

# HEALTH AND RETIREMENT STUDY 2022 Harmonized Cognitive Assessment Protocol (HCAP)

Release Version: Early, Version 1.0  
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## Data Description and Usage

To the researcher: This dataset is intended for exclusive use by you under the terms specified in the HRS Sensitive Data Access Use Agreement. If there are any questions about its use, please contact the HRS Help Desk ([hrsquestions@umich.edu](mailto:hrsquestions@umich.edu)).

Please cite HRS-HCAP as the data source in any publications or research based upon these data, and provide a copy of any publications to the HRS. The following citation should be included in any research reports, papers, or publications based on these data:

In text: "The Health and Retirement Study (grant number U01 AG009740) and the Harmonized Cognitive Assessment Protocol (grant number U01 AG058499) are sponsored by the National Institute on Aging and conducted by the University of Michigan."

In references: "Langa, KM, Ryan, LH, McCammon, RJ, Jones, RN, Manly, JJ, Levine, DA, Sonnega, A., Farron, M., & Weir, DR. (2020). The Health and Retirement Study Harmonized Cognitive Assessment Protocol Project: Study design and methods. *Neuroepidemiology*, 54, 64 - 74. doi: 10.1159/000503004." Available at: [<https://pubmed.ncbi.nlm.nih.gov/31563909/>].

"Weir DR, Langa KM, Ryan LH. 2016 Harmonized Cognitive Assessment Protocol (HCAP): Study Protocol Summary." Available at: [<http://hrsonline.isr.umich.edu/index.php?p=shoavail&iyear=ZU>].

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## Data Description and Usage

### 1. Introduction

The Harmonized Cognitive Assessment Protocol (HCAP) 2022 was funded as a competing revision to the Health and Retirement Study (HRS) (U01AG009740). Data collection was conducted by the Institute for Social Research, Survey Research Center, at the University of Michigan.

By receiving the data files, you agree to use them for research and statistical purposes only and to make no effort to identify respondents. In addition, you agree to send the HRS a copy of any publications you produce based on the data. See [Obtaining the Data](#) (at the end of this document) for additional details.

#### 1A. Study Overview and Purpose

The Harmonized Cognitive Assessment Protocol (HCAP) was developed by the Health and Retirement Study (HRS) for two primary purposes. The first was to update the previous ADAMS study with a new protocol that was less expensive and could be administered to a much larger sample with less stratification, providing a better basis for follow-up studies of incidence (Weir, 2011<sup>1</sup>). The second was to provide a flexible basis for international comparisons with other longitudinal studies, and in particular the HRS family of studies. The HCAP collects a carefully selected set of established and validated cognitive and neuropsychological assessments and informant reports to better characterize cognitive function in older adults. The protocol was designed to harmonize well with prior studies, including the Rush University Memory and Aging Project (Bennett, et al, 2012), the 10/66 studies that rely primarily on the Community Screening Interview for Dementia (CSI-D; Prince, et al, 2011), and the previous HRS dementia study known as ADAMS (Langa, et al, 2005). Versions of HCAP are being conducted in many

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<sup>1</sup> David R. Weir, Robert B. Wallace, Kenneth M. Langa, Brenda L. Plassman, Robert S. Wilson, David A. Bennett, Ranjan Duara, David Loewenstein, Mary Ganguli, Mary Sano, "Reducing case ascertainment costs in US population studies of Alzheimer's disease, dementia, and cognitive impairment—Part 1" *Alzheimer's & Dementia* 7 (2011) 94–109.

countries around the world such as Mexico, India, England, Ireland, Northern Ireland, Chile, China, and South Africa.

To facilitate the use of the data in international comparisons the HRS continues to harmonize variable naming in this second wave of HCAP based on guidance from the Gateway to Global Aging team. The data will be easily used with data products created by Gateway from HCAP studies in other countries ([link](#)). We thank Sandy Chien, Alden Gross, Jinkook Lee, and Erik Meijer for their valuable assistance. As the HCAP data become fully harmonized the studies will be able to make comparable classifications to discriminate Normal, Cognitive Impairment, and Dementia status. The HRS can provide assistance with interviewer training and protocol implementation to studies interested in using HCAP.

### **1B. The Sample Interviewed in 2022**

HCAP cases includes a pair of interviews, one by the Target Respondent (pre-selected HRS panel member, age 65+) and one by an Informant (nominated by the Target Respondent). Ideally, both interviews are conducted at the same time with a trained HRS interviewer in the Target Respondent's home. When schedules do not permit, the Informant interview was conducted by telephone.

While the majority of HCAP cases included both a Target Respondent and Informant interviews, there were some instances where a Target did not nominate any potential informants (n = 369). There were also a few cases where only an informant interview was conducted (n = 70) as the Target Respondent was not well-enough to attempt an interview. HCAP was administered in both English and Spanish.

There were a few protocol updates in HCAP 2022 compared to wave one HCAP 2016. First, we updated the consent to record the interview language so that permission to record is the default unless a respondent requests otherwise. Second, the optional test of olfaction included at the end of the HCAP 2016 Respondent interview was not included in the 2022 protocol. Finally, both Brave Man and

Logical Memory story recall/recognition tasks were administered via paper mode in 2022, whereas these tasks were collected with Blaise software in 2016.

The eligible sample included all surviving HCAP 2016 respondents who completed a 2016 HRS Core Interview (self or living-proxy), surviving 2016 HCAP eligible cases who did not engage in HCAP in 2016, but who completed a 2022 HRS Core interview (self or living-proxy), and pre-selected HRS Panel respondents to replenish the 65 - 71 age range who completed their 2022 interview before they become eligible for the HCAP study. Of those who were age-eligible and who completed their 2022 Core Interview, those eligible for HCAP were selected via the following process: (1) Randomly select 1/2 of uncoupled Respondents; (2) Randomly select 1 Respondent from each coupled household.

Additional information about the recruitment and interview process is available in the User Guide which can be downloaded from the HRS Website.

## **1C. Interviews**

### **1C1. Respondent Interview**

The Respondent interview contains questions that were asked of all HCAP respondents and include the following:

- A – Mini Mental State Exam
- B – Health and Retirement Study Naming
- C – Word List Learning & Recall - Immediate
- D – Retrieval Fluency
- E – Letter Cancellation
- F – Backward Count
- G – 10/66 - Respondent
- H – Word List Recall - Delayed
- I – Story Memory - Immediate
- J – Word List Recognition
- K – Constructional Praxis - Immediate

- L – Symbol-Digit Modalities Test
- M – Constructional Praxis - Delayed
- N – Story Memory - Delayed
- O – Logical Memory - Recognition
- P – Number Series
- Q – Raven’s
- R – Trail Making
- S – CES-D Depressive Symptoms

## **1C2. Informant Interview**

The Informant interview contains questions that were asked of all HCAP informants and include the following:

- A – Informant Demographics
- B – Jorm IQCODE
- C – Blessed Part 2
- D – Activities
- E – CSI-D – Cognitive Activities
- F – 10/66 - Informant
- G – Blessed Part 1

## **1D. Data Updates and Alerts**

Data alerts, new file notifications, and updates concerning the HRS 2022 HCAP Final Release will be placed on the [HRS Data Alert web page here](#).

We recommend that users check this location regularly.

If you have any questions concerning our Final releases, or wish to notify us of errors, please send electronic mail to:

HRS Questions: [hqsquestions@umich.edu](mailto:hqsquestions@umich.edu)

## 2. Variable Names and Labels

Variable names closely align with conventions used by the Gateway for Global Aging. Respondent variables begin with the letters "R2" to designate the Respondent wave 2 followed by the specific variable name. Informant variables start with "INF2" for informant wave 2, followed by the variable name.

## 3. Data Files

The 2022 HCAP (Early, Version 1.0) data release includes the Respondent file and the Informant file, listed below along with the name of the file, number of cases (N), and number of variables (NV). The 2022 HCAP data are provided in ASCII format, with fixed-length records. The records in the data files are sorted in order by the primary identifiers. You'll want to use associated SAS, SPSS, or STATA program statements to read the data into the analysis package of your choice.

Prefix	Description	File Name	# Cases	#Vars
HC	Informant Information	HC22HP_I	3138	171
HC	Respondent Information	HC22HP_R	3138	495

The following extensions are used for the 2022 HCAP files:

- .da for data files,
- .xml for XML files,
- .csv for CSV files,
- .sas for SAS program statements,
- .sas7bdat for "ready-to-use" SAS files,
- .sps for SPSS program statements,
- .sav for "ready-to-use" SPSS files,
- .do for Stata DO statements,
- .dct for Stata dictionary statements,
- .dta for "ready-to-use" Stata files, and
- .txt for codebook files

## **4. Primary Identification Variables**

Identification variables are stored in character format and are used to link files within and across waves of data.

### **4A. Primary identification variables**

Primary identification variables include HHID and PN. The HHID, or Household Identifier, is six digits, and is stable across waves of data collection. The HHID uniquely identifies an original household and any household derived from the original household in subsequent waves of data collection. HHID is included on each data file in the 2022 HCAP release. Users should note that the HHID and PNs in the Informant File are linked to the HRS-HCAP Respondent. Informants do not have their own unique HHID and PNs.

The PN, or Person Number, is three digits, and uniquely identifies a respondent within an original household (HHID). The PN does not change across waves. PN is included on each data file in the 2022 HCAP release.

## **5. Distribution Files and Directory Structure**

### **5A. Distribution Files**

The distribution files are packaged for download from our Web site in one large .zip file, HC22.zip, which contains six smaller .zip files and this data description document, in .pdf format, HC22dd.pdf.

#### Data files

HC122da.zip - ASCII data files

HC22csv.zip - CSV files

HC22xml.zip - XML files

#### Program statement files

HC22sas.zip - SAS program statement (.sas) and "ready-to-use" file (.sas7bdat)

HC22sps.zip - SPSS program statement (.sps) and "ready-to-use"

file (.sav)

HC22sta.zip - STATA program statement (.do/.dct) and "ready-to-use" file (.dta)

Documentation files

HC22cb.zip - codebook

H22qn.zip - questionnaire

Users will need to unzip the data files, program statement files, and codebook files. The [codebook files](#) are also available on our Web site in an HTML format which provides an index for each section.

## 5B. Directory Structure

While a particular setup is not required for using the 2022 HRS HCAP files, if the following directory structure is used, then no changes to the path name in the data descriptor files is necessary. If you use a different structure, change the directory references in the distribution files.

Directory	Contents
=====	=====
c:\HC2022\	Files downloaded from <a href="#">HRS Web site</a>
c:\HC2022\codebook\	Unzipped files from HC22cb.zip
c:\HC2022\data\	Unzipped files from HC22da.zip
c:\HC2022\sas\	Unzipped files from HC22sas.zip
c:\HC2022\spss\	Unzipped files from HC22sps.zip
c:\HC2022\stata\	Unzipped files from HC22sta.zip
c:\HC2022\qnaire\	Unzipped files from H22qn.zip

## 6. Program Statements

Each data file comes with associated SPSS, SAS, or STATA program statements to read the data. Files containing SPSS statements are named with a .sps extension, those with SAS statements with a .sas extension, and those with STATA statements with .do and .dct extensions. The statement files are named beginning with the

same prefix as the corresponding data file. For example, SAS statements in the file HC22I\_R.sas correspond with the HC22I\_R.da data file.

### **6A. Using the Files with SAS**

To build a SAS file for a particular dataset, two file types must be present for that dataset: SAS program statement files and .da data files. Files with the suffix "da" contain the raw ASCII data for SAS to read.

A SAS system file can be created by the \*.sas file into the SAS Program Editor. If the data file is located in "c:\HC2022\data", you can run the downloaded \*.sas file as is. A SAS system file (\*.sas7bdat) will be saved to directory "c:\HC2022\sas". If the files are not located in the specified directories, you will need to edit the \*.sas file to reflect the proper locations prior to running the file.

### **6B. Using the Files with SPSS**

To build an SPSS file for a particular dataset, two file types must be present for that dataset: .sps program statement files and .da data files. Files with the suffix "da" contain the raw data for SPSS to read.

To create an SPSS system file, open the \*.sps file in SPSS as an SPSS Syntax File. If the data file is located in "C:\HC2022\data", you can run the downloaded \*.sps file as is. An SPSS system file (\*.sav) will be saved to directory "C:\HC2022\spss". If the files are not located in the specified directories, you will need to edit the \*.sps file to reflect the proper locations prior to running the file.

### **6C. Using the Files with Stata**

To use Stata with a particular dataset, the following three file types must be present for the Stata dataset: .dct files, .do files and .da data files. Files with the suffix "da" contain the raw data for Stata to read. Files with the suffix "dct" are Stata dictionaries used to describe the data. Files with the suffix "do" are short Stata programs ("do files") which you may use to read in the data.

To create a Stata system file, load the .do file into Stata and then submit it. If the \*.dct files are located in "C:\HC2022\stata" and the data file is located in "C:\HC2022\data", you can run the downloaded .do file as is. If the files are not

located in these directories, you must edit the \*.do and \*.dct files to reflect the proper path names before you run the files.

## **7. Documentation**

### **7A. Masked Variables**

To protect the confidentiality of respondents, some variables are either masked or not included in public release data sets. In general, respondent names, addresses, days of specific dates, information on geographical relocation, and similar variables are not included in publicly released files.

### **7B. Other Specify Questions and Open Ends**

“Other Specify” and “Open End”, or questions that are answered with text (e.g., Informant reports of other activities) will be coded by HRS staff and included in a later data release.

## **8. Obtaining the Data**

### **8A. Registering and Downloading the Data**

HRS data are available for free to researchers and analysts at the [HRS Web site](#). In order to obtain public release data, you must first register at our Web site. Once you have completed the registration process, your username and password will be sent to you via e-mail. Your username and password are required to download any data files.

By registering all users, we are able to document for our sponsors the size and diversity of our user community allowing us to continue to collect these important data. Registered users receive user support, information related to errors in the data, future releases, workshops, and publication lists. The information you provide will not be used for any commercial use, and will not be redistributed to third parties.

## **8B. Conditions of Use**

By registering, you agree to the [Conditions of Use](#) governing access to Health and Retirement public release data.

## **8C. Publications Based on Data**

As part of the data registration process, you agree to include specified citations and to inform HRS of any papers, publications, or presentations based on HRS data. Please send a copy of any publications you produce based on HRS data, with a bibliographical reference, if appropriate, to the address below.

Health and Retirement Study  
Attn: Papers and Publications  
The Institute for Social Research  
P.O. Box 1248  
Ann Arbor, MI (USA) 48106-1248

Alternately, you may contact us by e-mail at [hrsquestions@umich.edu](mailto:hrsquestions@umich.edu) with "Attn: Papers and Publications" in the subject line.

## **9. If You Need to Know More**

This document is intended to serve as a brief overview and to provide guidelines to using the 2022 HRS HCAP (Early, Version 1.0) data. If you have questions or concerns that are not adequately covered here or on our Web site, or if you have any comments, please contact us at [hrsquestions@umich.edu](mailto:hrsquestions@umich.edu). We will do our best to provide answers.

### **9A. HRS Internet Site**

Health and Retirement Study public release data and additional information about the study are available on the Internet. To access the data and other relevant information, visit the HRS Web site at <https://hrs.isr.umich.edu/about>

### **9B. Contact Information**

If you need to contact us, you may do so by one of the methods listed below:

**Web:** (<https://hrs.isr.umich.edu/help>)

**Help Desk Email:** [hrsquestions@umich.edu](mailto:hrsquestions@umich.edu)

**Mail:**

Health and Retirement Study

P.O. Box 1248

Ann Arbor, MI 48106-1248

**FAX:** (734) 647-1186