Applying DDI to a Longitudinal Study of Aging
Overview of Presentation

- Content of MIDUS
  - Importance of DDI as Data Management
- Process of Creating MIDUS DDI Instances
  - Moving from DDI 2 to DDI 3
MIDUS (Midlife in the U.S.)

Advancing Knowledge of Factors That Promote Positive Health and Resilience

MID-LIFE IN THE UNITED STATES
A National Study of Health and Well-Being

MIDUS (Midlife in the U.S.) is a national longitudinal study of how many factors (behavioral, social, psychological, biological, neurological) come together to influence health and well-being as people age from early adulthood into midlife and old age. It was conceived by a multidisciplinary team of scholars interested in understanding aging as an integrative process.

MIDUS Samples

In 1995, MIDUS survey data were collected from a total of 7,108 participants. The baseline sample was comprised of individuals from four subsamples: (1) a national RDD (random digit dialing) sample (n=3,487); (2) oversamples from

Baseline: 1995-96
• Harvard
• MacArthur Found.
• N=7,108
• Twins/Siblings

Followup: 2004-05
• UW-Madison
• NIA
• Expanded content
• N=4,963 (75%)
MIDUS: Strengths and Complexities

✓ Multidisciplinary content
✓ Innovative design
✓ Multi-site data collection
PROJECT 1
(SURVEY OF A NATIONAL SAMPLE)

Assessed a wide array of psychological constructs (e.g., personality, psychological well-being, positive and negative affect, sense of control, goal orientations) and demographic characteristics (e.g., gender, marital status, socioeconomic standing, employment status), along with extensive health measures (mental and physical).

MODE: 30-minute Phone Interview and Two 50-page Self-Administered Questionnaires

THE MIDUS II PROJECTS

PROJECT 2
(Daily Diary Study)
8 days of daily experience obtained via phone interviews. (e.g., time use, physical health symptoms and substance use, work productivity, psychological distress)
4 days of salivary cortisol

PROJECT 3
(Cognitive Functioning)
Phone-based cognitive battery (e.g., episodic verbal memory, working memory, verbal ability and speed, fluid intelligence/reasoning, speed of processing, episodic verbal memory/forgetting)
Face-to-face assessment of cognitive capacities

PROJECT 4
(Biomarkers)
2-Day Clinic Visit: Biomarkers—neuroendocrine, cardiovascular, immune, bone
Physical exam
Medical history
Medications
Sleep assessments
Laboratory challenge study—heart-rate variability, blood pressure, cortisol

PROJECT 5
(Neuroscience)
Affective reactivity & recovery:
• baseline electroencephalography (EEG)
• task-related EEG
• task-related electromyography (EMG; eyelink startle response, post auricular startle reflex, corrugator supercili activity)
• structural MRI of neuroanatomy
• task event-related fMRI
MIDUS 2
Longitudinal Multi-project Participation

M1 Survey
N=7,108

M2 Survey
N=5,555

Cognition
N=4,512

Biomarker
n=1,255

Daily Stress
N=2,022

n=1,152

n=1,011

Neuroscience
n=332
MIDUS: Strengths and Complexities

✓ Multidisciplinary content
  ✓ Aging as integrated bio-psycho-social process
✓ Innovative design
  ✓ Multi-site data collection
✓ Wide age range
  ✓ 25-74 baseline, ≈10 year wave interval
✓ Multiple sample cohorts
MIDUS
Samples and Timelines

MIDUS 1 Sample (N=7,108)

Main RDD  Siblings  Twins

1995  2005  2015
MIDUS Samples and Timelines
MIDUS Samples and Timelines
MIDUS Samples and Timelines

1995 2005 2015
MIDUS Samples and Timelines

1995

2005

2015
Multiple Longitudinal Sample Cohorts
MIDUS: Strengths and Complexities

- Multidisciplinary content
  - Aging as integrated bio-psycho-social process
- Innovative design
  - Multi-site data collection
- Wide age range
  - 25-74 baseline, ≈10 year wave interval
- Multiple sample cohorts
- Use of data – collaborative philosophy
  - 450+ publications, top 10 data download (ICPSR)
### MIDUS I MAIN MAIL QUESTIONNAIRE: SECTION A

<table>
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<th>Question/Description</th>
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<th>Female</th>
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<td>Using a scale from 0 to 10 where 0 means &quot;the worst possible health&quot; and 10 means &quot;the best possible health,&quot; how would you rate your health these days? (See &quot;Documentation of Scales.rtf&quot;)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>0  WORST</td>
<td>2</td>
<td>6</td>
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<tr>
<td></td>
<td></td>
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<td>4</td>
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<td></td>
<td>10  BEST</td>
<td>102</td>
<td>135</td>
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<tr>
<td></td>
<td></td>
<td>98  REFUSED/MISSING</td>
<td>8</td>
<td>10</td>
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<td>.  SYSTEM-MISSING (Did not complete SAQ)</td>
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Advantages of DDI/XML

- Web fodder, online archives, ICPSR support
  - Web standard for data exchange
  - Integrate all electronic documentation
- XML human and machine-readable, self-describing
  - Interoperability, no licenses
  - Hierarchical, extensible
- Learning curve, cost/time efficiencies
MIDUS 2 DDI Codebooks

- UW Implementation
  - With Hyperlinks
- ICPSR Implementation
MIDUS DDI 2 Codebooks

- http://midus1-project1.ssc.wisc.edu/
- http://midus2-project1.ssc.wisc.edu/
- http://midus2-project2.ssc.wisc.edu/
- http://midus2-project3.ssc.wisc.edu/
- http://midus2-project4.ssc.wisc.edu/
- http://midus2-project5.ssc.wisc.edu/
- http://midus2-project1.ssc.wisc.edu/milwaukee/
- http://midus2-project1.ssc.wisc.edu/midja/
MIDUS DDI 3 Repository

http://midus.colectica.org/
Mapping MIDUS to DDI 3

- Joint project between MIDUS and Colectica
- Approximately 1 month timeframe
- Main tool: Colectica
  - Repository
  - Designer
  - SDK
Mapping MIDUS to DDI 3

<table>
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<td>Spreadsheets</td>
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<td>CAI Source Code</td>
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Resulting Documentation
Thank you

Barry Radler – UW-Madison (bradler@wisc.edu)
Jeremy Iverson – Colectica (jeremy@colectica.com)
Dan Smith-Colectica (dan@colectica.com)

midus.wisc.edu

www.colectica.com