


**NIH Toolbox**  
Assessment of Neurological and Behavioral Function

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# Emotion

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University of Pittsburgh Medical Center

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For more information, please visit: [www.nihtoolbox.org](http://www.nihtoolbox.org)  
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# Emotion Team

- **University of Pittsburgh Medical Center**
  - Paul Pilkonis, Jill Cyranowski, Morgen Kelly, Tara Moore, Catherine Maihoefer
- **Center on Outcomes, Research, and Education**
  - David Cella, Zeeshan Butt, John Salsman, Kathleen Swantek
- **Medical College of Wisconsin**
  - Mary Jo Kupst
- **Indiana University School of Medicine**
  - Hugh Hendrie
- **Westat**
  - Nick Zill
- **NIH**
  - Pim Brouwers, Kate Stoney, Sarah Knox

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# Consultants

<p><b>Negative Affect</b></p> <ul style="list-style-type: none"> <li>• David Watson</li> <li>• Kristin Buss</li> <li>• Maria Kovacs</li> <li>• Jerome Yesavage</li> </ul>	<p><b>Stress and Coping</b></p> <ul style="list-style-type: none"> <li>• Susan Folkman</li> <li>• Charles Carver</li> <li>• Susan Calkins</li> <li>• Bruce Compas</li> </ul>
<p><b>Positive Affect</b></p> <ul style="list-style-type: none"> <li>• Felicia Huppert</li> <li>• Dilip Jeste</li> <li>• Bruce Cuthbert</li> <li>• Margaret Briggs-Gowan</li> <li>• Alice Carter</li> </ul>	<p><b>Social Relationships</b></p> <ul style="list-style-type: none"> <li>• Sheldon Cohen</li> <li>• John Cacioppo</li> <li>• Teresa Seeman</li> <li>• Cindy Stifter</li> </ul>

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## Emotional Health



- Negative Affect
  - Paul Pilkonis (UPMC), *development at UPMC*
- Positive Affect
  - Hugh Hendrie (IU), *development at CORE*
- Stress and Coping
  - Mary Jo Kupst (MCW), *development at CORE*
- Social Relationships
  - Jill Cyranowski (UPMC), *development at UPMC*

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## Organizing Ideas



- Time course of emotion
  - Brief states (minutes to hours)
  - Moods (days to weeks)
  - Expressive patterns and temperaments (lifespan traits and "set points")
- Our focus = Moods
  - Intermediate time spans
  - Assessed primarily by self-report (PRO's)

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## Organizing Ideas



- Focus on emotional health and adaptation, not psychological impairment
- Independence of positive and negative affect
- Emotional distress as reflected in internalizing and externalizing forms
- Adaptive and communicative functions of emotion in a social species

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## Process to Develop Sub-domain Definitions



- Initial Request for Information (RFI)
- Literature review
- Expert input
  - Team members and consultants
  - Individual interviews with outside experts
- Draft definitions
  - NIH review
  - Consensus of team and consultants
- Approval of definitions

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### Negative Affect

- Sadness
- Fear
- Anger
- General Distress
- Apathy (*older adults*)

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### Positive Affect

- Positive feeling states
- Life satisfaction/Meaning

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## Stress and Coping

- Perceived stress
- Coping strategies
- Coping self-efficacy

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## Social Relationships

- Social support
- Loneliness
- Social network integration
- Social distress

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**Negative Affect**

- Sadness
- Fear
- Anger
- General distress
- Apathy

**Positive Affect**

- Positive feeling states
- Life satisfaction/ Meaning

**Stress and Coping**

- Perceived stress
- Coping strategies
- Coping self- efficacy

**Social Relationships**

- Social support
- Loneliness
- Social network integration
- Social distress

**Challenge:**  
**How to measure 14 things in 30 minutes?**

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## Options for Brief Assessment



- Available, off-the-shelf instruments
  - search in progress across the sub-domains

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## Sources of Instruments in Current Assessment Library



- Literature reviews
- Early-stage Request for Information (RFI)
- Early-stage Expert Interviews
- Consultant nominations

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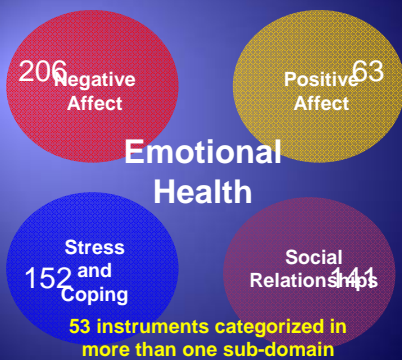
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## Instrument Library Contents



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## First-stage Review



- Proprietary instruments rejected
- Concept coverage
  - based on approved sub-domain definitions
- Ease of understanding/Literacy
- Self-report over proxy and observer (except children)
- Discounting of
  - diagnostic tools
  - long instruments

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## Negative Affect: Adult Self-Report



Subdomain Component (# of Items)	Recommended Measures (# of Items)
Depression (57)	1. CES-D: Center for Epidemiological Studies Depression Scale (20) 2. PHQ-9: Patient Health Questionnaire (9) 3. PROMIS Depression Item Bank (28)
Anxiety (63)	1. MASQ: Mood and Anxiety Symptom Questionnaire: Subscales for General Distress (Anxiety) and Anxious Arousal (28) 2. GAD-7: Generalized Anxiety Disorder (7) 3. PROMIS Anxiety Item Bank (28)
Anger (58)	1. BPAQ: Buss Perry Aggression Questionnaire (29) 2. PROMIS Anger Item Bank (29)
General Distress (26)	1. K6 Mental Health Scale (Kessler) (6) 2. PANAS: Positive and Negative Affect Schedule (20)
Apathy (18)	1. AES: Apathy Evaluation Scale (18)

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## Negative Affect: Pediatric Self-Report



Subdomain Component (# of Items)	Recommended Measures (# of Items)
Depression (46)	1. SMFQ: Short Mood and Feelings Questionnaire (13) 2. CES-DC: Center for Epidemiological Studies Depression Scale for Children (20) 3. PROMIS Pediatric Depression Item Bank (15)
Anxiety (54)	1. SCARED: Screen for Child Anxiety Related Disorders (41) 2. PROMIS Pediatric Anxiety Item Bank (14)
Anger (18)	1. AESC: Anger Expression Scale for Children (12) 2. PROMIS Pediatric Anger Item Bank (6)
General Distress (47)	1. PSC-17: Pediatric Symptom Checklist (17) 2. PANAS-C: Positive and Negative Affect Schedule for Children (30)

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## Next Steps



- Revisit apparent gaps in age- or concept-coverage with consultants
- Psychometric review of strong contenders
- Review and selection of instruments for Emotional Health Toolbox
- Wave 1 (Calibration) Testing

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## Options for Brief Assessment



- Available, off-the-shelf instruments
  - search in progress across the sub-domains
- IRT applications
  - Targeted short forms
  - Item banks/CAT

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## IRT



Item Response Theory (IRT) models enable reliable and precise measurement of PROs

- Fewer items needed for equal precision
  - Making assessment briefer
- More precision gained by adding items
  - Reducing error and sample size requirements
- Error is understood at the individual level
  - Enabling practical individual assessment

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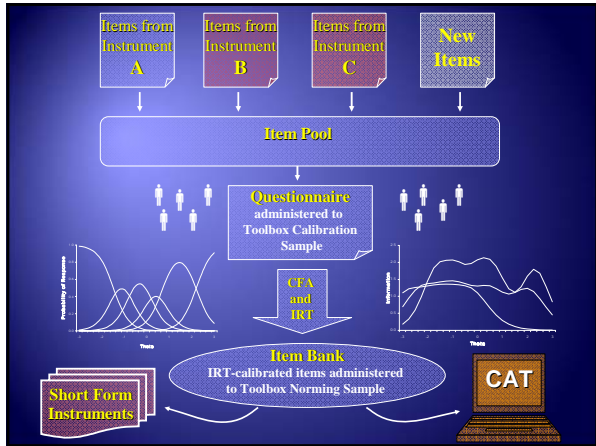
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In a traditional static form, participants would answer items sequentially until they completed all items.

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In an IRT-driven CAT, participants would see items selected on the basis of their response to the previous item, reducing the number of items needed for reliable measurement.

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PROMIS Item Bank v.1.0 - Emotional Distress - Depression Short Form 1

**Emotional Distress - Depression - Short Form 1**

Please respond to each item by marking one box per row.

In the past 7 days...

	Never	Rarely	Sometimes	Often	Always
1000000 I felt worthless.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
1000000 I felt that I had nothing to look forward to.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
1000000 I felt helpless.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
1000000 I felt sad.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
1000000 I felt like a failure.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
1000000 I felt depressed.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

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