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

Unique Strengths of the MIDUS Study

In-depth multidisciplinary content *achieved via 5 separate data collection projects*

Wide age range (25–74) *facilitates focus on life course transitions*

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

In addition, the twin subsample was administered a short screener to assess zygosity and other twin-specific information.

With funding provided by the National Institute on Aging, a longitudinal fol-

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

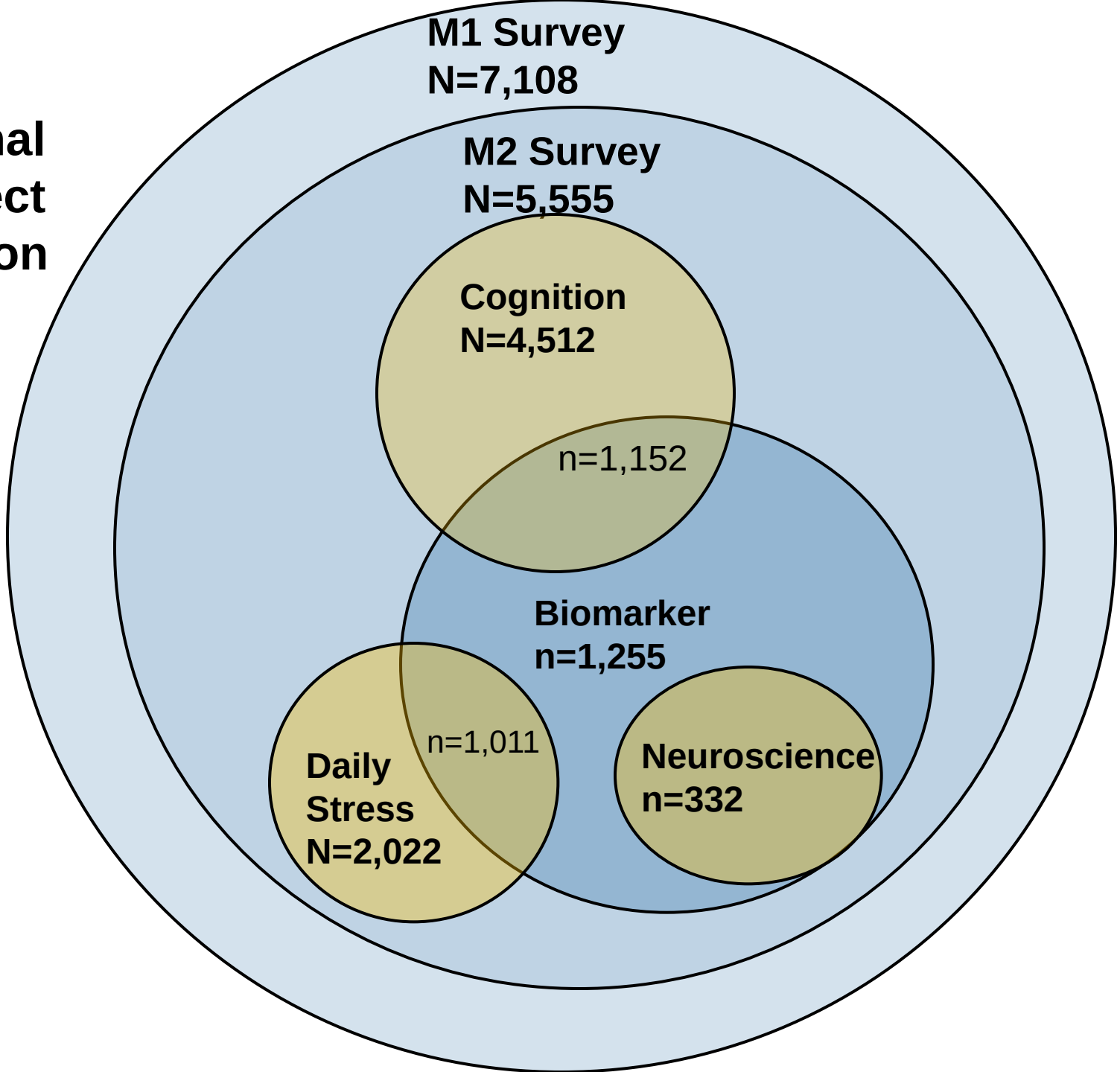
PROJECT 5

(Neuroscience)

Affective reactivity & recovery:

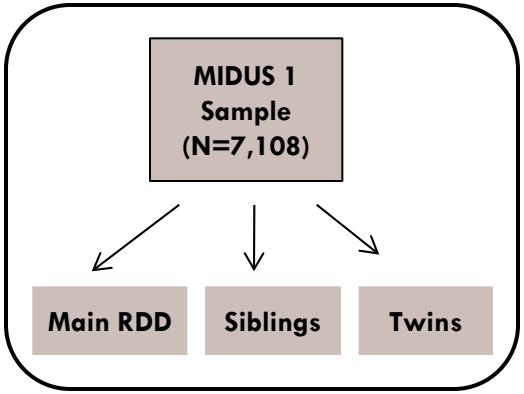
- baseline electroencephalography (EEG)
- task-related EEG
- task-related electromyography (EMG; eyeblink startle response, post auricular startle reflex, corrugator supercilli activity)
- structural MRI of neuroanatomy
- task event-related fMRI

MIDUS 2 Longitudinal Multi-project Participation



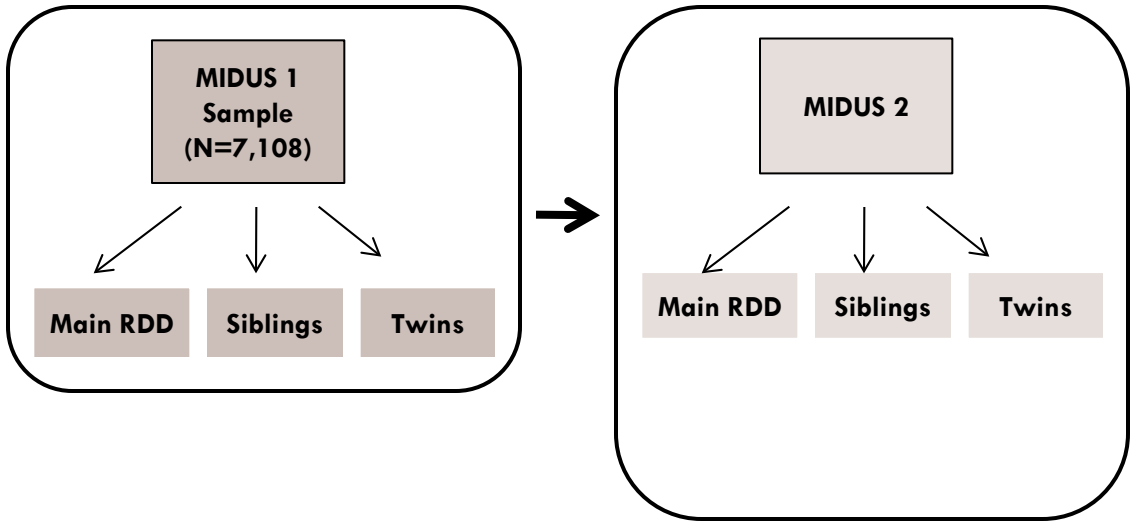
MIDUS: Strengths and Complexities

- ✓ 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**

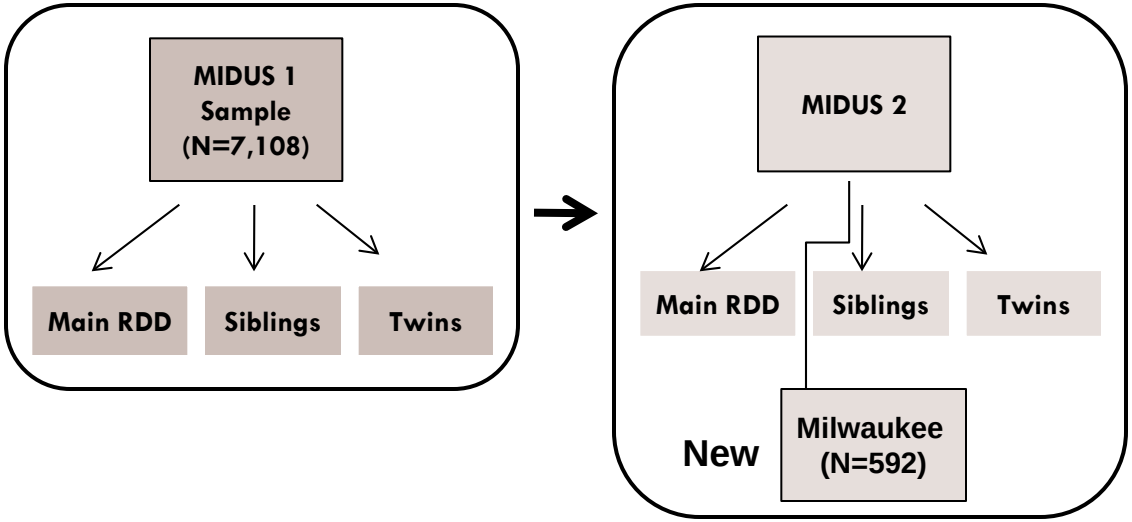


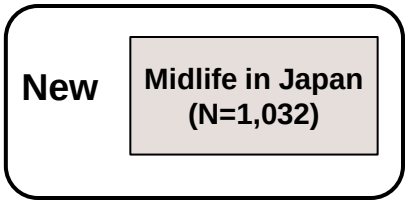
MIDUS Samples and Timelines

1995 2005 2015



MIDUS Samples and Timelines





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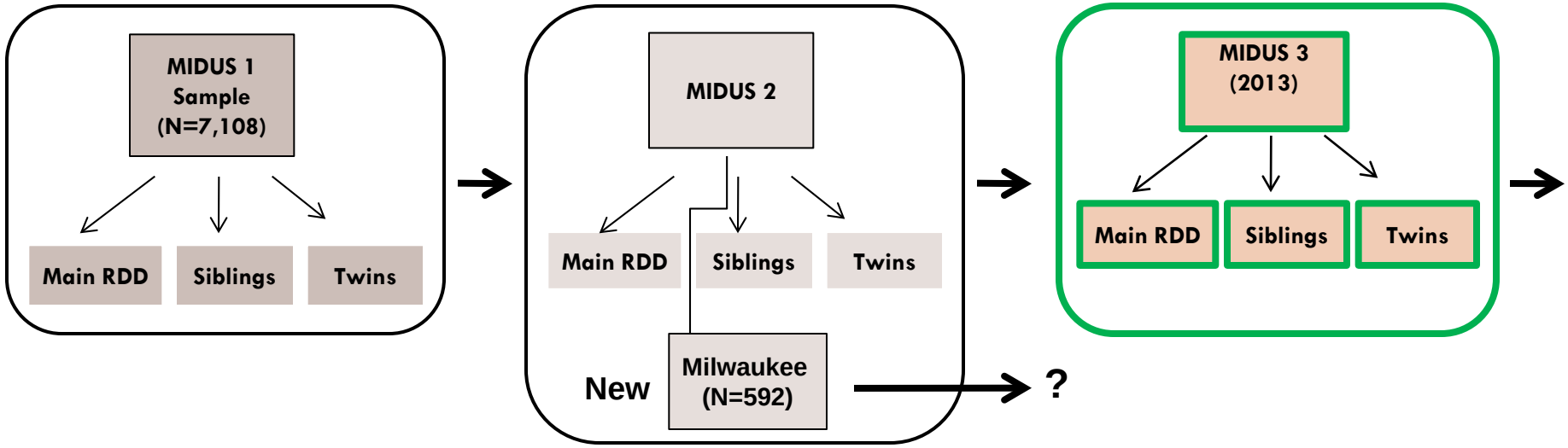

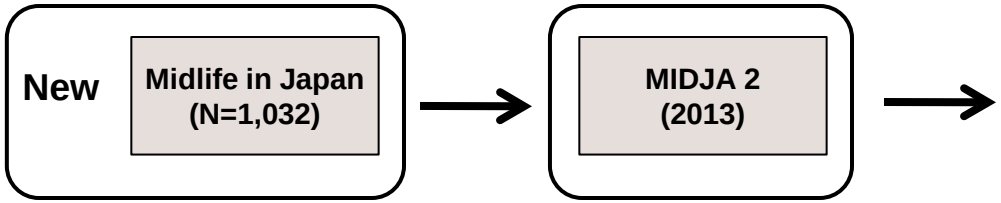

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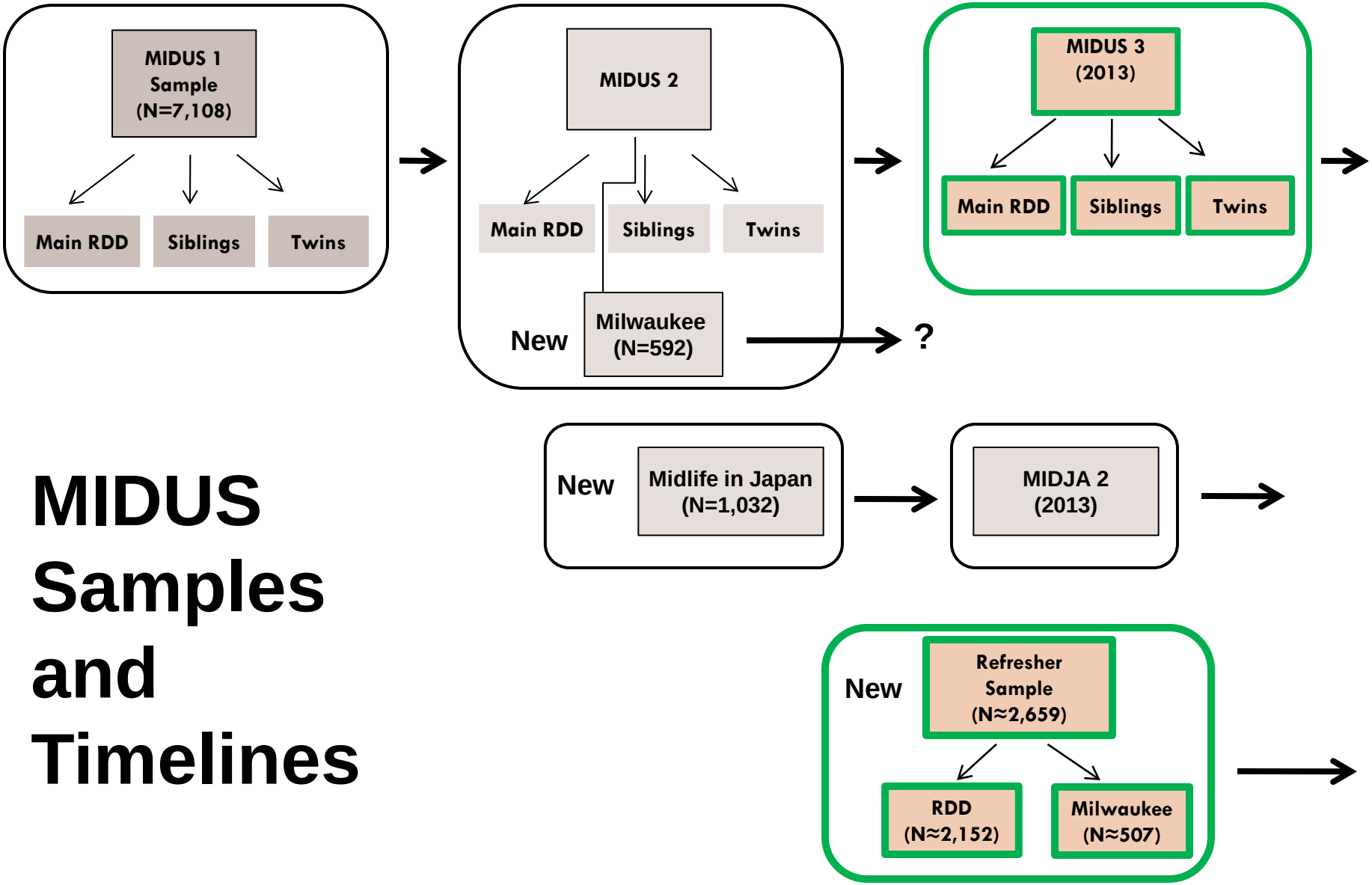
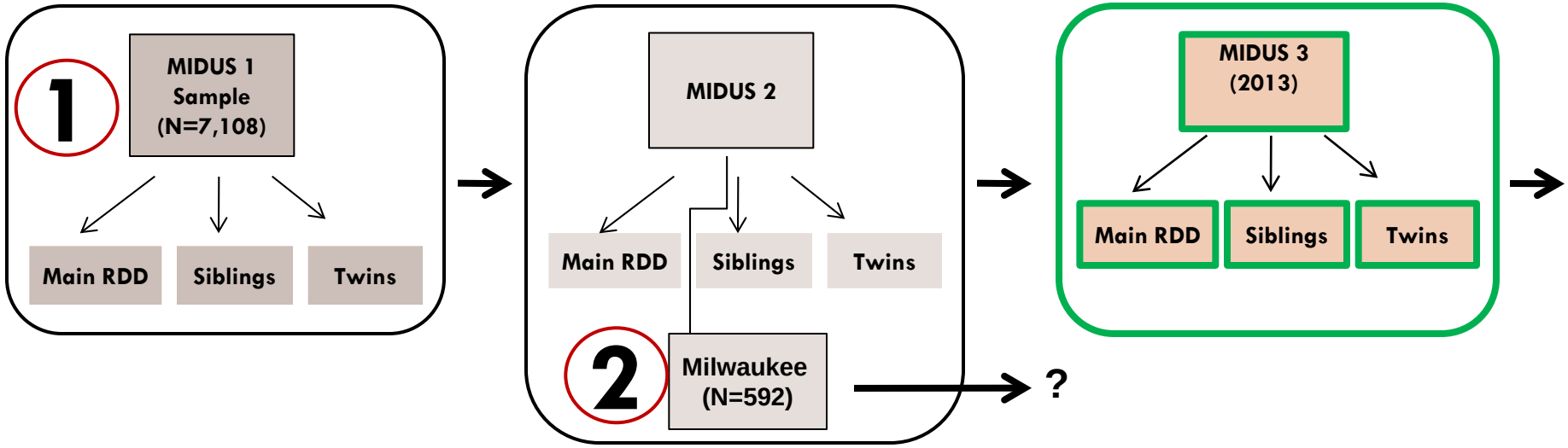
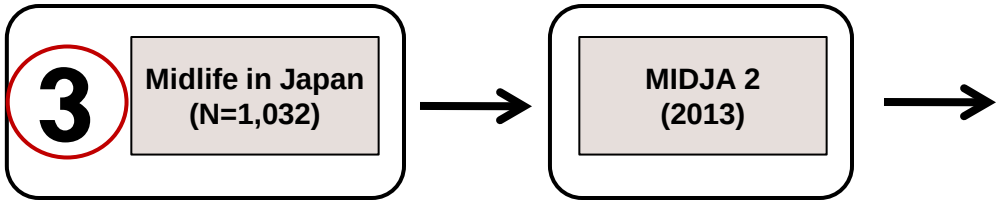
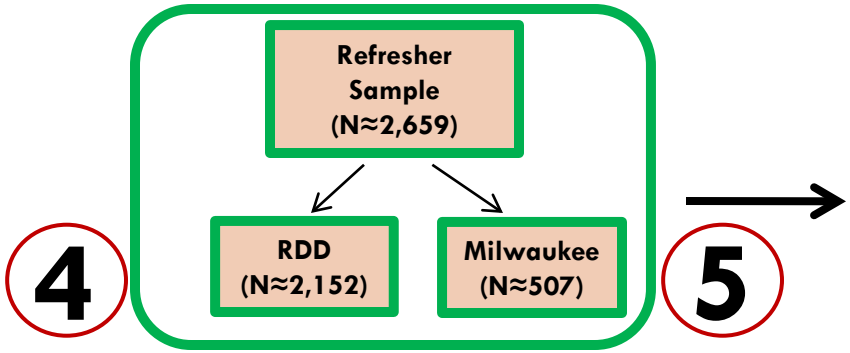




Multiple Longitudinal Sample Cohorts





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)**

Old MIDUS 1 Codebook

MIDUS I MAIN MAIL QUESTIONNAIRE: SECTION A

Var Position	Var Name/ Question #	Question/Description	Frequencies	
977				
	SA1	Using a scale from 0 to 10 where 0 means "the worst possible health" and 10 means "the best possible health," how would you rate your health these days? (See "Documentation of Scales.rtf")	Male	Female
		0 WORST	2	6
		1	4	9
		2	6	4
		3	31	34
		4	54	61
		5	134	179
		6	172	157
		7	433	381
		8	622	548
		9	278	320
		10 BEST	102	135
		98 REFUSED/MISSING	8	10
		. SYSTEM-MISSING (Did not complete SAQ)	309	243

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
  - Interoperabiltiy, 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/

MIDUS Documentation

- Data Files
- Web Codebooks and Documentation
- DDI 2
- Spreadsheets
- Survey Source Code
- PDFs

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

Source	DDI 3 Mapping
Data Files	PhysicalInstance, Variable, VariableStatistics

Mapping MIDUS to DDI 3

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Data Files	PhysicalInstance, Variable, VariableStatistics
Web documents and Codebooks	StudyUnit, FundingInformation, OtherMaterial

Mapping MIDUS to DDI 3

Source	DDI 3 Mapping
Data Files	PhysicalInstance, Variable, VariableStatistics
Web documents and Codebooks	StudyUnit, FundingInformation, OtherMaterial
DDI 2	PhysicalInstance, Variable, QuestionItem, VariableStatistics

Mapping MIDUS to DDI 3

Source	DDI 3 Mapping
Data Files	PhysicalInstance, Variable, VariableStatistics
Web documents and Codebooks	StudyUnit, FundingInformation, OtherMaterial
DDI 2	PhysicalInstance, Variable, QuestionItem, VariableStatistics
Spreadsheets	Variable, QuestionItem

Mapping MIDUS to DDI 3

Source	DDI 3 Mapping
Data Files	PhysicalInstance, Variable, VariableStatistics
Web documents and Codebooks	StudyUnit, FundingInformation, OtherMaterial
DDI 2	PhysicalInstance, Variable, QuestionItem, VariableStatistics
Spreadsheets	Variable, QuestionItem
CAI Source Code	Instrument, QuestionItem, ControlConstructSequence

Mapping MIDUS to DDI 3

Source	DDI 3 Mapping
Data Files	PhysicalInstance, Variable, VariableStatistics
Web documents and Codebooks	StudyUnit, FundingInformation, OtherMaterial
DDI 2	PhysicalInstance, Variable, QuestionItem, VariableStatistics
Spreadsheets	Variable, QuestionItem
CAI Source Code	Instrument, QuestionItem, ControlConstructSequence
PDF Documents	OtherMaterial

Resulting Documentation

Thank you

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