

Cognitive Aging: Opportunities and Challenges in the CLSA

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Cognition in the context of the CLSA

- Life course perspective
 - Lifelong adaptation
 - Multiple Factors
 - Individual (biological, psychological, behavioral)
 - Environments (Physical, relational, societal)
- Themes
 - Working Groups
 - Key domains
- Integration across themes

Cognition in the context of the CLSA

- Psychology Theme
 - Working Group
 - Developmental Psychology
 - Health Psychology
 - Neuropsychology
 - Social Psychology

Cognition in the context of the CLSA

- Psychology Domains
 - Cognition
 - Mood
 - Affective balance
 - Personality
 - Life satisfaction
 - Self-efficacy

Cognition in the context of the CLSA

- Psychology Domains
 - Cognition
 - Mood
 - Life satisfaction
 - Coping
 - Psychopathology (distress)

Cognition in the context of the CLSA

- Viewed as:
 - Antecedents
 - Mediators
 - Outcomes

Cognition in the context of the CLSA

- Relevant to:
 - Health conditions and behaviors
 - Everyday functioning/competence
 - Quality of life
 - Family and social relations
 - Work and retirement

Cognition in the context of the CLSA

- COGNITION
 - Cognitive aging
 - Age-associated cognitive disorders
 - Requisite for adaptive functions

Cognition in the context of the CLSA

- Memory
- Executive Functions
- Psychomotor Speed

Selection of cognitive measures

- Selection of measures appropriate for use with the CLSA target population (i.e., adults aged 40-84).
 - Factors to consider:
 - a) age of the participants
 - b) survey time constraints
 - c) sensitivity of the measures to change
 - d) issues related to order of presentation of measures
 - e) need to develop alternate forms
 - f) issues relevant to the translation of these measures into French and possibly other languages.

Selection of cognitive measures

- Cognitive measurement
- Performance versus self- report measures

CLSA Measures of Cognition

- Memory-
 - Rey Auditory Verbal Learning Test (RAVLT)
– (Trial 1 and Delay Trial)
- Executive Function –
 - Mental Alteration Test (MAT) – Subgroup with Trial
 - Prospective Memory Test (PMT)
 - Stroop Neuropsychological Screening Test (??)
 - Letter Word Naming (Controlled Oral Word Association Test, FAS)
 - Verbal fluency (category)
- Psychomotor Speed –
 - Simple and Choice Reaction Times (RTs)
- Underlined instruments to be collected as part of CCHS/CLSA, all instruments to be collected in comprehensive CLSA.

Opportunities

- Cognition at baseline
 - Description of sample

Opportunities

- Cognition over time
 - Precursor
 - Mediator
 - Outcome

Cognition as a precursor

- Cognitive functioning, in one or more cognitive domains, relevant to:
 - the development of brain disorders such as Alzheimer's disease
 - well-being
 - the need for care
 - utilization of health services
 - social engagement

Cognition as Mediator

- Cognitive functioning, in one of more domains, acts as mediator between:
 - SES and health
 - recovery from illness

Cognition as an Outcome

- Lifestyle factors influence the developmental trajectory of cognitive functioning
 - physical fitness and
 - executive functioning
 - working memory
 - attention
 - patterns of cognitive decline psychomotor speed, control processes, visuo-spatial functions

Cognition as an Outcome

- Biological factors influence the developmental trajectory of cognitive functioning
 - genetic variants increase risk for Alzheimer's disease, cerebrovascular dementia
 - genes related to specific cognitive functions (executive function, episodic memory visuospatial skills)
 - some gene variants appear to be protective for cognition
 - gene environment interactions increase the risk of cognitive decline

Opportunities

- Cognition over time
 - cross-study comparisons and integration of research findings across studies

Challenges

- Cognition in the CLSA
 - Brevity of measurement
 - Domains assessed
 - Strength of measures
 - Intent of measures
 - Characteristics of measures
 - Commonly used versus something new
 - Multi-lingual
 - Sensitivity to change

Challenges

- Cognition in the CLSA
 - Nature of measurement
 - Performance
 - Standard administration requiring training
 - Standard scoring requiring training
 - Context of study
 - Subcomponent competition
 - Staff familiarity with measures and approaches
 - Participant Burden

Overcoming the Challenges

- Supplement with spin-off studies that link the brief measures we have with other measures
- Examine how measures function at different points in the life course and over time
- Examine whether we chose the “right” measures for different purposes
- Examine issues relevant to language of administration
- Examine how best to identify “impairment”

CCHS Validation work

- CCHS- Healthy Aging (2009)
 - RAVLT Trial 1, immediate recall
 - RAVLT delayed recall (5 minutes)
 - Verbal Fluency (Animal Naming)
 - Mental Alternations Test

 - Response rate 62.3%

CCHS Validation work

- CCHS- Healthy Aging (2009)
 - Response rate 62.3%
 - RAVLT Trial 1, immediate recall – 85.9%
 - RAVLT delayed recall (5 minutes) – 75.5%
 - Verbal Fluency (Animal Naming) – 92.6%
 - Mental Alternations Test – 90.0%

CCHS Validation work

- CCHS- Healthy Aging (2009)
 - Analytic approach
 - T-scores controlling for age, sex and education
 - T-scores assigned (5 categories)
 - Stratum-specific likelihood ratios
 - Multinomial logistic regression
 - Subgroup analyses
 - 45-64 years; 65 +
 - English, French

CCHS Validation work

- CCHS- Healthy Aging (2009)
 - Categories of cognitive functioning can be described in CCHS
 - Cognitive functioning not associated with depression
 - Cognitive functioning not associated with presence of vascular disorders
 - Cut-point for impairment may underestimate prevalence

Cognition in the context of the CLSA

- Process and selection of cognitive measures
 - Cognitive aging
 - Age-associated cognitive disorders
 - Requisite for adaptive functions
- Domains
 - Memory
 - Executive Functions
 - Psychomotor Speed

Cognition in the context of the CLSA

- Opportunities
 - Cognition at baseline
 - Description of sample
 - Cognition over time
 - Precursor
 - Mediator
 - Outcome
 - Cross-study comparisons and integration

Cognition in the context of the CLSA

- Challenges
 - Brevity, and characteristics of the measures
 - Nature of the measurement
 - Context of the study
- Overcoming the challenges
 - CCHR validation work
 - The future!