New Developments in Exposure Therapy for Anxiety and Related Disorders: The Inhibitory Learning Approach

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Disclosures

None.

Outline

- Explanatory models of exposure therapy
- **Optimizing inhibitory learning during exposure**
- Limitations of this perspective

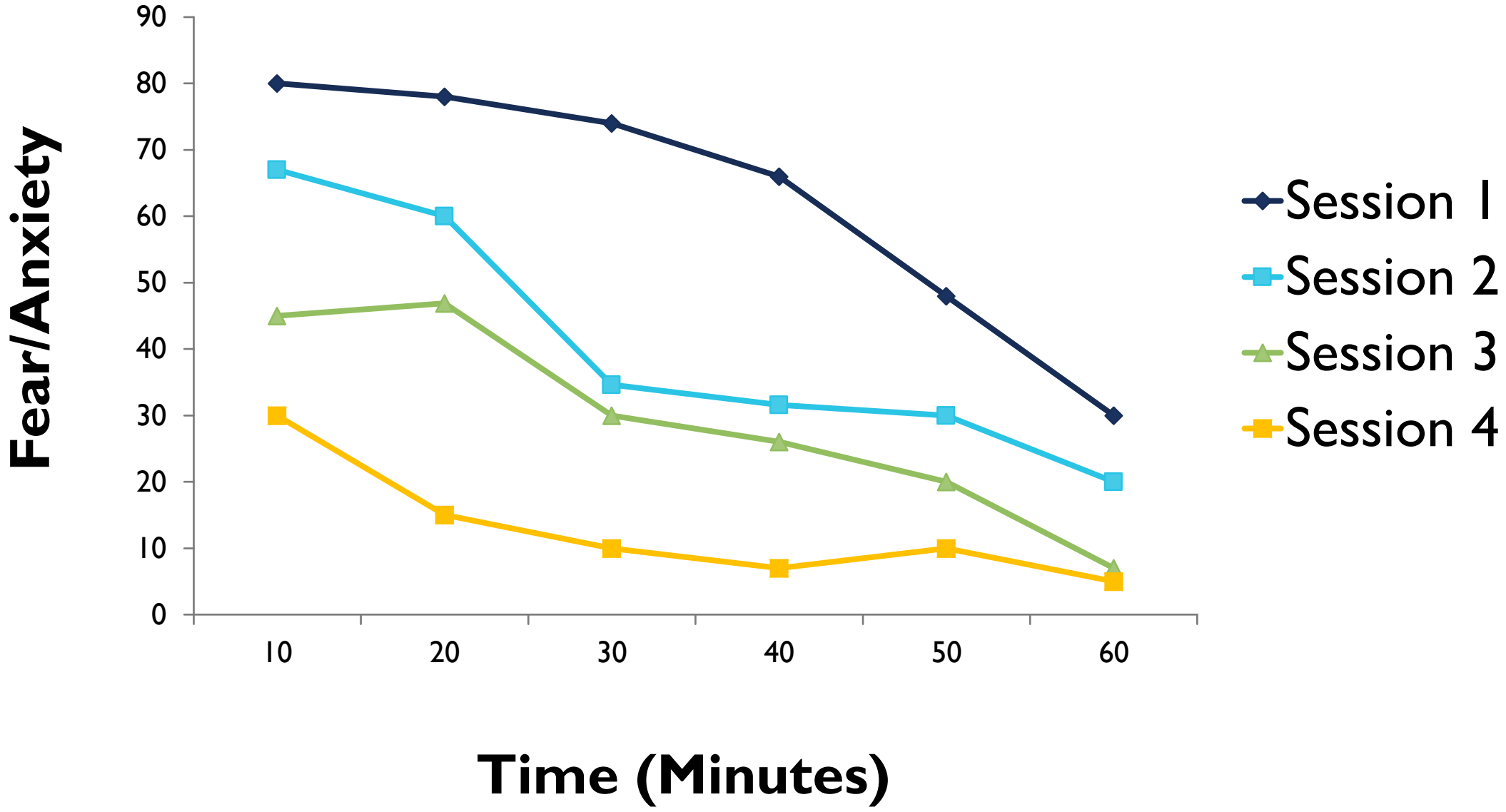
Mid-way break and time for Q&A throughout

Explanatory Models of Exposure Therapy

Emotional Processing Theory

Break the association between a conditioned stimulus ("trigger") and conditioned response (fear/anxiety)

- Activation of a fear structure
- Habituation
  - Within sessions
  - Between sessions


Fear/Anxiety
90
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
Time (Minutes)
Session 1
Session 2
Session 3
Session 4

Does Habituation Matter?

- Habituation is *not* a reliable predictor of long-term outcome
- Successful outcomes occur *despite* lack of habituation
- Habituation is nice, not necessary
  - Can emphasizing habituation backfire?

Hijacking Habituation

- Exposure used to control anxiety
  - "It's okay because I know my anxiety will go down…"
- Implicit message that anxiety is unsafe or intolerable
- Inevitable future experiences of anxiety may be misinterpreted as a sign of danger or relapse

Inhibitory Learning Theory

Develop safety-based associations that *inhibit* retrieval of fear-based associations

- Violate negative expectancies
- De-contextualize inhibitory associations
- Promote distress tolerance

Revisiting Response Prevention

Safety behaviors thought to interfere with exposure

- Lead patients to misattribute safety
- Bypass the *natural* decline in fear/anxiety
- Interfere inhibitory learning
  - Prevent maximal violation of negative expectancies
  - Contextualize new learning
  - Impede development distress tolerance

Emotional Processing vs. Inhibitory Learning: Critical Differences

- Goal of exposure
  - Remain in situation until anxiety naturally subsides
  - Remain in situation until patient no longer expects catastrophe
- Relation to anxiety
  - Anxiety is supposed to go down over time
  - Patient can *tolerate* anxiety, no matter the duration or intensity

Optimizing Inhibitory Learning during Exposure

Maximizing Exposure

Therapeutic strategies to generate and strengthen inhibitory associations

1. Frame exposures to violate negative expectancies
2. Introduce variability wherever possible
3. Combine multiple fear cues
4. Discriminate safety aids and retrieval cues
5. Augment learning with affect labeling

1. Frame Exposures to Violate Negative Expectancies

- Set the stage for a "mismatch"
  - Therapeutic value of surprise
- Help patient learn through direct experience that he/she was mistaken with regard to anticipated outcome
  - Not as likely as I thought
  - Not as awful as I thought
  - Anxiety/uncertainty are safe and tolerable

Clinical Application: Expectancy Tracking

- Set up the exposure to violate expectancies, not reduce SUDS
- Before exposure
  - Identify nature and strength (%) of negative expectancy
  - Level of anticipated distress tolerance
  - Length of time patient can persist and/or resist safety behaviors
- After exposure
  - Consolidate new learning by asking patients to summarize what they learned
  - **Explicitly contrast predicted and actual outcome**

EXPOSURE PRACTICE FORM

1. Feared outcome of exposure ("worst case scenario" hypothesis to be tested):

2. Safety behaviors to prevent:

3. How long do you think you can stick with the exposure task?

4. Every _____ during the exposure, rate the (a) strength of belief in feared outcome, and (b) confidence in your ability to tolerate the distress from 0% to 100%

   Anticipatory ratings for (a) _____; (b) _____

	Trial 1	2	3	4	5	6	7	8	9	10
(a) Belief										
(b) Confidence										

	11	12	13	14	15	16	17	18	19	20
(a) Belief										
(b) Confidence										

	21	22	23	24	25	26	27	28	29	30
(a) Belief										
(b) Confidence										

5. What was the exposure outcome? What did you learn? Directly tie this to Question #1.

6. What could you do to vary ("mix up") this exposure in the future?

Jenn: Case Example

- 31 year-old accountant
- Married with two kids and otherwise healthy
- OCD – fear of developing schizophrenia
  - Main fear: I will have a "psychotic break" after reading about someone with schizophrenia
  - Safety behaviors: Avoidance, distraction, arousal reduction
- Difficulty concentrating at work, having nightmares about "going crazy"

Jenn: Framing exposure to promote distress tolerance

- Session 3 (Jon is the therapist)
- Setting up exposure: Reading about someone with schizophrenia
- What to look for:
  - De-emphasis on habituation
  - Emphasis on distress tolerance
  - No cognitive restructuring (we'll get back to this)

No Cognitive Restructuring!?

- What's the goal of CR when used with exposure?
  - Challenge and correct mistaken beliefs about exposure stimuli
- Why is this inconsistent with inhibitory learning?
  - It spoils the surprise (minimizes violation of expectancies)
- But what about too much anxiety?
  - Anxiety is safe and manageable
  - We're teaching fear tolerance over fear reduction

2. Introduce Variability Wherever Possible

- Varying ("mixing up") the exposure makes short-term learning more difficult, but enhances long-term retention and generalization of new learning
  - "Desirable difficulties"

Clinical Application 1: Vary the Exposure Context

Extend inhibitory associations to new contexts by de-contextualizing

- Stimuli and locations (visually distinct types of trash bins, same type of trash bin on different blocks)
- Others present (therapist, loved ones, strangers)
- Session time (time of day, day of week)
- Internal state (when alert, when tired, when happy, when anxious)
  - Medication

Clinical Application 2: Vary the Practice Interval

- Spacing out learning trials over time enhances long-term retention
- More opportunities to strengthen inhibitory associations by forgetting and re-learning associations
- Expand therapy sessions near end of treatment
  - 2x per week → 1x per week → Every other week → etc.

Clinical Application 3: Vary Exposure Intensity

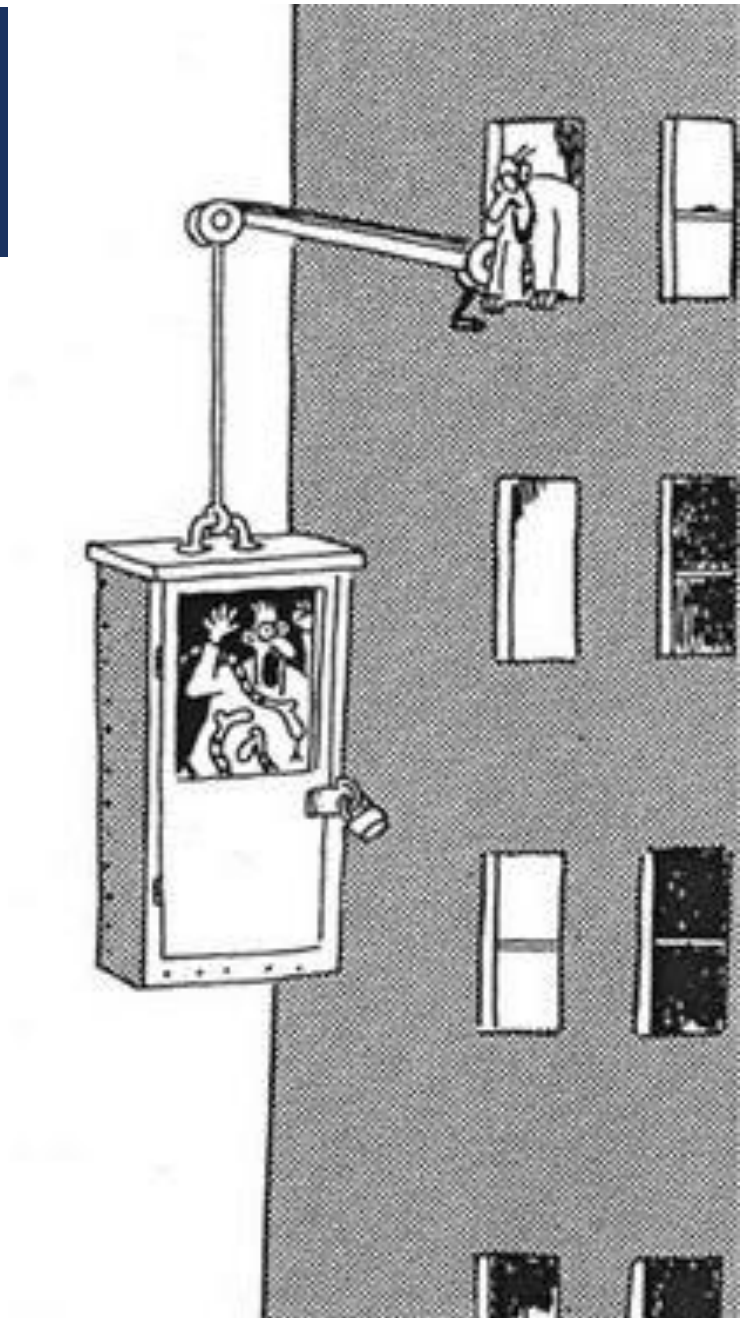
- What are some limitations of traditional "hierarchy" (gradual approach)?
  - Over-reliance on habituation
  - Sets up the expectation that lower anxiety is safer or easier than high anxiety
  - Anticipation of high items reinforces fear of anxiety
- How might varying the exposure intensity help the patient?
  - Tolerate exposure across a variety of emotional states
  - Preparation for "real world" settings
  - More opportunities for "surprise" and life after treatment finishes

Clinical Application 3: Vary Exposure Intensity

- An alternative: The exposure "to-do list"
  - Set of tasks to be attempted over the course of treatment
  - Select at random (pulling pieces of paper from a bowl)
  - Can be modified to meet patient where they are at
    - First half of treatment follows hierarchy
    - Second half of treatment progresses randomly through the remaining tasks

3. Combine Multiple Fear Cues

- Inhibitory learning is greater when anticipated negative outcomes do not occur despite *multiple* fear cues present
  - "Deepened extinction"
  - Can also be thought of as increased (additive) negative expectancies
- Fear cues to consider
  - External (contaminants, other people, animals)
  - Mental (obsessive thoughts, traumatic memories)
  - Physiological (racing heart, dizziness, trembling)



Miriam: Case Example

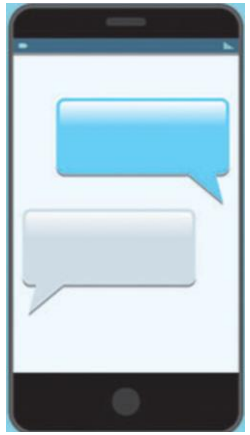
- 14 year-old 9th grader
- Good student and otherwise healthy
- Social anxiety – fear of speaking to strangers
  - Main fear: I will look nervous and they will think I am weird
  - Safety behaviors: Avoidance, covering her face (e.g., sun glasses)
- Grades starting to suffer because of fear of speaking up in class, contributing to group work, getting involved in clubs

Miriam: Combined Interoceptive and In-Vivo Exposure

- Session 8 (Shannon is the therapist)
- Exposure to appearing nervous and asking silly questions to strangers
  - "Where can I buy a Carolina shirt?" (standing in front of the Carolina Fan store at a local mall)
- What to look for:
  - Pre-exposure discussion
  - Interoceptive exposure *plus* in-vivo exposure
  - Post-exposure processing/consolidation

4. Discriminate Safety Aids and Retrieval Cues

- Safety aid: Something that can be used as a safety behavior
  - Predict the absence of an unconditioned stimulus (e.g., anxiety)



4. Discriminate Safety Aids and Retrieval Cues

- Retrieval cue: Reminder of new (inhibitory) learning
  - Primes recall of an inhibitory association

4. Discriminate Safety Aids and Retrieval Cues

- How to tell the difference?
  - Function more than topography
  - Would removing the stimulus increase patient anxiety?
  - Does the item get "credit" for non-catastrophe?

4. Discriminate Safety Aids and Retrieval Cues

- Research in this area is new and limited
  - Introduction of retrieval cues not yet recommended
  - Can retrieval cues "morph" into safety aids?
- Mental reinstatement more powerful than external cue
  - Before exposure, say "remember what you learned last week…"

5. Augment Learning with Affect Labeling

- Verbally expressing the emotions one is experiencing facilitates the development of new associations
  - Different from cognitive restructuring, in which appraisals are challenged

Clinical Application: Put Feelings into Words

- Have patients include "emotion words" when describing their experience
  - "I'm afraid that reading about Jerry Sandusky's despicable behavior will cause me to become a pedophile"
  - "I'm disgusted by touching the bathroom floor because I don't know what sort of diseases might be lurking on the tiles"
  - "I'm worried that if I don't text my wife to make sure that she made it safely to the airport, she could be hurt and stranded somewhere and it will be my fault I didn't know to go and try to rescue her"

Limitations of the Inhibitory Learning Model

Things to Consider

- Does the inhibitory learning model just use new words to describe established constructs?
  - "Negative expectancies" and "irrational beliefs"
- Does this model apply to the treatment of all anxiety disorders?
  - Habituation appears to be more important to PTSD treatment
- Do the purported mechanisms of change actually mediate outcome?
  - How should negative expectancy violation, de-contextualization, and distress tolerance be measured in these studies?

Questions?

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http://jonabram.web.unc.edu/recent-conference-presentations