

NIH Toolbox

Assessment of Neurological and Behavioral Function

www.nihtoolbox.org

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Volume 2 Issue 2

Cognition

Motor

EMOTION

Sensation



Pediatric Option Funding Approved

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I am pleased to report that the NIH Directors who make up the Neuroscience Blueprint have approved funding for the Toolbox pediatric option (the original contract assumed development of instruments from ages 3-85, but only funded validation and norming for these instruments for ages 18-85). We are now “full speed ahead” on the development, validation and norming of the Toolbox batteries across the lifespan. This is an affirmation on the part of the NIH that developmental conceptualizations are necessary for understanding etiology of chronic diseases in children and adults. Many chronic and physical illnesses begin in early childhood. Treatments, interventions and prevention targeting children may offer the best hope of reducing long-term morbidity. In order to understand developmental processes involved in illness etiology we need longitudinal research starting and targeting pediatric populations, and assessment of normative functioning across multiple domains of behavior.

While there are many pediatric assessments, particularly in the area of Cognition, and to some extent in the area of Emotional Function, they are expensive, normed on homogeneous non-diverse populations, not easily administered and they do not easily link up to their adult counterpart. For Motor and Sensation there is a paucity of instruments to assess healthy children. Further, in many of these domains there is a general reliance on proxy reporting. And where good measures are available, national norms are typically based upon Caucasian, English speaking samples. *continued on back page*

Emotion and the NIH Toolbox

In everyday terms, the word “emotion” evokes connotations of strong feelings, often negative and often distressing when they tax our capacity to maintain our poise. It is unpleasant when we are extended beyond our usual resources for coping, especially when such a challenge involves negative emotions. However, emotions can also be positive and bring well-being into our lives. The initial charge for the Toolbox was broader than an exclusive focus on negative emotion, or emotional distress. In fact, the original Request for Proposals alluded to several additional aspects of the experience and expression of emotion relevant to general health including the importance of positive as well as negative emotions, the role of attitudes and cognitions associated with positive psychological functioning (adaptability, resilience, and self-efficacy), and the importance of the interpersonal and social context in which emotions arise and may be expressed.

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Emotion - and the NIH Toolbox

Those of us on the Emotional Health Domain Team have been working to articulate and operationalize these themes in detail. Guided by a review of the literature, the Request for Information (RFI) survey of experts in the area of emotional health, follow-up interviews with a subset of these experts, and discussion within the Emotional Health Domain Team, we have identified four sub-domains that are central to the assessment of emotional health: Negative Affect, Positive Affect, Stress and Coping, and Social Relationships. (cont'd page 2)

Sub-domains:

Negative Affect (NA) is a phrase used to describe unpleasant feelings or emotions, which exist on a continuum ranging from common feelings of sadness, fear, and anger to more extreme indicators of these same affects. NA is understood to reflect both underlying dispositions ("Trait NA" - e.g., neuroticism, negative emotional style) and more transient negative feeling states ("State NA"). Our focus in the NA subdomain



will be on three principal emotions: sadness, fear and anger. We will also seek to assess a nonspecific factor of negative affect (general distress) because the three more specific emotions are often highly correlated and some measures do not distinguish clearly between them. Given the lifespan perspective of the Toolbox, special issues arise at both ends of the age distribution. For example, the use of parent report is planned for the youngest children (ages 3 to 8), and a measure of apathy will be added for older adults because this feature is associated with important health states in the geriatric population.

Positive Affect (PA) has been characterized as happiness, contentment, positive energy, sociability, and interest in pleasurable or achievement-relevant activities. Positive Affect has also been defined as pleasurable feelings such as joy, excitement, and enthusiasm. Some investigators regard PA as synonymous with overall feelings of life satisfaction, but



we believe that PA includes additional correlated, but distinctive, concepts. Measurement priorities for the PA sub-domain include positive feeling states (such as happiness), life satisfaction, and subjective well-being.

Assessment of **Stress & Coping (S&C)** focuses on individual perceptions about the nature of events and their relationship to the perceived coping resources of an individual. In general, psychological stress occurs when we perceive that environmental or internal demands that are personally meaningful exceed our adaptive capacity. Operationally, psychological stress is defined by an individual's reporting such overload of adaptive capacity. However, it has also been defined by the presence of a stressor regarded as taxing by consensus, for example, the death of a partner. The psychological definition of stress integrates the nature of the environmental threat and the coping capacities of the individual. Much attention has been paid to the classification of the cognitive and behavioral efforts to manage external or internal demands (i.e. coping), under the assumption that people who cope effectively with stressors should have better health outcomes than those who cope ineffectively. Measurement priorities for the S&C domain include perceived stress, coping strategies, and coping self-efficacy.

Recent 2008 Conference Presentations

June 24-27, 2008

Society of Epidemiologic
Research
Chicago, IL

Inga Wang PhD

*Development of Hierarchical
Model on Lifespan Motor Function
Assessment on Muscle
Strength Sub-domain*

Kathy Yost, PhD

*The NIH Toolbox for Assessing
Neurological and Behavioral
Function in Longitudinal Epidemiologic
Studies*

June 29-July 2, 2008

International Symposium on
Pediatric Neuro-Oncology
Chicago, IL

Jin-Shei Lai, PhD, OTR/L

*Assessing the Neurological and
Behavioral Function among
Disease Groups and Across the
Lifespan: The NIH Toolbox*

July 21-26, 2008

International Symposium on
Olfaction and Taste
San Francisco, CA

Pam Dalton, PhD

*Assessing the Prevalence
of Olfactory Dysfunction
in Pediatric Populations*

July 26-31, 2008

International Conference on
Alzheimer's Disease
Chicago, IL

Sandy Weintraub, PhD

*An introduction to the National
Institutes of Health (NIH) Tool-
box for Assessment of Neuro-
logical and Behavioral Function:
Cognition Domain*

David Cella, PhD

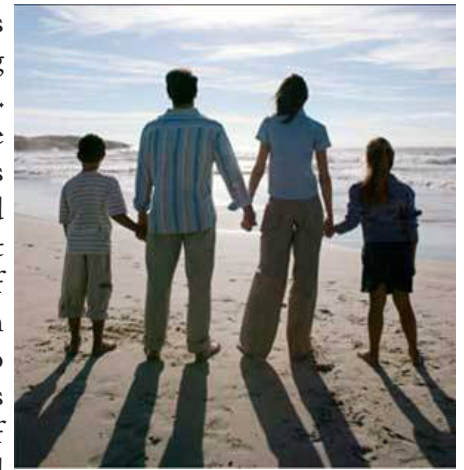
*Item Response Theory
& the Toolbox*

There are several important dimensions of **Social Relationships (SR)**, including their structure, extent, and quality. Associated with social relationships are several related yet distinguishable concepts including social support, loneliness, and social network integration. Social support is defined as the amount and quality of resources that an individual receives from social networks, especially the extent to which an individual views social networks as available to provide aid in times of need. These resources can be categorized into emotional, informational, and instrumental support and are thought to act as buffers against stress--protecting people from the potential pathogenic effects of stressful events. Loneliness refers to the extent to which people perceive themselves to be disconnected from a social network or to have a social network that is unresponsive to their needs. Social network integration, in contrast, refers to the extent of one's participation in a variety of current social relationships. It can be viewed as a continuum with social integration on one end and social isolation on the other.

These conceptual definitions guided our next task--identification of candidate measures to assess the key concepts in each sub-domain. We developed a catalog of nearly 500 instruments from our literature reviews, the RFI survey, interviews with experts, and nominations from our consultants. The Team then conducted an initial review of instruments to eliminate those with obvious intellectual property restrictions. Also considered in the initial review were issues of test length, concept coverage, and suitability for self-report (or proxy report for young children). Instruments with a diagnostic focus were also eliminated as part of this review because of the Toolbox focus on assessing these constructs across the entire continuum of functioning.

With an eye towards being able to provide free-for-use items and measures, the instruments that were retained in the initial round of review have received further attention with respect to issues of intellectual property. To that end, we have contacted authors (and in some cases, journal publishers) of nearly 200 instruments for permission to use their scales (in part or in entirety) in the Toolbox.

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Pediatric Option Funded

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The Pediatric Assessment in Toolbox will be based upon current thinking in neuroscience and allow measurement of constructs through developmental ages and across the lifespan. These tools will provide validated measures that are brief, reliable, and normed across diverse populations.

Emotion - and the Toolbox

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It has been encouraging that the majority of those authors contacted have provided permission without restriction.

We are now poised for another round of review to determine which free-for-use instruments hold the most promise for assessing the emotional health concepts of interest. Where there are gaps in our ability to assess across the conceptual space or across the lifespan, we will consider innovative approaches to measurement, such as the development of item banks (rather than the use of existing instruments) and the calibration of such banks using models from item response theory.

We look forward to the continuing conceptual and practical challenges of identifying user-friendly instruments that allow us to assess the sub-domains of emotional health in efficient ways.

“Building the Toolbox” Conference

October 27, 2008
Bethesda Marriott Hotel
& Conference Center

- Introduction to the Toolbox and the NIH Blueprint
- What Toolbox Promises
- Toolbox Domains

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On-line registration now open. Accepting abstracts.
www.nihtoolbox.org

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