxious patients
 - Opposite was case for implicit bias.
- **However, Mitte (2008)** did not find evidence of anxiety associated with implicit bias
 - Contradicts work of Williams et al.

Possible explanation?

- **Depends on type of memory test used.**
 - Anxiety associated with memory biases in recall tests but not recognition tests.
- **Why?:**
 - More extensive retrieval process required for recall than recognition
 - Provides more scope for involvement of emotion.
- **Effects of anxiety and depression on memory differ**
 - Implicit *and* explicit memory bias shown in depressed but not anxious patients.

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Evaluation

- **Depression (more than anxiety) associated with inward focus and disengagement from environment.**
- **Depression (more than anxiety) more associated with negative past events (Eysenck et al., 2006).**

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Cognitive Vulnerability Hypothesis

- Cognitive therapists (e.g., Williams et al., 1997; Beck & Dozois, 2011) suggest healthy individuals possessing cognitive biases are more vulnerable than others to develop anxiety or depression.
- Hypothesis:
 - A negative life event will have greater adverse effects on well-being of individuals with cognitive biases.
- See Lewinsohn et al. (2001) and Cohen et al. (2012)

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Emotion and cognition in clinical populations:

Conclusions

- 1. **Anxious and depressed individuals differ in nature and strength of cognitive biases.**
- **Contributes to understanding differences between disorders**

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Emotion and cognition in clinical populations:

Conclusions

2. Findings have theoretical importance:

A function of anxiety is to anticipate future threat

As a result, it is associated with external focus and attentional bias

A function of depression involves thinking about past failures and producing new goals.

As a result, it is associated with internal focus and memory biases.

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Emotion and cognition in clinical populations:

Conclusions

3. Existence of cognitive biases in anxiety and depression is of value to therapeutic interventions.

Suggests therapy should focus on reducing or eliminating cognitive biases.

Progress of therapy can be assessed by the extent to which cognitive biases are reduced.

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Emotion and cognition in clinical populations:

Conclusions

4. Progress in understanding interconnections among cognitive biases.

However, underlying mechanisms remain to be identified.

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Cognitive Bias Modification

Key Question

- Do cognitive biases make individuals more vulnerable to anxiety/depression?
- Or does anxiety/depression lead to the development of cognitive biases?
- Way to address this is through cognitive bias modification

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Cognitive Bias Modification

- Experimental paradigm using training to induce maladaptive or adaptive cognitive biases.
 - E.g., altered version of dot-probe task, where dot always appears in location of neutral or positive stimulus.
 - Result: patients learn to avoid allocating attention to threatening stimuli.
- Good success rates
- Training to reduce one type of cognitive bias often leads to reduction in another type of cognitive bias.

Cognitive Bias Modification

- Evaluation:
 - Is focused, so is easy to understand underlying mechanisms
 - Enhanced understanding of relationship between bias and emotional states.

(MacLeod & Clarke, 2013)

- Little generalisation/transfer from lab to real life
- Assessment of changes in anxiety/depression often involves self-report measures
- Patients often report being unclear on reasons behind cognitive bias modification

(MacLeod & Mathews, 2012)



Emotion and breadth of attention: Sourcing research evidence task

- Work in groups to find a journal paper that discusses research examining whether and how positive and negative emotions influence our breadth of attention.
- Provide to the class a brief summary of the research, with a focus on the following areas from the paper:
 - Research Aims
 - Method
 - Participants
 - Design
 - Materials
 - Procedure
 - Results – what did they find
 - Discussion and conclusion
 - Critique of the research

SESSION CLOSE

Any final
questions?