An Emotion Regulation Framework for Understanding and Treating Generalized Anxiety Disorder and Related Conditions

Anxiety is Human

Planning for the future and recalling how we feel about the past is ultimately what it is to be human

Can Anxiety be Helpful?

- Recruits help from others
- Learn about threat from being vigilant
- Anxiety engenders planning for the future
- Provides meaning about what we want and don't want
- Enhances physical and intellectual performance of tasks
- Creativity and achievement would suffer if we lacked anxiety
- Lack of anxiety would be deadly for species

Barlow (2002)
Emotion as Adaptation

- Emotional Preparedness: Processes that cue readiness for action tendencies (Frijda, 1986)
- Emotion Regulation: Processes by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions (Gross, 1998)

Emotions are Important for Surviving and Thriving

- Emotions signal needs and goals
- Emotions prepare organisms to act on these needs and goals
- Emotions are defined by many bodily systems
- Emotions are a part of a larger self-management system that is charged with balancing responses in accordance with both personal goals and situational factors
- Individuals can differ in their ability to respond to emotions (perceiving, understanding, utilizing and managing emotions; emotional intelligence; Mayer & Salovey, 1997)

Emotional Intelligence

Mayer & Salovey (1997):
- Ability to perceive and appraise emotion accurately
- Ability to understand emotions and utilize emotional knowledge
- Ability to access and/or generate feelings in order to facilitate reasoning, attention, and memory retrieval
- Ability to manage emotions according to personal goals and situational demands
Generalized Anxiety Disorder and Worry

- Reliability and validity of GAD have increased considerably due largely to focus on worry
- Avoidance Perspective on Worry (Borkovec et al., 2008)
  - Worry promotes distance from immediate emotional state
  - More thoughts than images during worry
  - Worry restricts physiological arousal
  - People suffering from GAD worry to lessen their physical and emotional discomfort in the short term

Worry and Emotion

Question:

- Why use worry to avoid emotions?

Affective Science Approach to Emotions

- Emotion Generation
  - Emotions are functional (Barlow, 2002; Frijda, 1986)
  - Emotions are defined by the mobilization of multiple systems (Lang et al., 1998)
- Emotion Regulation
  - Emotions are part of a larger self-regulation system that is charged with balancing responses in accordance with both personal goals and situational factors (Carver & Scheier, 1998; Gross, 2007)
Emotion Dysregulation (EDR) Model

- Elevated Emotion Generation
  - Heightened Subjective Intensity of Emotions
  - Greater Motivation to Prevent or Promote

- Imbalanced Emotion Regulation
  - Negative Cognitive Reactions to Emotions
  - Maladaptive Management of Emotions
  - Poor Understanding of Emotions


Emotion Dysregulation Model of GAD

- Heightened Intensity of Emotions
  - Mennin et al. (2006, study 1, 2007); Turk et al. (2006)
  - Self-reported diagnosis of GAD in Undergraduate Sample
  - Impulse Strength subscale of the Beck室友X Expression Questionnaire
  - Mennin et al. (in prep)
    - SCID diagnosis of GAD in Undergraduate Sample
    - Both AMT-Negative Intensity and BIS-11 Impulse Strength
  - Fresco, Crowther et al. (2006)
  - SCID diagnosis of GAD, Bulimia Nervosa, & BPD
  - Impulse Strength subscale of the Beck室友X Expression Questionnaire

Emotion Dysregulation Model of GAD

- Negative Cognitive Reactivity
  - Mennin et al., 2005, study 1; 2007; Turk et al. (2005); Rossiter et al. (2005); Fearful Avoidance scales of the Affective Control Scale
  - Mennin et al. (2005, study 2)
    - ANX diagnosis of GAD in Clinical Sample
    - ACH controlling for trait conflict
  - Padmavathi, Salven (2006); Mennin et al. (2007); Mennin et al. (in prep)
  - SCID diagnosis of GAD, Bulimia Nervosa, & BPD
  - Impulse Strength subscale of the Beck室友X Expression Questionnaire
  - Controlled for negative affectivity
  - Controlling for all covariates except conflict
  - Conflict on trait conflict
  - Fresco, Crowther et al. (2006)
  - SCID diagnosis of GAD, Bulimia
  - Fear of Anxiety, Irritability, Anger, and Positive Illusions subscale of the Affective Control Scale
Mennin, Fornari & Fresco et al. (2007)

Scaled CFI = 1.00, Scaled RMSEA = .05

77.3% of GAD cases correctly classified by emotion regulation function

Mennin et al. (2005)

Studies 1 & 2: Initial Evidence
Emotion Regulation Deficits Identify GAD (UC sample)

Predicted Membership via Emotion Regulation

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>GAD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAD da</td>
<td>77.4%</td>
<td>22.6%</td>
<td>100.00</td>
</tr>
<tr>
<td></td>
<td>(380)</td>
<td>(111)</td>
<td>(491)</td>
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<tr>
<td>GAD</td>
<td>23.4%</td>
<td>76.6%</td>
<td>100.00</td>
</tr>
<tr>
<td></td>
<td>(11)</td>
<td>(76)</td>
<td>(87)</td>
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<tr>
<td>GAD da</td>
<td>90.2%</td>
<td>9.8%</td>
<td>100.00</td>
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<tr>
<td></td>
<td>(37)</td>
<td>(4)</td>
<td>(41)</td>
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<tr>
<td>GAD</td>
<td>7.3%</td>
<td>92.7%</td>
<td>100.00</td>
</tr>
<tr>
<td></td>
<td>(34)</td>
<td>(19)</td>
<td>(53)</td>
</tr>
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</table>

91.5% of GAD cases correctly classified by emotion regulation function

Mennin et al. (2005)
### Study 3: Factor Analysis of ER Model
Residual Variable Psychopathology Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>β</th>
<th>B (SE)</th>
<th>z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensity</td>
<td>.27</td>
<td>.43 (.05)</td>
<td>8.26***</td>
</tr>
<tr>
<td>Understanding</td>
<td>-.03</td>
<td>-.08 (.09)</td>
<td>-.89</td>
</tr>
<tr>
<td>Reactivity</td>
<td>.06</td>
<td>.09 (.05)</td>
<td>1.69</td>
</tr>
<tr>
<td>Management</td>
<td>.06</td>
<td>.27 (.07)</td>
<td>4.13***</td>
</tr>
<tr>
<td>ED Latent Factor</td>
<td>.20</td>
<td>.81 (.20)</td>
<td>4.07***</td>
</tr>
</tbody>
</table>

***p < .001

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Mennin, Halwany, Fresco et al. (2007) BT

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<tr>
<td>Intensity</td>
<td>-.01</td>
<td>-.01 (.05)</td>
<td>-.23</td>
</tr>
<tr>
<td>Understanding</td>
<td>.14</td>
<td>.38 (.09)</td>
<td>4.08***</td>
</tr>
<tr>
<td>Reactivity</td>
<td>.10</td>
<td>.15 (.05)</td>
<td>2.80**</td>
</tr>
<tr>
<td>Management</td>
<td>.03</td>
<td>.06 (.07)</td>
<td>.86</td>
</tr>
<tr>
<td>ED Latent Factor</td>
<td>.25</td>
<td>1.04 (.20)</td>
<td>5.29***</td>
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**p < .01, ***p < .001

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Mennin, Halwany, Fresco et al. (2007) BT

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Residual Variable Psychopathology Model

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<tr>
<td>Intensity</td>
<td>-.14</td>
<td>-.22 (.05)</td>
<td>-4.34***</td>
</tr>
<tr>
<td>Understanding</td>
<td>.17</td>
<td>.45 (.09)</td>
<td>5.11***</td>
</tr>
<tr>
<td>Reactivity</td>
<td>.23</td>
<td>.33 (.05)</td>
<td>6.57***</td>
</tr>
<tr>
<td>Management</td>
<td>-.05</td>
<td>-.09 (.07)</td>
<td>-1.34</td>
</tr>
<tr>
<td>ED Latent Factor</td>
<td>.35</td>
<td>1.42 (.19)</td>
<td>7.29***</td>
</tr>
</tbody>
</table>

***p < .001

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Mennin, Halwany, Fresco et al. (2007) BT
STUDY 4: Induced Mood
MASQ: General Anxiety Symptoms
GAD Status x Induction Condition x Time
Contrast
$F(1,110) = 4.56, p < .05$
Mennin et al. (2005) BRAT

STUDY 4: Induced Mood
SMMS-MES Subscales (after Negative Mood Induction)
Mennin et al. (2005) BRAT

Emotion Regulation Therapy for GAD:
Integrating Emotion-Related Approaches
Using an Affect Science Framework
Yale University
Kent State University
Vanderbilt University
Conceptual Advances in GAD

- Avoidance Perspective on Worry (Barlow et al., 1984)
  - Worry promotes distance from immediate emotional state
- Recent Developments
  - Intolerance of Uncertainty (Segal et al., 2002)
  - Interpersonal Deficits (Swinna & Barlow, 1995; Silkman & Nezu, 1988)
  - Experiential Avoidance and Low Mindfulness (Reamer et al., 2003; in press)
  - Emotion-Related Deficits (Manus et al., 2001)
    - Heightened Intensity, Poor Understanding, Negative Cognitive Reactivity, Maladaptive Management

Therapeutic Advances in GAD

- CBT is efficacious in treating GAD (Barlow & Musia, 2002)
- However, approximately 40% do not achieve high end state functioning at follow-up (Barlow et al., 1992)
- Recent Developments
  - Cognitive Behavioral Therapies (Barlow & Musia, 2002)
  - Interpersonal and Emotion Processing Therapies (Barlow et al., 2001)
  - Acceptance Based Behavioral Therapies (Reamer & Orlinsky, 2002)
  - Emotion Regulation Therapy?

Emotion Regulation Therapy for GAD

- Affect Science Framework
  - Focus on the role of intense emotional reactions, elevated motivations to prevent (i.e., “security”), and diminished motivations to promote (i.e., “enhancement”)
  - Increasing mindful awareness and clarity of the full spectrum of emotional experiences
  - Flexibly balancing “allowing” and “managing” responses to emotions in congruence with both situations and personal values
  - Increasing healthier response-focused (i.e., “counteractive”) strategies and movement towards antecedent-focused (i.e., “proactive”) regulatory action (Barlow, 2002)
Emotion Regulation Therapy for GAD
Integrating Emotion-Based Interventions
- Traditional CBT (Turkson et al., 2000)
  - Skills training, exposure, diaphragmatic breathing/muscle work
- Mindfulness and Acceptance Behavior Therapies (Black et al., 2000; Segal et al., 2002)
  - Present awareness of emotion, willingness/allowance of emotional experience, valued action
- Dialectical Behavior Therapy (Linehan, 1993)
  - Balanced responding ("wise mind"), opposite action
- Process Experiential Therapy (Greenberg, 1990)
  - Confrontation of internal "splits" that impede growth and action

ERT for GAD
Four Phases (20 sessions)
- Phase I (4 Sessions)
  - Theme: Psychoeducation regarding reacting to emotions with intensity and motivations to obtain security
  - Skills training in mindful awareness of soma, sensations, and emotions (Kabat-Zinn, 1990; Segal et al., 2002)

ERT for GAD
Four Phases (20 sessions)
- Phase II (6 Sessions)
  - Theme: Counteractive rather than reactive responding to emotions
  - Skills training in flexible response balancing
    - Decentering/Meta-awareness (Segal et al., 2002)
    - Emotion allowance (Hayes et al., 1999)
    - Mindful emotion management (Linehan, 1993)
ERT for GAD
Four Phases (20 sessions)

- Phase III (6 sessions)
  - Theme: Proactive action and exploration
  - Experiential commitment to valued action (Hayes et al., 1999; Wilson & Murrell, 2004)
  - Experiential exposure to conflict themes that impede valued action (Elliot et al., 2004; Greenberg, 2002)
  - Skills application

ERT for GAD
Four Phases (20 sessions)

- Phase IV (4 Sessions)
  - Theme: Consolidation and termination
  - “Larger step” valued actions
  - Lapses and relapses (Buergers & Humphro, 2002)
  - Progress review

Open Trial
(Very) Preliminary Findings

- N=8 (of 14 clients in trial)
  - 100% Completed Phase II; 75% completed Phase III
  - Demographics: 75% women, 88% Caucasian; 35% unemployed; 63% had additional diagnoses
  - Pre-tx characteristics
    - PSWQ > 65, BDI-II > 16, ADHS CSR = 5, CGI Severity: 5
  - 0 dropouts (no fail)
  - Well tolerated
  - Clients’ mean session rating of helpfulness: 8 of 9
Preliminary Results: Latent Growth Model
Weekly Rating: PSWQ-Past Week (Sicher & Mitteness, 1998)
Slope = -4.62 (1.40), p = .005

Preliminary Results: Latent Growth Model
Weekly Rating: GAD-7 (Spitzer et al., 2001)
Slope = 1.25 (.47), p = .016

Preliminary Results: Latent Growth Model
Weekly Rating: STAI-T-2 (Spilberger et al., 1974)
Slope = 1.24 (.75), p = .096
Preliminary Results: Latent Growth Model
Weekly Rating: BDI-II (Beck et al., 1996)

Slope = 3.64 (1.53), p = .031

Conclusions and Future Directions

- Promising but preliminary results
- Affect science may have an important place among new wave of treatments for anxiety and mood disorders
- Currently finishing open trial and beginning a randomized control trial versus minimal attention waitlist control
- Further studies of the role of intensity and management in GAD are being conducted