Anxiety, Negative Affect and Avoidance Motivation

A single trait - multitude of theories
What is anxiety?

• Normal trait with variation in the experience of the unpleasant emotional state associated with subjective feelings of tension, apprehension, and worry as well as activation or arousal of the autonomic nervous system.

• Traditional assumption in personality is that the psychiatric “disorder” is merely the end point of a normal trait.

• By studying the trait, we learn about the disorder, and by studying the disorder, we learn about the trait.
Anxiety Symptoms

1. Excessive physiologic arousal
   1. muscle tension
   2. Irritability
   3. Fatigue
   4. Restlessness
   5. insomnia

2. Distorted cognitive processes
   1. poor concentration
   2. unrealistic assessment of problems
   3. worries

3. Poor coping strategies
   1. avoidance \( \cap \) procrastination
   2. poor problem-solving skills

Source: http://www.sh.lsuhs.edu/fammed/OutpatientManual/Anxiety.htm taken from

Anxiety as “disorder”

• Classification of anxiety disorders
  – Generalized Anxiety Disorder
  – Panic Disorder
  – Social Phobia
  – Separation Anxiety
  – Post Traumatic Stress
Generalized Anxiety Disorder

A. Excessive anxiety and worry (apprehensive expectation), occurring more days than not for at least 6 months, about a number of events or activities (such as work or school performance).

B. The person finds it difficult to control the worry.

C. The anxiety and worry are associated with three (or more) of the following six symptoms (with at least some symptoms present for more days than not for the past 6 months). **Note:** Only one item is required in children.
   - 1. restlessness or feeling keyed up or on edge
   - 2. being easily fatigued
   - 3. difficulty concentrating or mind going blank
   - 4. Irritability
   - 5. muscle tension
   - 6. sleep disturbance (difficulty falling or staying asleep, or restless unsatisfying sleep)
GAD: continued (from DSM)

D. The focus of the anxiety and worry is not confined to features of an Axis I disorder, e.g., the anxiety is not about having a Panic Attack (as in Panic Disorder), being embarrassed in public (as in Social Phobia), being contaminated (as in Obsessive-Compulsive Disorder), being away from home or close relatives (as in Separation Anxiety Disorder), gaining weight (as in Anorexia Nervosa), having multiple physical complaints (as in Somatization Disorder), or having a serious illness (as in Hypochondriasis), and the anxiety and worry do not occur exclusively during Posttraumatic Stress Disorder.

E. The anxiety, worry, or physical symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

F. The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hyperthyroidism) and does not occur exclusively during a Mood Disorder, a Psychotic Disorder, or a Pervasive Developmental Disorder.
Social anxiety

A. A persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others. The individual fears that he or she will act in a way (or show anxiety symptoms) that will be embarrassing and humiliating.

B. Exposure to the feared situation almost invariably provokes anxiety, which may take the form of a situationally bound or situationally pre-disposed Panic Attack.

C. The person recognizes that this fear is unreasonable or excessive.

D. The feared situations are avoided or else are endured with intense anxiety and distress.

E. The avoidance, anxious anticipation, or distress in the feared social or performance situation(s) interferes significantly with the person's normal routine, occupational (academic) functioning, or social activities or relationships, or there is marked distress about having the phobia.

F. In individuals under age 18 years, the duration is at least 6 months.

G. The fear or avoidance is not due to direct physiological effects of a substance (e.g., drugs, medications) or a general medical condition not better accounted for by another mental disorder...
Anxiety as a dimension of personality

- Anxiety, Negative Affectivity, Neuroticism and (lack of) Emotional Stability are all closely related trait terms that show normal variation in the population.
- Extreme scores on these dimensions is associated with the diagnosis of a disorder.
- Possible to understand the extremes by studying normal variation.
- However, small differences in means can lead to large differences at tails of the distribution.
Odds of outcome as \( f(\text{mean}) \)

Normal density for two groups

Odds ratio of G1 vs G2

Normal density for two groups

Odds ratio of G1 vs G2
The effect of group differences on likelihood of extreme scores

Cumulative normal density for two groups

Odds ratio that person in Group exceeds x

Odds of G2 > G1
Shifts of 1.0 standard deviation and resulting changes in odds
Typical measures

• Manifest Anxiety Scales (Janet Taylor Spence)
  – Worry/Oversensitivity
  – Social Concerns/Stress
  – Physiological Anxiety
  – Fear of Aging (for elderly)
  – Test Anxiety (for students)
• State-Trait scales (Spielberger)
  • Trait (how do you normally feel)
  • State (how do you feel right now)
• Situational Anxiety Scales
State Trait Anxiety Measures

- Current (State) or Typical (Trait) feelings of
  - Nervous and restless
  - Failure
  - Inadequate
  - Disturbing thoughts
  - Pleasant (reversed)
  - Satisfied with self (reversed)
  - Rested (reversed)
  - Happy (reversed)
Anxiety Trait vs. Anxiety State

• Ray Cattell & Charles Spielberger
  – Anxiety trait as a susceptibility to the state
  – But not necessarily frequency of state
    • (anxiety trait can lead to avoidance of situations that lead to the state)

• Components of State anxiety (Morris and Liebert)
  – Autonomic arousal/somatic tension
  – Worry and attentional deficits
Anxiety, Neuroticism and Depression

data from various PMC studies, N=231
Multiple theories of anxiety effects on performance

- Hull-Spence Drive Theory (and task difficulty)
- Anxiety and the inverted U
- Anxiety as an inappropriate response
- Anxiety and Negaction - Dynamics of Action
- Anxiety as cognitive load
- Anxiety and performance avoidance (Fear of Failure)
Hull, Spence & Spence
Drive Theory

Hull-Spence theory of learning and performance

(a) Reaction potential = Habit x (Drive + Incentive)
   i) sEr = sHr (D + K)

(b) Habit strength reflects previous experience

(c) Drive = Σ (non specific effects)
   i) {hunger, thirst, sex}
      ii) anxiety
Drive Theory applied to anxiety

Anxiety and learning

eyeblink conditioning

verbal learning of easy and hard lists

Spence, Farber and McFann (1956)

task difficulty interacts with lists
difficulty in verbal learning
Drive Theory Predictions

\[ s_{Er} = s_{Hr} \times (D+K) \]

- **Strong Habit**
- **Weak Habit**

- Low Anxiety
- Drive ->
- High Anxiety
Weiner and Schneider, 1971

• Task: Learn 13 CVC trigrams
  Easy List: high between item differentiation
  e.g. PAK, BIM, MOT
  Difficult list: low between item differentiation
  e.g. HOV, VOV, RIV, MIV
  Lists presented as serial anticipation (implicit feedback?)
  Subjects were high and low resultant Achievement Motivation (Nach - Naf)
  Feedback - list is (easy/hard) you are doing better/worse than others
Anxiety and Task Difficulty

• Many studies have replicated the original Spence, Farber and McFann study
• However, all of these have used a serial anticipation technique that confounds task difficulty with implicit feedback to the subject.
• Is it feedback or task difficulty that is most important?
Weiner and Schneider, 1971

The graph shows the success and failure rates in high and low difficulty conditions related to high and low task difficulty. The data is labeled as follows:

- High hard
- Low hard
- High easy
- Low easy

The x-axis represents success and failure, while the y-axis represents the number of participants.
Anxiety, Drive and the Inverted U (from Hebb, 1955)

Level of “arousal function” (non-specific cortical bombardment)

- Deep Sleep
- Point of Waking

Level of “Cue Functioning”

Optimal Level of Response and Learning

- Increasing interest, Alertness, and positive emotion
- Increasing emotional disturbance and anxiety
Broen and Storms
Drive Theory and Inverted U

\[ sEr = sHr \times (D+K) \]

Ceiling of Reaction Potential

Reaction Potential \( sEr \)

Drive ->

Low Anxiety

High Anxiety

Strong Habit

Weak Habit
Broadbent: Drive and Error Types
Drive spreads response strength and changes error type

Low Drive (Low Anxiety)
- Errors of Omission

High Drive (High Anxiety)
- Errors of Commission

Response Criterion
Anxiety as an inappropriate response

- Mandler-Sarason-Wine
- Sarason and Test Anxiety
  - Attention is diverted to off task thoughts
  - Should be able to redirect attention
- Jeri Wine: Anxiety and attentional deficits
  - A simple model that has much support
Anxiety and Working Memory

- M.W. Eysenck et al.
  - Anxiety leads to a working memory deficit
  - Fewer resources to bring to task
  - Implies interaction of memory load with anxiety
  - But memory load is frequently confounded with task difficulty and implicit feedback (see Weiner and Schneider)
Anxiety and attentional bias

• The Stroop Task
  – Speeded naming of colors when conflicting with color names

• The Emotional “Stroop” Task
  – Anxiety impedes speed of color naming of threat words
A Stroop Task

Name the color of the slide as quickly as possible
Ignore the word name
RED
GREEN
GREEN
FAILURE
SUCCESS
STUPID
MISTAKE
DIE
PAIN
SAD
The Emotional “Stroop”

• Anxiety related to impairment to color naming in the face of emotional cues
• But is the effect due to a general inhibitory effect of negative emotion on performance
• Decay of effect over time varies as function of anxiety (Gilboa and Revelle)
Attention allocation: The dot probe task

- Respond with right finger if dot is above the fixation point, with left finger if dot is below the fixation point:
Failure

+

+
Panic
candy
Geese
+ Stupid
Table
Exam
Lake
Anxiety and memory biases

• Selective interpretation of homophones
  – (Butler and Mathews)
  – Pain/pane
  – Groan/Grown
  – Die/Dye

• Selective interpretation of sentences
  – Consider the following sentence, does the next sentence follow from it?
Ambiguous sentences

• The doctor opened the chest
  And discovered the treasure
  And removed the heart
State Trait Distinction revisited

• Are traits predispositions to states
  – Sensitivity to cues
  – Frequency of achieving state

• Are traits predictors or scars?
  – Currently depressed, never depressed, formerly depressed
Gray: The BIS/BAS/FFS model

• Anxiety and the Behavioral Inhibition System
• Impulsivity and the Behavioral Activation System
• Aggression and the Fight/Flight System
• Is this a sensitivity to cues for punishment and rewards or a sensitivity to the actual strength of the rewards and punishments?
Gray’s hypothesis

- Sensitivity for Cues for Reward
- Sensitivity for Cues for Punishment

Extraverts
Introverts

Anxious
Non-anxious

Neurotic
Stable

Impulsive
Non-impulsive

- Gray's hypothesis
- Sensitivity for Cues for Reward
- Sensitivity for Cues for Punishment
Watson & Clark: Anxiety, Depression and Affect

- Two dimensions of affect reactions
  - Positive Affect (happy, pleased)
  - Negative Affect (sad, depressed)
- Anxiety as high NA + high tension
- Depression as high NA and low PA
Manipulations of Depression & Anxiety

• Movie induction
  – Concentration camp
  – Halloween
  – Control (nature film)
  – Parenthood

• Exam Positive and Negative mood induction
Effect of Movies on PA/NA

Movie Study 1

Movie Study 2
Movies show differences between
Anxiety and performance

- Dynamics of Action predicts effects of anxiety reduce over time
- Anxiety -> Negaction -> behavioral suppression at first
Dynamics of Action and delayed onset of threatened actions

- Ongoing Activity
- T of Desired Act
- Resultant T
- Inhibitory (negation)
- Delay due to threat
Anxiety, Arousal and Breadth of Attention: the Easterbrook hypothesis

• Arousal/Anxiety thought to change the range of cue utilization
• Tasks differ in the breadth of cues required
• Arousal/anxiety narrows the focus of attention
Tasks require certain number of cognitive/environmental cues
Low arousal/anxiety
large attentional breadth

Task relevant cues
Breadth of cue utilization
moderate arousal/anxiety
moderate attentional breadth

Breadth of cue utilization

Task relevant cues
High arousal/anxiety
narrow attentional breadth

Task relevant cues

Breadth of cue utilization
Positive/Negative Affect and Cue utilization: forests vs. trees

• Gaspar and Clore (2002)
  affect and broad vs. narrow focus
• Yovel, Revelle, & Mineka (2005)
  – Obsessiveness and broad vs. narrow processing
Fig. 2. Sample item from the global-local focus test (Kimchi & Palmer, 1982, p. 526). Reprinted with the permission of R. Kimchi.
# Forests and Trees

| E   | E   | HHH | E   | E   | H   | EEE | HHH   | E   | E   | H   | EEE | HHH | E   | E   | HHH |
Forests vs. Trees

![Graph showing reaction time across conditions: Consistent, Neutral, Inconsistent. The graph illustrates the effect of global interference, global precedence, and local interference.]
Anxiety and achievement

• Elliott and McGregor (1999)
• Performance approach goals
• Performance Avoidance goals
• Mastery goals
• State Test Anxiety
• Worry
• Emotionality
• Exam Performance
Elliot and McGregor

Performance approach
  Goals

Exam Performance
  Worry

Performance avoidance
  goals

Correlations:
- Performance approach goals -> Exam Performance: 0.22
- Worry -> Exam Performance: 0.43
- Performance avoidance goals -> Exam Performance: 0.29
Elliot and McGregor

Performance approach
  Goals
    \[0.18\] → Exam Performance
    \[0.43\] → State TA

Performance avoidance
  goals

State TA
  \[-0.27\]
Elliot and McGregor

Performance approach Goals

Trait Test Anxiety

Performance avoidance goals

Exam Performance

State TA

Trait Test Anxiety

Performance approach Goals

Exam Performance

State TA
Anxiety and the ABCDs

• Anxiety as negative Affect
• Anxiety as avoidance Behavior
• Anxiety as cognitive bias towards threats
• Anxiety as performance avoidance Desires