National Health & Aging Trends Study

how daily life changes as we age

Introduction to the National Health and Aging Trends Study (NHATS)

Jennifer A. Schrack, PhD

Maureen Skehan, MSPH

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Vision for NHATS

- A platform for scientific inquiry to guide efforts to reduce disability, maximize functioning, and enhance quality of life for older Americans

- Study design that supports the study of _disability trends and dynamics_ in older people

- Broad, multidisciplinary input from scientific community through multiple mechanisms

- Dissemination as a key component

NHATS Background

- First awarded in 2008 under a cooperative agreement with NIA
  - Now entering its 4th cycle
- Study population: Medicare beneficiaries aged 65 and older
- Frame: CMS Medicare enrollment file (100% match to claims)

Key Features of NHATS

- Design
  - Annual, in-person panel study, with periodic cohort replenishment (2015, 2022/2023)
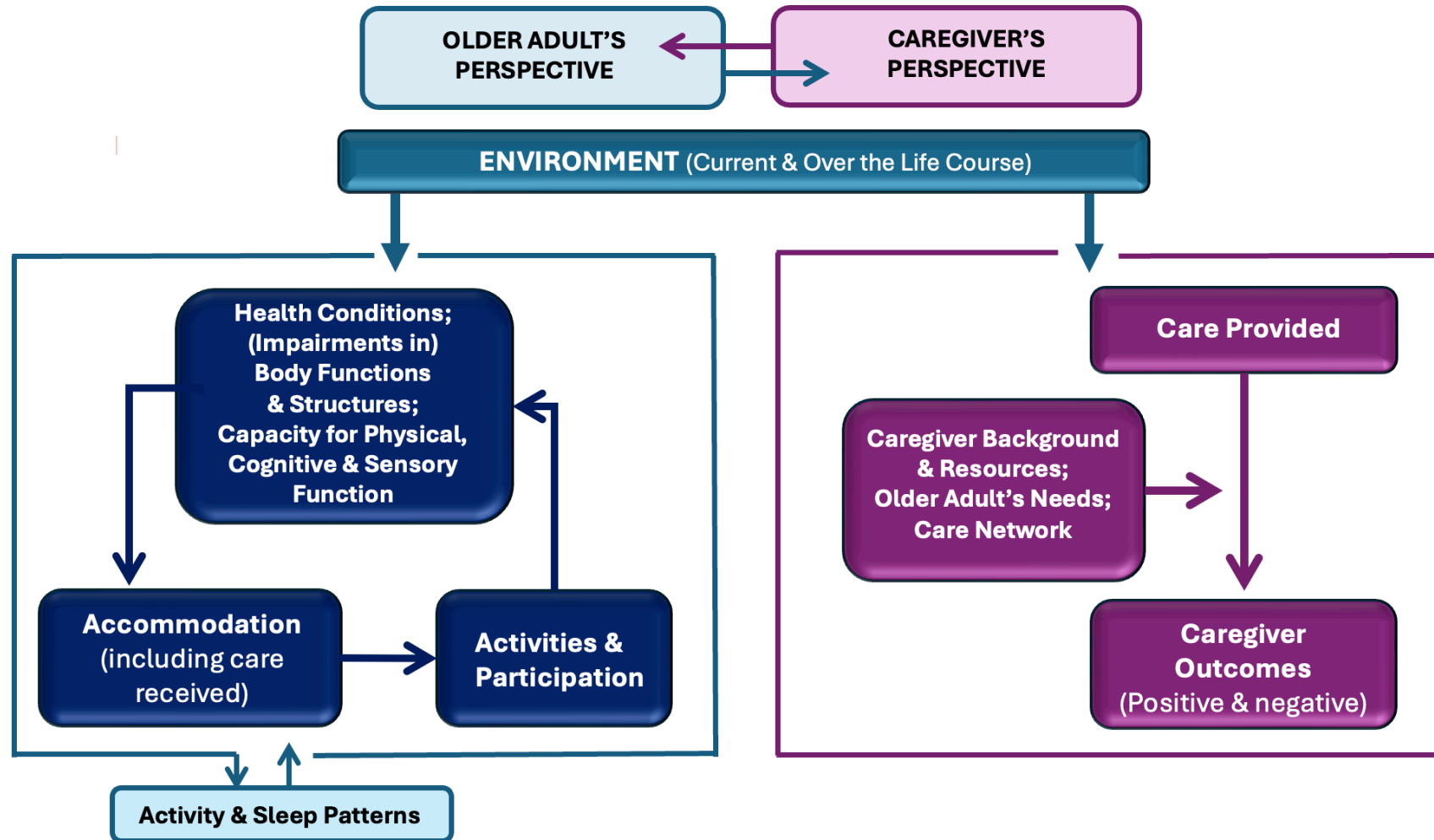 - Oversample older, Black, & (in 2022/2023) Hispanic individuals
- Content
  - Guided by a conceptual framework for late-life disablement and its components
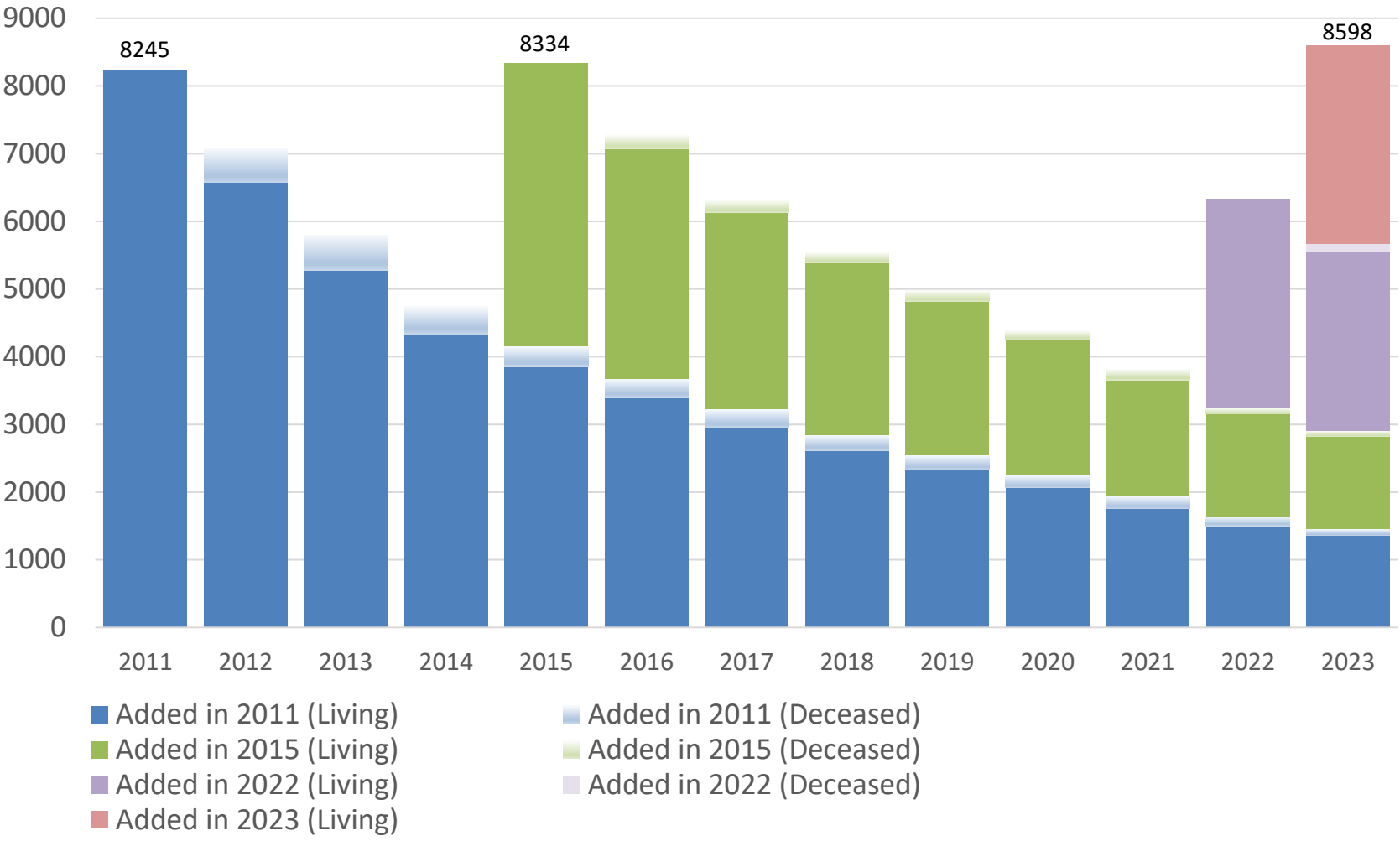   - Capacity, environment, compensatory strategies
- Data release
  - Annual release of well-documented data files & documentation

NHATS/ NSOC Late Life Disability and Care Framework

NHATS Sample by Round and Cohort

Core Data Collection Instruments

- Sample Person (SP) interview
  - Completed with participant (93%-94%) or proxy respondent (6%-7%)
  - Physical performance & cognitive testing, hearing, vision, CogState (R11-13), Accelerometry (subset)
- Facility Questionnaire (FQ)
  - Completed with a staff person
  - Obtains information on: levels of care, services provided/available, and cost of care
- Last Month of Life interview (LML)
  - Introduced in R2
  - Conducted with a proxy respondent

NHATS Core Assessments

Residence (RE)	Cognitive Assessments (CG)	Early Life (EL)
Health Conditions/Utilization (HC)	Mobility (MO)	Smoking (SD)
Housing Type (HT)	Duration Mobility Accom. (DM)	Race, Ethnicity & Language (RL)
Service Environment (SE)	Driving & Transportation (DT)	Veteran's Status (VA)
Household Members (HH)	Household Activities (HA)	Well-Being (WB)
Children & Siblings (CS)	Self-care Activities (SC)	Insurance Plans (IP)
Social Network (SN)	Duration Self-Care Accom. (DS)	Labor Force Participation (LF)
Home Environment (HO)	Medical Care Activities (MC)	Home Ownership (HP)
Environmental Modifications (EM)	Rehabilitation (RH)	Income & Assets (IA)
Community (CM)	Participation in Activities (PA)	Car Ownership (CO)
Technological Environment (TE)	Physical Performance Eligibility (PE)	Economic Well-Being (EW)
Mobility Devices (MD)	Performance Activities Book (AB)	Interviewer Observations (IO)
Impairments & Symptoms (SS)	Height & Weight (HW)	Tablet Activities (Vision, Hearing, Cogstate)
Physical Capacity (PC)	Helpers (HL)	Accelerometry

NHATS Measures of Late-Life Disability

- New measures developed to:
  - Distinguish accommodations from limitations
  - Measure participation beyond basic self-care and household activities
  - More fully measure the physical, social, technological, and service environments
- Practices adopted
  - One month time frame
  - Do not ask about hypothetical situations
  - Refer to accommodations by name (not as "special")

Self-care and mobility activities

- Self-care & mobility
  - Dressing, eating, bathing, toileting
  - Going outside, getting around inside, getting out of bed
- How activities are carried out
  - Use of devices, level of difficulty (with & without devices), with help

Household & Medical Activities

- **Household**
  - Laundry, hot meals, medications, bills & banking
- **Medical**
  - Getting to doctor, sitting in on visits
- **How activities are carried out**
  - By oneself, someone does with, someone does for, varies
  - How often, with difficulty by self
  - Online

Physical Capacity: Self-Reported

- In the last month, were you able to:
  - Harder activity: walk 6 blocks by yourself [and without your cane/walker/cane or walker]

- If no, refused, or don't know
  - Easier activity: walk 3 blocks by yourself [and without your cane/walker/cane or walker]

Physical Capacity: Self-Reported

- Walk 6 blocks, 3 blocks
- Walk up 20 stairs, 10 stairs
- Lift and carry 20 pounds, 10 pounds
- Kneel down, bend over
- Put a heavy book on a shelf, reach up over your head
- Open sealed jar, use fingers to grasp

Physical Capacity: Performance-based

- Balance stands
- Chair stands
- Gait speed
- Grip strength
- Peak air flow
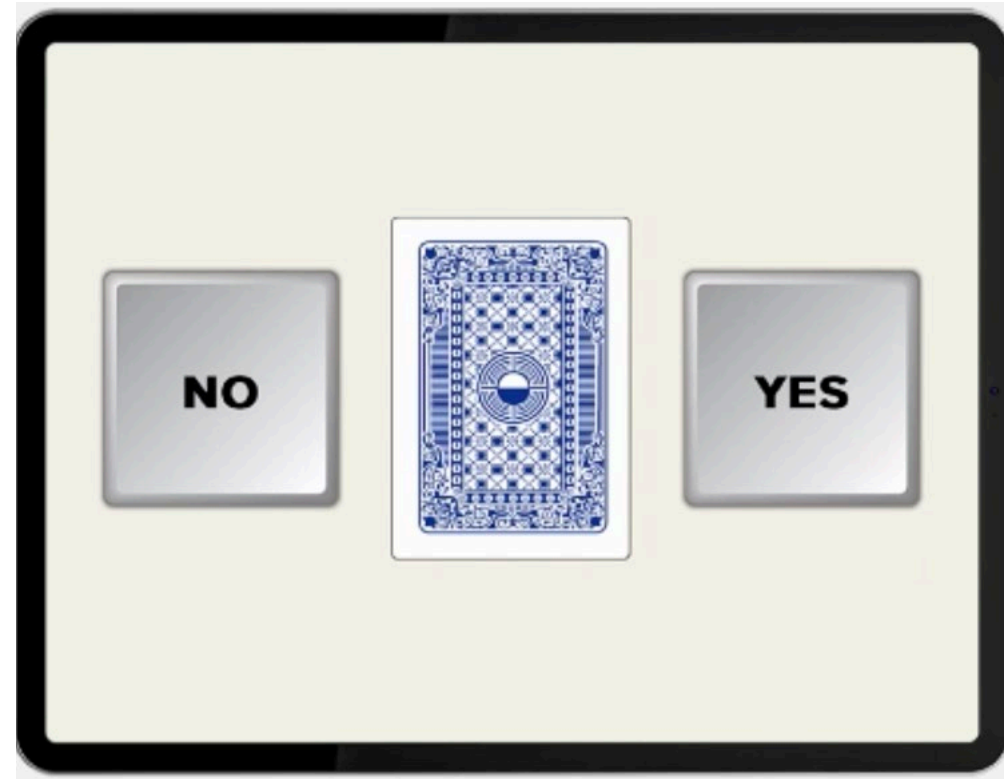- Accelerometry (2021-2024, subset)

Cognitive Measures

- Self report of a diagnosis of dementia or Alzheimer's disease
- AD8 (8-items screening instrument memory/orientation/judgement function)
- Battery of cognitive assessments

Battery of Cognitive Assessments

Domain	Performance-Based Assessment
Memory	10-word recall -immediate -delayed
Orientation	Day of week (month, day, year) Naming President Naming Vice President
Overall Cognitive Screening/executive function	Clock drawing test

CogState

- CogState: Digital, iPad-based assessment of cognitive function (2021-2023)

  - Detection test: "Has the card turned over?" (reaction time)
  - Identification test: "Is the card red?" (attention)
  - One card back test: "Is the previous card the same?" (working memory)

Vision and Hearing Assessments

- iPad protocols added in 2021

- Vision
  - Distance acuity, contrast sensitivity, near acuity

- Hearing
  - Shoebox platform
  - Pure tone audiometry without a booth
  - Conducted without hearing aids if worn

Other Key Components & Modules

- 1940 census match (R5; 2015 collection of linking information)
  - Available through the MiCDA enclave

- Dried Blood Spots (R7; 2018)
  - Assays: HbA1c; hsCRP; CMV; IL-6 available as sensitive data
  - GWAS available through NIAGADS and in the MiCDA enclave
  - Polygenic scores available as sensitive data

- COVID supplement, (R10; Summer 2020)
  - NHATS participants and 2 friends and family members who helped most

- CMS linkages (100% match)
  - Available through LINKAGE enclave

National Study of Caregiving (NSOC)

- Provides information on family and unpaid caregivers' perspectives for a well-defined sample of older adults receiving care
- Interviews up to 5 family or unpaid caregivers
- Most completed within 4 weeks of interview with NHATS participant
- Content focuses on caregiver's situation and experience
- Linked perspectives (older adult and caregiver)

NSOC Content Areas

- Care activities
- Intensity & duration of care
- Positive & negative aspects of caregiving
- Services & support environment
- Distance
- Participation
- Caregiver health and wellbeing

- HH composition and demographics
- Employment and caregiving
- Insurance, income, OOP costs, transfers
- Reasons Stopped
- Last Month of Life
- Health Care Interactions
- Time Diary

Periodic Modules

- NLTCS screening questions in R1, R5, R12
- External Investigator modules
  - ACS disability items
  - End of life planning
  - Health care preferences and engagement
  - Sleep quality
  - Pain
  - Personality
  - Medication attitudes
  - Preferences in living environment
  - Sedentary behavior
- NSOC modules will be administered in R15

Data Dissemination

General Approach

- Goal
  - Timely release of high quality, user-friendly, well-documented data files
- Approach
  - www.NHATS.org
  - Levels of access – public and sensitive data from website; restricted files available via enclaves
    - MiCDA (Michigan Center for the Demography of Aging)
    - NIA LINKAGE (NIA enclave for CMS data)

Available NHATS Files

- Public Use – Rounds 1-13 (2011-2023)

  - Sample Person (SP)
  - Other Person (OP)
  - Tracker
  - Tablet Activities
  - Accelerometry
  - Auxiliary income files

- Sensitive

  - Sample Person (SP)
  - Other Person (OP)
  - National Study of Caregiving (NSOC)
  - Dried Blood Spot (DBS) Assays
  - Polygenic Scores (PGS)

Available NHATS Files

- Restricted files
  - Geocoded Sample Person (SP) & Other Person Files (MiCDA enclave)
  - 1940s Census linkage (MiCDA enclave)
  - Genetic files (MiCDA enclave)
  - CMS claims and assessment files (NIA LINKAGE)

NHATS Restricted Geographic Data

- Available each round for the Sample Person (SP)
  - City
  - State
  - Zip code
  - County
  - Census tract
  - Dartmouth Health Atlas Hospital Referral Region (HRR) Files
  - Rural-Urban Continuum Codes (RUCC) Files

- At Baseline:
  - City and state where the SP was living at the age of 15
  - Country of birth if the SP was born outside the US

NHATS Restricted Geographic Data

- Available each round for spouse/partners, children, and household members:
  - City
  - State

NHATS COVID-19 Geographic Files

- City
- State
- Zip code
- County
- Census tract

NSOC Geographic Data

- Available each round for the Caregiver
  - City
  - State
  - Zip code
  - County
  - Census tract
  - Rural-Urban Continuum Codes (RUCC) Files

MiCDA Geographic Linkages Repository (GLR)

- Contextual Data Resource (CDR)
- Dartmouth Atlas of Health Care
- Historic Redlining
- IPUMS Contextual Determinants of Health
- Long Term Care Focus (LTCFocus)
- National Neighborhood Data Archive (NaNDA)
- State Policy and Politics Database (SPPD)
- US COVID-19 County Policy (UCCP) Database

The MiCDA Virtual Data Enclave

- Provides remote access to the NHATS Restricted Data Repository through a virtual desktop infrastructure

- Data remain on MiCDA enclave servers

- Login to the enclave requires two-factor authentication

- Data files cannot enter or be removed from the NHATS repository by the researcher
  - Output and programs are reviewed for disclosure risk by the repository director or their designee prior to removal

- Users agree:
  - To access data only from locations specified in the MiCDA Data Security plan form Users
  - Not to transcribe results as specified in MiCDA's Secure Data Enclave Acceptable Use Policy
  - Not to attempt to identify subjects as specified in the ISR Pledge of Confidentiality

Requirements

- Requires IRB approval and a DUA with Johns Hopkins University

- Investigators must hold a PhD or other terminal degree (e.g. MD-MPH) and a full-time faculty-level (or equivalent research) appointment

- Current recipient, as Principal Investigator or Co-Principal Investigator, of research funds from a federal agency (other sources of support (considered on a case-by-case basis)

- Paperwork requirements described online

Summary of Data on Rurality

- Public use files:
  - Dichotomous metro/non-metro variable for NHATS Sample Persons (SPs)
  - Derived from 2013 Rural-Urban Continuum Codes (RUCC)
  - Rounds 1-8: separate file in public use zip file
  - Rounds 9 and forward: included on the SP file

- Restricted files:
  - 8-category rural-urban continuum codes
    - values of 8 and 9 in RUCC codes are collapsed
  - Can import approved, de-identified data files to classify rural residence

NHATS Resources

More Information

nhats.org

Helpful Documentation & Resources

- User Guides
- Accounting for Sample Design in NHATS/NSOC: FAQ
- Technical Papers
- Survey instruments and crosswalks

Searchable Bibliography

NHATS Learning Opportunities

- Introductory video series
- Online, self-paced course
- Workshop and booth at PAA annual meeting: April 10 – 13
- NHATS and NSOC summer workshops
  - Applications opening in May 2025
- NHATS/NSOC webinar series
  - Next webinar on February 7
- GSA: November 12 – 15

For Questions

- General NHATS questions:
  - nhatsdata@westat.com

- Restricted NHATS questions (MiCDA)
  - nhats-restricted-data@umich.edu

- NHATS-CMS questions:
  - nhats-cms-data@jh.edu