


NIH Toolbox
Assessment of Neurological and Behavioral Function

Integrating Health Information into Longitudinal Studies


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For more information, please visit www.nihtoolbox.org
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Integrating Health Information into Longitudinal Studies



- ◆ Need for the Toolbox: Review of CEHP
- ◆ Characteristics of the Toolbox instruments
- ◆ Potential Use of the Toolbox

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Trans NIH Cognitive & Emotional Health Project



Goal – to assess the state of longitudinal and epidemiological research on demographic, social, and biological determinants of cognitive and emotional health ... to determine how these pathways reciprocally influence each other.

Critical Evaluation Study Committee



Marilyn Albert <i>John Hopkins</i>	Hugh C. Hendrie Committee Chair <i>Indiana University</i>	Sujuan Gao <i>Indiana University</i>
David Knopman <i>Mayo Clinic</i>	Kristine Yaffe <i>University of California at San Francisco</i>	
Meryl Butters <i>University of Pittsburgh</i>	Lenore Launer <i>NIA Intramural</i>	
Bruce Cuthbert <i>NIMH</i>	Emmeline Edwards <i>NINDS</i>	
	Molly Wagster <i>NIA</i>	

Outcome Focus of the CEHP Review



- Cognitive outcomes-cognitive performance/cognitive decline
- Emotional outcomes-depressive/anxiety symptoms, mastery/resilience

Data Source for Longitudinal Studies



- NIH database of large epidemiological studies (n=80)

Final Criteria for Inclusion into the Analyses on Cognitive and Emotional Outcomes

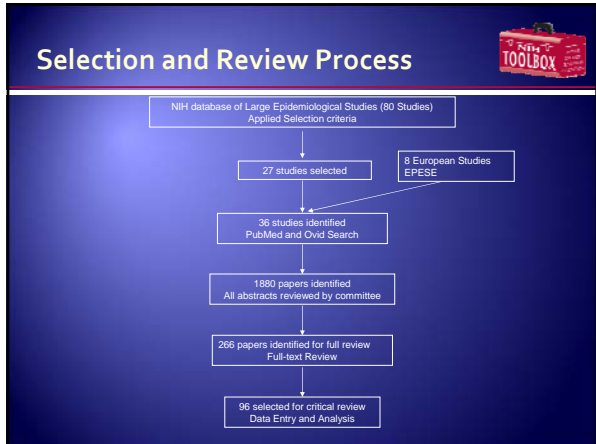


- Sample size > 500
- Age predominantly 65 and over
- Longitudinal in design
 - At least one follow up evaluation of cognitive function, OR
 - Single evaluation of cognitive function with exposure measured a certain year prior to cognitive function
- Measurement of memory and at least one other cognitive domain

Final Criteria for Inclusion into the Analyses on Cognitive and Emotional Outcomes (cont'd)



- Measurement of depression symptoms and at least one other domain such as quality of life, sense of control, self-efficacy, resilience, hopelessness or optimism
- For emotional outcomes, cross-sectional studies were also included



Healthy Brain Review Cognitive Outcomes

Table 1. Number of Papers with various cognitive outcomes (total number of papers = 70)

Cognitive Outcomes	Frequency	Percent
3MS	12	17.14
Attention	5	7.14
Composite Cognitive	10	14.29
Executive Function	4	5.71
Memory Self-Report	1	1.43
Memory Verbal	11	15.71
MMSI	11	15.71
Other Global	16	22.86

Healthy Brain Review Emotional Outcomes

Table 2. Number of Papers with Emotional Outcomes (total number of papers = 34)

Original Outcome Measures in the DB	Frequency	Percent
Anxiety	3	8.82
Depression	21	61.76
Dysphoria	2	5.88
GAD	1	2.94
Major Depression	1	2.94
Mastery	1	2.94
Negative Affect	3	8.82
Panic Attack(s)	1	2.94
Subjective/Emotional Well Being	1	2.94

Conclusions from CEHP Review



- Widespread public interest
- A different set or combination of risk factors (or different emphases) may be identified than those from illness-focused research
- Research in brain health maintenance should be pursued with vigor
- Health Promotion and Disease Prevention are complimentary
- **Cognitive and Emotional health must be studied simultaneously**

Suggestions from CEHP Review



1. Secondary Analysis
 - Funding
 - Access to data – manageable format
 - Combined analysis – harmonization
 - Support structure
 - Ongoing analysis of published data
 - Combined cognitive and emotional outcomes

Suggestions from CEHP Review



2. Development of standard questionnaires
 - Formation of expert committee
 - Formation of research team to test reliability and validity

Suggestions from CEHP Review



6. Prevention trials

- Addition of cognitive and emotional outcomes to ongoing trials

7. Changing the paradigm

- Biomedical with social scientists, bioethics and others

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Measurement Characteristics



- Comprehensive
- Administration and length
- Sensitive to detecting change over time
- Measurement across the life span

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Toolbox as an outcome



Toolbox as a risk factor



Potential Uses of the Toolbox



- Add dimensions to ongoing large cohort health-related studies both for risk/modifying factors and for outcomes
- Add dimension to ongoing prevention trials
- Complement studies of cognition/emotion
- Allow comparisons between studies
- Encourage the use of ongoing systematic reviews

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