Life History Mail Survey (LHMS) User Guide

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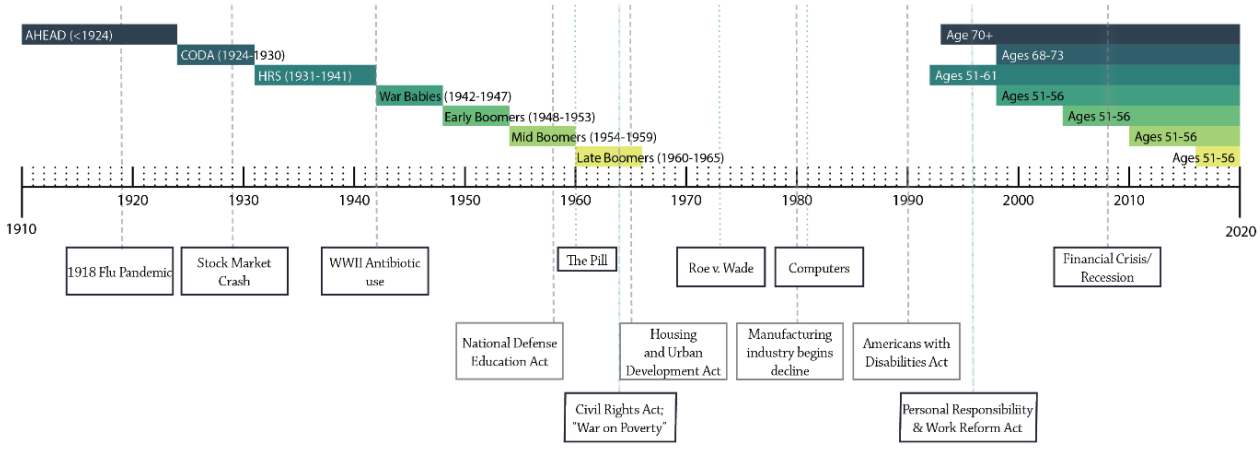
1. Background to the Enhancement of the HRS Retrospective Life History Resources

The collection of retrospective information about the early life of HRS participants began in the core biennial HRS interviews in 1992 and has evolved over time. For example, the initial 1931-1941 HRS cohort provided information about the education of their parents in 1992, childhood geographical location in 1996, and additional background about family context in 1998. From 2008 onward, questions about childhood family context, together with multiple items about childhood health conditions and diagnoses were added. Marital, fertility, and employment histories have also been collected in the core interviews at study entry and repeated over time.

We use the term *life history* to refer generically to the many discipline-specific theories and approaches that encourage examination of the long-term influences of early- and mid-life biological, health, socioeconomic, psychosocial and environmental factors on late-life health and well-being (e.g., Alwin, 2012; Becker, 1962; Ben-Shlomo & Kuh, 2002; Lynch & Smith, 2005). These approaches acknowledge that how people grow up and grow old depends on **when** they were born, **where** they have lived, and **what** has happened in their lives. Fig. 1 illustrates this for seven birth cohorts in the HRS panel. Combined, the life histories of HRS participants are spread over the last 100+ years. The HRS core interviews provide rich data, but additional data collection was necessary to fill in some gaps and enhance information about childhood and early-to-mid adulthood.

Figure 1: The timing of selected US historical landmarks in the lives of seven cohorts recruited to the Health and Retirement Study (HRS) panel after 1992.



This user guide describes the development of the off-year **Life History Mail Survey (LHMS)** and the content of the initial **Cross-Wave LHMS file,** which harmonizes data collected in 2015 and 2017. This product was released on the HRS website in December 2021:
https://hrsdata.isr.umich.edu/data-products/lhms-cross-wave

Other public data HRS life history products available in 2022 include:

- Cross-wave Childhood Health and Family Aggregated Data (collected 1992-2016)

https://hrsdata.isr.umich.edu/data-products/cross-wave-childhood-health-and-family-aggregated-data

- Cross-wave Marital History Aggregated Data

https://hrsdata.isr.umich.edu/data-products/cross-wave-marital-history-aggregated-data

The data descriptions and codebooks for these products can be accessed via the web links above.

2. The Life History Mail Survey (LHMS): Goals, Timeline, Samples, and Future Plans

Goals

Three goals underlie the development of the HRS life history project funded by the National Institute of Aging (U01 AG009740; R01AG051142). These are:

i. To harmonize with life histories collected in three HRS-affiliated studies;
ii. To enhance existing life history data in HRS; and
iii. To develop a data collection method tailored to the HRS protocol.

The long-term objective of the HRS life history project is to provide users with retrospective information about early-life geographic and residential mobility, and education, employment, family, and health life histories for as many HRS members of the longitudinal panel as possible.

The first general goal was to increase harmonization with retrospective life histories collected in three studies affiliated with HRS. These include the English Longitudinal Study of Ageing (ELSA; Steptoe et al., 2013), the Survey of Health, Ageing and Retirement in Europe (SHARE; Börsch-Supan et al., 2013), and the Chinese Health and Retirement Longitudinal Study (CHARLS: Zhao et al., 2014).

There were two parts to the second goal. On the one hand, we wanted to enhance the visibility of existing HRS life history information by producing and disseminating user-friendly, topic-specific, cross-wave files. Data collected in the biennial core interviews from 1992 onwards, for example, includes information about childhood family context, childhood health, marital and fertility history, as well as some details about early-life education, employment and geographical mobility. On the other hand, we wanted to collect new life history information to fill in gaps in existing data to harmonize with HRS-affiliated studies and to add content relevant to the contemporary interests of HRS researchers.

The third goal was to develop a data collection approach for collecting life history information that could be implemented in HRS. The in-person CAPI data collection strategy used in ELSA, SHARELIFE, and CHARLS was not feasible in HRS due to cost and the steady-state, longitudinal, biennial core interview protocol (Sonnega et al., 2014). Instead, as we outline in the next section, starting in 2015 we adapted the ELSA and SHARELIFE interviews to self-administered questionnaires (SAQs). These SAQs were then mailed to HRS panel participants in the off-years, fielded at times when participants were not expected to complete core or other interviews.

There are advantages and disadvantages associated with SAQs. One advantage of the LHMS SAQ for HRS is that can be administered in future off-year surveys with each new HRS cohort recruited to the longitudinal panel. The LHMS also eases participant burden somewhat because respondents can complete the questionnaire at times convenient to them and use personal records or consult with family members to verify the dates and other details of school attendance, residence, health incidents, and family events. Furthermore, participants are more willing to disclose sensitive issues (e.g., about

pregnancies, health issues) on paper than in person. Moreover, as has long been recognized in the life review literature (Butler, 1963), many older adults enjoy the chance to reminisce about events in their own life and to report their life history and achievements to others.

With regard to disadvantages, some researchers raise concerns about the potential impact of cognitive decline on the quality of retrospective early-life memories reported by older adults (Smith et al., 2021). However, the fact that the LHMS is embedded in an ongoing panel survey provides opportunities to evaluate these concerns. For example it is possible to examine the consistency (test-retest reliability) between LHMS responses and responses about similar life events given by participants when they were younger and the early life events were less remote. In addition, researchers can identify associations between nonresponse bias and missing data with memory performance collected in the core interviews.

Project Timeline 2015 to 2022: LHMS Design, Data Collection, and Production Activities

Work on the three project goals began in 2015. In the section below, we describe the project activities from 2015 to 2022 that are illustrated in Figure 2. Boxes below the timeline indicate periods of data collection and boxes above the line summarize the project activities in the intervening years.

Figure 2: Timeline of Project Activities from 2015 to 2022.

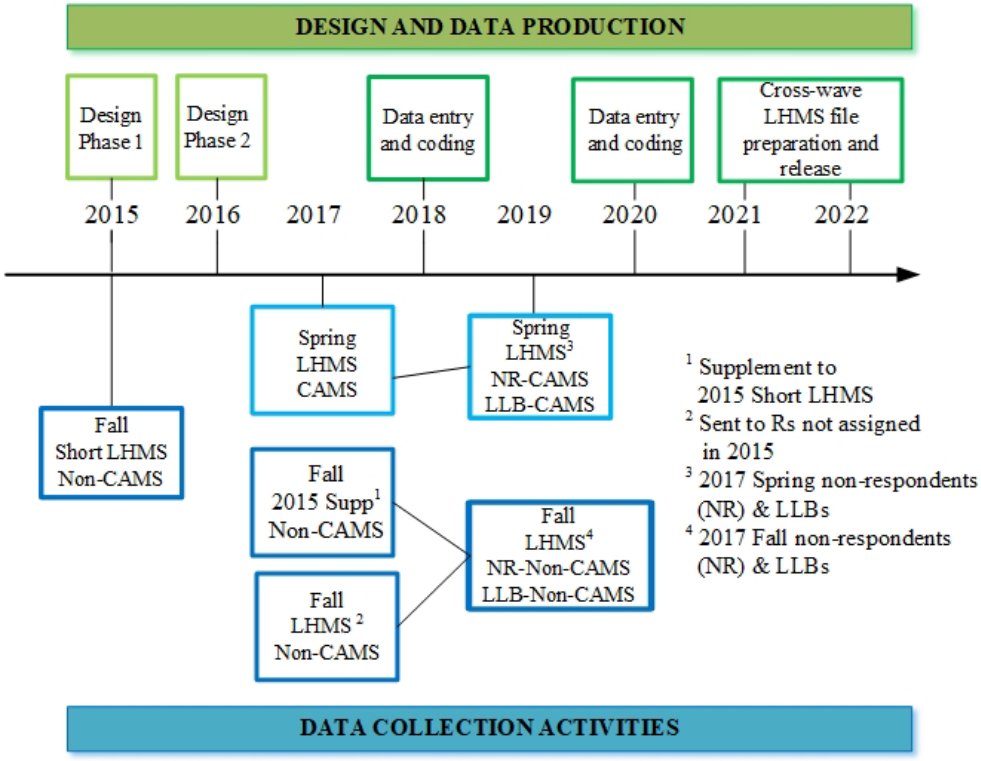


Figure Notes: CAMS = Consumption and Activities Mail Survey Panel;
Non-CAMS = HRS panel not in the CAMS;
LLB = Late Baby Boomer cohort; NR = Non-respondents in earlier waves.

In mid-2015, we took quick advantage of new funding to design a short LHMS covering only residential and education histories. The first Design Phase involved a comprehensive comparison of existing HRS life history information with the questions in the ELSA and SHARELIFE interviews. This comparison

revealed question overlaps with existing HRS life history information as well as some new items to include in the LHMS to increase cross-study harmonization. In addition, we identified topics unique to US history and the life experiences of the HRS cohorts to cover in the LHMS.

We also considered ways to transform the ELSA and SHARELIFE computer-assisted in-person interviews (CAPI) for a self-administered questionnaire (SAQ). In particular, we focused on how best to adapt the event history ("life grid") calendar method typically collected in CAPI to the SAQ mode (e.g., Belli, 1998; Glasner & van der Vaart, 2009; Pascale & McGee, 2008). Two central features of this method are that the question content is ordered temporally at two levels: i) overall to mirror sociocultural expectations about the normative sequence and age-stratification of life domains across the life course; and ii) within a domain participants are asked about the start/end dates or age when a transition occurred (such as a new residential location, school, or job). This temporal ordering of content is thought to aid retrieval from autobiographical memory by cuing memory of coinciding transitions. In the CAPI mode. In the SAQ mode, participants have a record of dates that they report throughout. The event history method also frequently includes initial instructions to participants to make notes about their life history to prepare prior to the interview or responding the questionnaire.

For the first wave of data collection, we devised two booklets and completion instructions. The first booklet was formatted in the style of a calendar of events starting at birth and ending at age 50, while the second included specific questions about childhood and adult residences and education experiences. This "short" version of the LHMS was mailed in December 2015 to 11,256 eligible English-speaking panel members who had not been assigned to the 2015 HRS Consumption and Activities Mail Survey (CAMS).The questionnaires and data description for this wave can be accessed at: https://hrsdata.isr.umich.edu/data-products/2015-life-history-mail-survey

In 2016, we continued to design the LHMS for an expanded LHMS. This design phase consisted of evaluation of the quality of responses to the 2015 LHMS, an experimental pilot study, and solicitation of comments from consultants and others. The pilot was conducted with a local sample of 95 volunteers aged 50 to 90 to determine the effectiveness of including a short life history calendar as a memory aid together with interviews to evaluate the cognitive burden and usability of a self-administered questionnaire. To complement the pilot study, we solicited comments about various revisions of the new LHMS from study consultants (especially Robert Belli and Bob Wallace), colleagues in ISR, and the HRS Co-PIs.

Based on our evaluation of the 2015 data, the 2016 pilot study and feedback, a revised LHMS questionnaire was finalized early in 2017 and translated into Spanish. Major additions included questions about partnership, work, caregiving, and health history and a question asking participants to describe the things in their life that they were most proud of. Other changes included the consolidation reports about K-12 schools and location into one question (versus three in 2015) and the addition of several items in the residential and education history sections (see details in part 3 of this user guide). The revised LHMS was reduced to one booklet with a short one-page calendar at the beginning.

The 2017 data collection was split into separate panel subsamples to accommodate the steady-state CAMS longitudinal survey collection that occurs in the fall of each off-year. The spring 2017 LHMS was sent to mid-Baby Boomers (MBB) and older cohorts assigned to receive CAMS in the fall. HRS panel members who are not in CAMS received the LHMS in the fall of 2017 (MBB and older cohorts). Participants who responded to the 2015 LHMS received a shortened (supplemental) version of the

LHMS in 2017, which excluded questions about residential and education histories already collected. All others (including Spanish speakers not included in 2015) received the full LHMS questionnaire. The questionnaires and data description for the spring and fall 2017 waves can be accessed at:

https://hrsdata.isr.umich.edu/data-products/2017-spring-life-history-mail-survey
https://hrsdata.isr.umich.edu/data-products/2017-fall-life-history-mail-survey

The late-Baby Boomer (LBB) birth cohort, newly recruited to HRS in 2016, received the LHMS in spring and fall 2019, together with others in the HRS panel who were withheld in 2017 due to delays in the 2016 core interviews. The 2019 LHMS included questions about early-life relationships with parents and life-time traumas and experiences of discrimination previously collected in the core Psychosocial Leave Behind (2006-2012).

During the pandemic (2020-2021), we worked remotely to enter and code data for the spring and fall 2019 LHMS samples (planned release by HRS in late 2022). Data collection was paused in 2021 when HRS prioritized COVID-related panel mail surveys. We also prepared the user-friendly harmonized cross-wave 2015-2017 LHMS file (see details in part 3 of this user guide). This product was released on the HRS website in December 2021:

https://hrsdata.isr.umich.edu/data-products/lhms-cross-wave

Several restricted data files and data descriptions have been released to date. These files can be merged with the cross-wave file and other HRS data using household and person identification numbers, "hhid" and "pn," respectively. Information about options and the application process for restricted data access can be found at: https://hrs.isr.umich.edu/data-products/restricted-data.

K-12 education history: city and states:

- 2015 Life History Mail Survey Educational History Data - v1.0
- 2017 Spring Life History Mail Survey Educational History Data - v1.0
- 2017 Fall Life History Mail Survey Educational History Data - v1.0

Residential history: states

- 2015 Life History Mail Survey Residential History State Level Data - v1.0
- 2017 Spring Life History Mail Survey Residential History State Level Data - v1.0
- 2017 Fall Life History Mail Survey Residential History State Level Data - v1.0

Employment history: occupation and industry

- 2017 Fall Life History Mail Survey Occupation and Industry Data - Final v1.0

Future Plans

We will add the 2019 data to the cross-wave file after the separate subsample files are released by HRS. The 2019 data includes participants in the late-Baby Boomer cohort who entered HRS in 2016 but were not assigned to the LHMS in 2017 together with non-respondents from previous waves. We also plan to merge data from other sources with the public LHMS resource in future years to expand opportunities for users to examine associations between education, work, and residential history and late-life outcomes. For example, the project team plans to add codes to the public files about the state- and city district-level quality of primary K-12 schools that HRS participants attended by linking to US Bureau of Education's Biennial Survey of Education records from 1919 to 1957. We also plan to include codes for

the quality of college- and professional-level education derived from linkages to the Carnegie Classification of Institutions of Higher Learning (2010) and early information compiled by the National Center for Education Statistics (NCES: 30). These codes together with others (e.g., job complexity, geographical mobility) will provide dynamic, individual-level details about the early life course that can be merged with later-life longitudinal panel data collected in real time.

General background literature

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Sonnega, A., Faul, J. D., Ofstedal, M. B., Langa, K. M., Phillips, J. W., & Weir, D. R. (2014). Cohort profile: The Health and Retirement Study (HRS). *International Journal of Epidemiology*, *43*(2), 576-585.

Smith, J., Hu, M, & Lee, H. (2021). Measuring Life Course Events and Life Histories (Ch. 3). In K. F. Ferraro, D. Carr, & E. Idler (Eds). *Handbook of Aging & Social Sciences*, (9th edition; pp. 33-47), San Diego: Academic Press (Elsevier).

Steptoe, A., Breeze, E., Banks, J., & Nazroo, J. (2013). Cohort profile: the English Longitudinal Study of Ageing. *International Journal of Epidemiology*, *42*(6), 1640-1648.

Zhao, Y., Hu, Y., Smith, J. P., Strauss, J., & Yang, G. (2014). Cohort profile: the China Health and Retirement Longitudinal Study (CHARLS). *International Journal of Epidemiology*, *43*(1), 61-68.

3. The Harmonized LHMS 2015-2017 Cross-wave Data File: Panel Coverage and Content

Panel Coverage and Response Rates

The 2015 and 2017 panel subsamples were initially released as four separate public data files, and the samples differed (see also Figure 1 and data descriptions for each file on the HRS website). Simple response rate (RR1) calculated using the American Association for Public Opinion Research (AAPOR) standards differ across LHMS waves and HRS subsample: in fall 2015 the RR was 58%, whereas it was

74% in the spring 2017 LHMS, 83% in the fall 2017 supplement LHMS for 2015 respondents, and 27% in the full LHMS sent to 2015 non-respondents and other panel members not asked in 2015. The unweighted RR for the 2015-2017 cross-wave LHMS public resource, which includes partial data from 2015, is 66% (AAPOR RR2 definition). Table 1 presents descriptive information about panel coverage for this cross-wave resource. Sample weights for the cross-wave file will be available in the future.

Table 1: 2015-2017 LHMS Cross-Wave Panel Coverage

	N (%)	White Non-Hispanic	African American	Hispanic	Other
Total N	11761	7983	2072	1323	383
AHEAD	317	271	21	23	2
CODA (Children of the Depression)	465	410	28	22	5
HRS	4301	3347	532	323	99
WB (War Babies)	1375	1059	193	88	35
EBB (Early Baby Boomers)	2582	1416	635	421	110
MBB (Mid Baby Boomers)	2721	1480	663	446	132
% Women	60.23%	59.33%	64.24%	59.64%	59.53%
% Alive in 2018	94.94%	93.95%	95.99%	98.64%	97.13%

Note. Cohort membership is based on the entry cohort of the individual, which is differ from the birth cohort for age-ineligible spouses or partners

Data Collection Protocol

At each wave, the LHMS paper-and-pencil questionnaire was mailed in an envelope containing a cover letter describing the purpose of the survey, an information sheet providing contact information for the Project Office and the Institutional Review Board, and a pre-paid incentive (25 USD). Non-respondents in 2015 and 2017 were sent a second questionnaire four weeks after the initial mailing and a postcard reminder after eight weeks. After 12 weeks, a third questionnaire was sent to all remaining non-respondents via USPS Priority mail. In 2019, we initiated a sequential multi-mode approach to follow up with the 2015-2017 non-respondents. These individuals were telephoned after three weeks and offered either a telephone life history interview or, if requested, a replacement mailed questionnaire. Participants who first received the LHMS in 2019 but had not returned it were sent second questionnaire after four weeks, a postcard reminder after eight weeks, and a third questionnaire after 12 weeks. As with all HRS mail surveys, the Survey Research Operations (SRO) unit of the Institute for Social Research (ISR) handled all aspects of field data collection. The LHMS questionnaires that are returned to SRO are scanned to automatically code question check box responses. Open-field hand-written responses are entered and coded by project assistants. The questionnaire and study protocol were reviewed and approved by the University of Michigan Institutional Review Board prior to fielding: https://hrs.isr.umich.edu/sites/default/files/biblio/HRS_IRB_Information%28web%29_08_2018.pdf.

Content of the 2015-2017 Cross-wave LHMS: Variable details, question source and background

Overview

This section provides information for variables in the cross-wave file in order as listed in Table 2.

Table 2. Overview of Harmonized Content [a] and Data Sources in the Cross-Wave File

LHMS Sections	Question Content Groups [b]	File Variable Names	2015 LHMS Fall	2017 LHMS Spring	2017 LHMS Fall Full	2017 LHMS Fall Supp [c]
Geographical and Residential History	Housing contexts before and after age 16	LH1, LH2, LH4	✓	✓	✓	
	Age when left parental home	LH3	✓	✓	✓	
	Residences from birth to present	LH5	✓	✓	✓	
	Household composition at age 10	LH6 – LH11	✓	✓	✓	
	Household composition at first job	LH13 – LH17	✓	✓	✓	
	Household composition at age 40	LH18 – LH21	✓	✓	✓	
Education History	K-12 schools	LH22	✓	✓	✓	
	Issues in elementary or primary school	LH23 – LH28	✓	✓	✓	
	Extracurricular and sport activities	LH29 – LH33	✓	✓	✓	
	Colleges and professional training	LH35	✓	✓	✓	
Partnership History	Grids of marriages and partnerships	LH36, LH37		✓	✓	✓
Work History	Family-work arrangements	LH38 – LH40		✓	✓	✓
	Industry/job title history [d]	LH41		✓	✓	✓
	Self-defined most important job at age 30-40	LH42 – LH49		✓	✓	✓
	Job quality of important job age 30-40	LH50		✓	✓	✓
Caregiving History	Start/stop spells of unpaid caregiving	LH51		✓	✓	✓
Health	Health conditions and gynecological illnesses	LH52, LH53		✓	✓	✓
	Major surgeries before age 50	LH54		✓	✓	✓
	Therapy for drug/alcohol use	LH55		✓	✓	✓
	Injuries in major accidents before age 50	LH56		✓	✓	✓
	Spells of ill health/disability after age 16	LH57		✓	✓	✓
Physical activity	Frequency of vigorous and moderate-level activities, ages 18-29, 30-39, and 40-49	LH58, LH59	✓	✓	✓	
Important achievements	Thematic codes (e.g., education, family, work, health, adversity)	LH60		✓	✓	✓

Note: a = Content is harmonized to the LHMS 2017 Spring
b = Variable Content groups listed in the order questions are in the LHMS 2017 Spring
c = The LHMS Fall 2017 Supplement was completed by Rs who participated in Fall 2015
d = Categories from 2010 Census, consistent with HRS public employment data

The public data description and cross-wave data can be accessed here:
https://hrsdata.isr.umich.edu/data-products/lhms-cross-wave

We list the question, how responses are coded, question sources (e.g., if adapted from ELSA and SHARELIFE), other related HRS data, and provide some background references. The variables are numbered in the order of the spring 2017 LHMS questionnaire.

Variable names in the cross-wave LHMS file begin with the letters LH and the item number from the 2017 spring LHMS. If our editing determined that a number reported (e.g., year, age, count) was implausible, the response as 96 = Implausible Value or Out of Range. All missing items are treated the same in the dataset and coded as "Blank = Missing." This is true whether the respondent was "expected" to answer the question or not. For questions that were not asked in 2015 LHMS, missing answers were combined to "Blank / Missing/Not Asked in 2015." There are two indicators for LHMS wave. These are:

- LHMS = "LHMS STUDY" (1 = 2015 and/or 2017 Fall Supplement; 2 = 2017 Spring; 3 = 2017 Fall Full).
- LHMSIWIND = "LHMS IW COMPLETE INDICATOR" (1 = completed 2015 and 2017 Supplement; 2 = completed 2015 but not 2017 Supplement; 3 = completed 2017 Supplement but was not in the 2015 interviewed sample; 4 = completed 2017 Spring; 5 = completed 2017 Fall Full).

Table 3. Indicators for LHMS Waves in Harmonized Data File

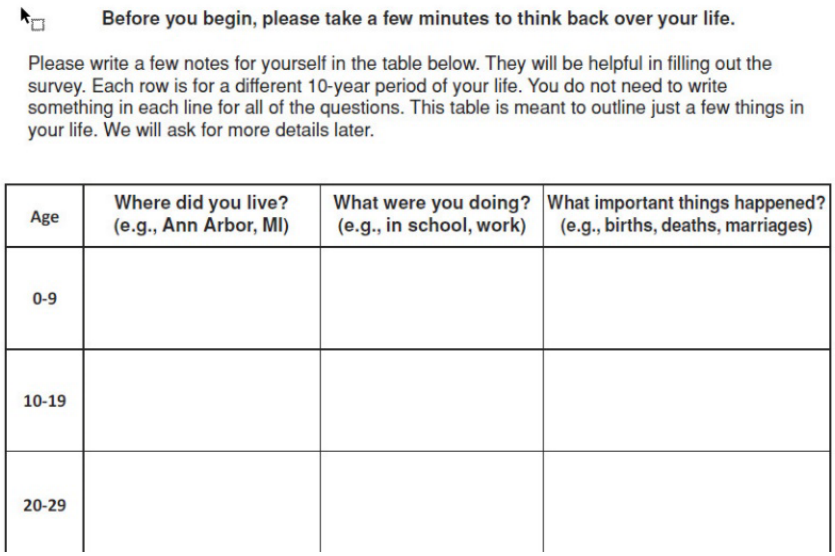
LHMS	LHMSWIND	n*	Q1-Q35	Q36-Q61
1	1	5212	2015 (Q1-Q35)	2017 Fall Supplement (Q36-Q61)
1	2	1265	2015 (Q1-Q35)	
1	3	2		2017 Fall Supplement (Q36-Q61)
2	4	3839	2017 Spring (Q1-Q61)	
3	5	1443	2017 Fall Full (Q1-Q61)	
	Total	11761		

Notes. *Our cross-wave editing revealed some duplicated files/incorrectly linked files in earlier releases of LHMS waves. The edited subsample sizes are listed here.

Opening calendar

From 2017 onward, the LHMS included a one-page calendar at the beginning of the questionnaire booklet with instructions to participants to write a few notes about where they lived, what they were doing, and important events for each life decade (see excerpt below). This is included as a "warm up" for participants to review their life before moving on to answer detailed questions about specific domains. The procedure follows methods developed in applied cognitive and survey research. ELSA participants were mailed an "appointment card" that included a request to write notes about their residential and job histories prior to their in-person interview. The HRS calendar data are not released.

Figure 3: Extract from opening calendar in the LHMS



Before you begin, please take a few minutes to think back over your life.

Please write a few notes for yourself in the table below. They will be helpful in filling out the survey. Each row is for a different 10-year period of your life. You do not need to write something in each line for all of the questions. This table is meant to outline just a few things in your life. We will ask for more details later.

Age	Where did you live? (e.g., Ann Arbor, MI)	What were you doing? (e.g., in school, work)	What important things happened? (e.g., births, deaths, marriages)
0-9			
10-19			
20-29			

Geographical and residential history

The first group of questions (LH1 to LH4) ask about **migration** (LH1) and **housing contexts** before age 16 (LH2) and up to age 50 (LH3-LH4).

Source: adapted from ELSA and SHARELIFE

LH1 From when you were born to age 50, did you ever live outside the United States for 6 months or more?

Coding: 1 = Yes, 5 = No

LH1A How many different countries?

Coding: Range of values

LH1B *Did you live outside the US for 6 months or more…?*
LH1B1 before the age of 10?
LH1B2 between age 10 and 17?
LH1B3 between age 18 and 25?
LH1B4 between age 26 and 50?

Coding: 1 = Yes, 5 = No

LH2A-I: housing contexts before age 16

Source: LH2A-F and LH2H and LH3 adapted from ELSA.

(*Before you were age 16 …)*

LH2A Did you ever live in a children's home or orphanage?
LH2B Did you ever live with a foster family or in a foster home?
LH2C Did you ever live in a boarding school?

LH2D Did your biological or adoptive parents separate or divorce?
LH2E Did one or both of your biological or adoptive parents die?
LH2F# Did one or more of your siblings die?
LH2G Were you ever separated from your mother for 6 months or longer?
LH2H Were you ever separated from your father for 6 months or longer?
LH2I Were your grandparent(s) ever your primary caregivers?
Coding: 1 = Yes, 5 = No

Note: # included in LHMS 2017; not in LHMS 2015

Related HRS resources:

Eighteen variables about childhood family socioeconomic status, relationships with parents, and family dysfunction collected in HRS biennial core interviews (1992 – 2016) are available in the Cross-wave Childhood Family and Childhood Health file (can be merged with the LHMS data using HHID+ PN): https://hrsdata.isr.umich.edu/data-products/cross-wave-childhood-health-and-family-aggregated-data

LH3 How old were you when you first stopped living with your parent(s) or guardians(s) to live on your own or establish your own home?
Coding: Range of values; 96 = Implausible value; **LH3B:** 1 = Not relevant / Never left parents to live on my own

Background literature:

Gutmann, M. P., Pullum-Piñón, S. M., & Pullum, T. W. (2002). Three eras of young adult home leaving in twentieth-century America. *Journal of Social History*, 533-576.

LH4A-G Atypical housing contexts in adulthood (before age 50)

Source: LH4A-E adapted from ELSA

(*Before you were age 50 …)*

LH4A Were you ever in a jail, prison, or a detention center for more than 3 days?
LH4B Were you ever a long-term inpatient in a hospital for 1 month or more?
LH4C Did you ever lived in a combat zone?
LH4D Did you ever lived on a military base or in military housing?
LH4E Were you ever homeless for 1 month or more?
LH4F #Were you ever a long-term patient for 1 month or more in a clinic for a mental, emotional, or substance abuse problem?
LH4G #Were you ever displaced from your home for more than 3 days because of a natural disaster? (e.g., earthquake, tornado, flood)
Coding: 1 = Yes, 5 = No

Note: # included in LHMS2017; not in LHMS 2015

Related HRS resources:

HRS, ELSA, and SHARELIFE include questions about other difficult life events or exposure to stress-related lifetime traumas. Included among these questions are experiences of the death of a child, loss due to major fire, flood, or natural disaster, firing a weapon or being fired upon in combat, dealing with the

addiction or a life-threatening illness or accident of family member, and being a victim of physical attack or assault. ELSA and SHARELIFE also ask about war-related imprisonment or internment and experience of a period of hunger. In addition, ELSA and SHARELIFE ask participants to specify the times of worst health, financial hardship, considerable stress, and great happiness.
HRS collected reports of experiencing these and other difficult life events in the Psychosocial Questionnaire (Leave-Behind) from cohorts in the longitudinal biennial panel in **the 2006, 2008, 2010**, and **2012** waves (see Q37a and Q38 in the HRS Psychosocial and Lifestyle Questionnaire 2006-2016 (https://hrs.isr.umich.edu/publications/biblio/9066). These questions (listed below) were moved to the 2019 LHMS (Spring and Fall) to obtain responses from the late-Baby Boomer (LBB) cohort and other new panel participants (e.g., partners) who joined the study since 2012.

a. *Have you ever fired a weapon in combat or been fired upon in combat?
b. *Has your spouse, partner, or child ever been addicted to drugs or alcohol?
c. *Were you the victim of a serious physical attack or assault?
d. *Did you ever have a life-threatening illness or accident?
e. *Did your spouse or a child of yours ever have a life-threatening illness or accident?
f. At any time in your life, have you ever been unfairly dismissed from a job?
g. For unfair reasons, have you ever not been hired for a job?
h. Have you ever been unfairly denied a promotion?
i. Have you ever been unfairly prevented from moving into a neighborhood because the landlord or a realtor refused to see or rent you a house or apartment?
j. Have you ever been unfairly denied a bank loan?
k. Have you ever been unfairly stopped, searched, questioned, physically threatened, or abused by police?
l. Have you ever been unfairly denied health care or treatment?

Note: * similar to item included in ELSA and SHARELIFE

Background literature:

Anda, R. F., Felitti, V. J., Bremner, J. D., Walker, J. D., Whitfield, C. H., Perry, B. D., ... & Giles, W. H. (2006). The enduring effects of abuse and related adverse experiences in childhood. *European Archives of Psychiatry and Clinical Neuroscience*, *256*(3), 174-186.

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine*, *14*(4), 245-258.

Krause, N., Shaw, B. A., & Cairney, J. (2004). A descriptive epidemiology of lifetime trauma and the physical health status of older adults. *Psychology and Aging, 19*(4), 637–648.

Monroe, S. M. (2008). Modern approaches to conceptualizing and measuring human life stress. *Annual Review of Clinical Psychology*, *4*, 33-52.

Turner, R. J., Wheaton, B., & Lloyd, D. A. (1995). The epidemiology of social stress. *American Sociological Review*, 104-125.

LH5_1A-C to LH5_18A-C: Residential history from birth to present (Maximum = 18 addresses)

We asked participants to list the start dates and address (street, city/town, state/country, zip code) for each place they had "*lived in for one year or more from birth until now*." Street, city, and state are masked in the cross-wave public file to avoid identifying LHMS participants. States are coded in the public file to indicate geographical mobility across different US states. Foreign country names are masked. The questionnaire provided space for up to 18 residential addresses to be listed. The majority of participants listed 11 or fewer addresses which is consistent with US Census estimates: https://www.census.gov/topics/population/migration/guidance.html.

LH5_xA Residence start year
Coding: Range of values

LH5_xB Residence state
Coding: States were assigned a code to indicate the order they were mentioned by a participant (e.g., 1 = First state mentioned, 2 = Second state mentioned, etc); addresses outside the US, were coded as 96 = Foreign country.

LH5_xC Did you or your family own or rent this residence?
Coding: 1 = Own; 2 = Rent: 7 = Other; 8 = Don't know.

Note: Residence end year was included in LHMS2015 but not in LHMS2017 and cross-wave data.

Source: Adapted from ELSA, SHARELIFE, and CHARLS

Related HRS resources:
After recruitment to the HRS panel, residential mobility is updated every 2 years. A public data cross-wave file combining panel data collected from 1992 to 2018 is available here: https://hrsdata.isr.umich.edu/data-products/cross-wave-census-regiondivision-and-mobility-file

Background literature:
Long, L. (1988). *Migration and residential mobility in the United States*. Russell Sage Foundation.
Tienda, M., & Fuentes, N. (2014). Hispanics in metropolitan America: New realities and old debates. *Annual Review of Sociology*, *40*(1), 499-520.
Tolnay, S. E. (2003). The African American" great migration" and beyond. *Annual Review of Sociology*, 209-232.

LH6 to LH21: Household information (e.g., composition, household size, type) at age 10, on starting first job after completing education, and at age 40.

(*First, please think back to when you were **10***.)

LH6 Who lived with you when you were 10?
(Multiple responses listed **LH6M1 – LH6M7**)

Coding:1 = Biological mother; 2 = Biological father; 3 = Adoptive, step, or foster mother; 4 = Adoptive, step, or foster father; 5 = Biological brother(s) or sister(s);

6 = Adopted, step, foster, or half-brother(s) or sister(s); 7 = Grandparent(s), 8 = Other relative(s); 9 = Other non-relative(s).

Source: Adapted from ELSA

LH7 Including you, how many people lived in your household when you were 10?
Coding: Range of values; 96 = Implausible values

Source: LH7-LH9 adapted from ELSA

LH8 How many bedrooms were there?
Coding: Range of values

LH9 What type of residence was it (age 10)?
Coding: 1 = Single-family house; 2 = Apartment/town house/condo/duplex; 3 = Mobile home; 97 = Other

LH10 When you were 10, how much did you feel part of the local area?
Coding: 1 = I felt that I didn't belong in this area, to 7 = I really felt part of this area

Note: included in LHMS 2017; not in LHMS 2015

Source: Single item from longer scale included in the core HRS psychosocial questionnaire.

Background literature:

Cagney, K. A., Glass, T. A., Skarupski, K. A., Barnes, L. L., Schwartz, B. S., & Mendes de Leon, C. F. (2009). Neighborhood-level cohesion and disorder: measurement and validation in two older adult urban populations. *Journals of Gerontology: Series B*, *64*(3), 415-424.

LH11 When you were 10 years old, approximately how many books were in the place you lived?
Coding: 1 = None or very few (0-10 books); 2 = Enough to fill one shelf (11-25 books); 3 = Enough to fill one book case (26-100 books); 4 = Enough to fill two bookcases (101-200); 5 = Enough to fill more than two bookcases (more than 200 books).

Source: Adapted from ELSA

LH12 Which of the following best describes the language(s) spoken in your household when you were growing up, before you were age 18?
Coding: 1 = English was the only language spoken regularly; 2 = English was the main language but a second language was also spoken regularly; 3 = A language other than English was the main language spoken, but English was also spoken regularly; 4 = A language other than English was the only language spoken regularly.

Source: HRS LHMS original

(*Now think back to where you lived when you started **your first full-time job** after leaving school or college*.)

LH13 How old were you when you started your first full-time job?
Coding: Age range; 96 = Implausible values; **LH13A: 1 =** Not relevant / Never worked full-time

Source: Adapted from ELSA

LH14 Who lived with you when you started your first full time job?
(Multiple responses listed **LH14M1 – LH14M7**)
Coding: 1 = Spouse or partner; 2 = Biological children; 3 = Adopted, foster, or step children; 4 = Brothers(s)/sister(s); 5 = Parent(s); 6 = Grandparent(s); 7 = Parent(s)-in-law; 8 = Other relative(s); 9 = Other non-relative(s); 10 = I lived alone; 11 = Children (unspecified); 12 = In the military; 97 = Other

Source: LH14 to LH21 HRS LHMS original questions

Related HRS resources:
Household composition and type is also collected each biennial wave after entry to the longitudinal panel.

LH15 Including you, how many people lived in your household when you started your first full-time job?
Coding: Range values; **LH15A**: 1 = I lived with many people in military or other group quarters

LH16 What type of residence did you live in when you started your first job?
Coding: 1 = Single-family house; 2 = Apartment/townhouse/condo; 3 = Mobile home; 4 = Military housing / Barracks; 5 = Rooming house/Boarding house/ YMCA/Dormitory; 97 = Other

LH17 When you started your first job, how much did you feel part of the local area?
Coding: 1 = I felt that I didn't belong in this area to 7 = I really felt part of this area

Note: Included in LHMS 2017; not in LHMS 2015.

Source: See Item LH10

*(Think back to where you lived when you were **40 years old**.)*

LH18 Who lived with you when you were 40?
(Multiple responses listed **LH18M1 – LH18M7)**
Coding:1 = Spouse or partner; 2 = Biological children; 3 = Adopted, foster, or step children; 4 = Brothers(s)/sister(s); 5 = Parent(s); 6 = Grandparent(s); 7 = Parent(s)-in-law; 8 = Other relative(s); 9 = Other non-relative(s); 10 = I lived alone; 11 = Children (unspecified); 97 = Other

LH19 Including you, how many people lived in your household when you were 40?

Coding: Range values; 96 = Implausible value

LH20 What type of residence was it?
Coding: 1 = Single-family house; 2 = Apartment/townhouse/condo; 3 = Mobile home; 7 = Other

LH21 When you were 40 years old, how much did you feel part of your local area?
Coding: 1 = I felt that I didn't belong in this area to 7 = I really felt part of this area
Note: Included in LHMS 2017; not in LHMS 2015.

Source: See Item LH10

Education history

Education contributes to the acquisition of human capital. School qualities, policy, and mandatory curriculum vary across cities and states and have changed over the lifetimes of participants in the HRS longitudinal panel. The location, content, and quality of education prior to age 50 is useful early-life information for researchers examining predictors of later life health, wealth, well-being, and cognitive performance and decline. The details added about K-12 and College training obtained in the LHMS extend the minimal information previously available in HRS (i.e., Years of School, Highest degree).
Source: With the exception of questions LH24-LH25 and LH34, all items were developed by the HRS project team.

General Background Literature

Douglass, H. R., & Grieder, C. (1948). *American Public Education: An Introduction*. New York: The Ronald Press Company.
Snyder T. D. (1993). *120 years of American education: A statistical portrait*. US Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics. 1993.

LH22_1A-G to LH22_10A-G: K-12 Schools (Maximum = 10 schools)

Participants were asked to list start/end grades, name, location (city/town, state/country) and start/end age for all primary, elementary, middle/junior high and high schools. Follow-up questions included whether the institutions were public or private / religious schools and the majority racial composition of the school. School name and city are masked in the public data to avoid identifying LHMS participants. School state is assigned a code similar to that used in the residential history (LH 5_xb). The questionnaire provided space for up to ten K-12 schools to be listed. The majority of participants listed five or fewer. Note: From the 2017 LHMS onward, reports of all K-12 schools are included in one question (i.e. grid table). This differs from 2015 LHMS questionnaire, in which there were separate questions for primary, junior/middle and high school. There were also additional follow-up questions about each school in the 2015 LHMS. These are not included in the harmonized cross-wave LHMS file but can be accessed on the HRS website: https://hrsdata.isr.umich.edu/data-products/2015-life-history-mail-survey.

LH22_xA School start grade

Coding: Range of values; 96 = Out of range

LH22_xB School end grade
Coding: Range of values; 96 = Out of range
Note: Included in LHMS 2017; not in LHMS 2015.

LH22_xC School state or country
Coding: States were assigned a code to indicate the order they were mentioned by a participant in LH5 (e.g., 1 = First state mentioned, 2 = Second state mentioned, etc.) and addresses outside the US, were coded as 96 = Foreign Country.

LH22_xD School start age
Coding: Range of values; 96 = Out of range

LH22_xE School end age
Coding: Range of values; 96 = Out of range

LH22_xF School type
Coding: 1 = Public; 2 = Private/Religious

LH22_xG School race/ethnicity composition
Coding: 1 = White; 2 = Black; 3 = Hispanic; 7 = Other

Background literature

Glymour, M. M., & Manly, J. J. (2008). Lifecourse social conditions and racial and ethnic patterns of cognitive aging. *Neuropsychology review*, *18*(3), 223-254.
Walsemann, K. M., Ureña, S., Farina, M. P., & Ailshire, J. A. (2022). Race Inequity in School Attendance Across the Jim Crow South and Its Implications for Black–White Disparities in Trajectories of Cognitive Function Among Older Adults. *The Journals of Gerontology: Series B*.

Questions LH24 to LH28 ask about issues and experiences **in primary or elementary school**.

LH23 Did you attend a pre-school, nursery school, or other program before primary/elementary school?
Coding: 1 = Yes; 5 = No

When you were 10 (i.e., Grade 4 or 5)

LH24 How well did you do in Math compared to other children in you class?
Coding: 1 = Much better; 2 = Better; 3 = About the same; 4 = Worse; 5 = Much worse; 6 = Did not go to school; 8 = Don't know

LH25 How well did you do in Reading and Writing (i.e., spelling, grammar) compared to other children in your class?
Coding: 1 = Much better; 2 = Better; 3 = About the same; 4 = Worse; 5 = Much worse;

6 = Did not go to school; 8 = Don't know

LH26 *In primary or elementary school, did any teachers, principals or psychologists tell you or your parents that you had a problem with learning any of the usual school subjects below?*
LH26A Reading
LH26B Writing
LH26C Mathematics/arithmetic
LH26D Speaking or language
Coding:1 = Yes; 5 = No; 8 = Don't know

LH27 *In primary or elementary school did you ever have…*
LH27A A hearing problem?
LH27B A vision problem?
LH27C A speech problem?
LH27D A problem with balance or motor coordination?
Coding:1 = Yes; 5 = No;
Note: Included in LHMS 2017; not in LHMS 2015.

LH28 *In primary or elementary school, were you or your parents ever told by a professional that you had any of the following problems?*
LH28A Mental or emotional problems
LH28B Dyslexia
LH28C Attention Deficit Hyperactivity Disorder (ADHD)
LH28D Other learning disorder
Coding: 1 = Yes; 5 = No; 8 = Don't know

Background literature

Bruck, M. (1987). The adult outcomes of children with learning disabilities. *Annals of Dyslexia*, *37*(1), 252-263.
Ritchie, S. J., & Bates, T. C. (2013). Enduring links from childhood mathematics and reading achievement to adult socioeconomic status. *Psychological Science, 24(7),* 1301-1308.

Questions LH29 to LH33 ask about **high school** extracurricular activities and sports.

General Note: The questionnaire included a question: "Did you go to high school" (Yes /No) with the instruction to skip questions LH29a to LH33c if the response was no. This item is not in the cross-wave file. Some participants did not read or understand this instruction (e.g., they responded no but provided answers to LH29a – LH33c and listed a high school in LH22). We extensively edited information in the cross-wave file for consistency across responses provided by participants.

LH29 *When you were in high school…*
LH29A Did you take special courses or classes to better prepare you for college?
LH29B Did you take special courses or classes that were intended to prepare you for a job after high school (also called vocational training)?
LH29C Did you often get into trouble at school for being absent more than usual missing classes, or being truant?

LH29D #Did you often get into trouble for disrupting classes or not concentrating?
Coding: 1 = Yes; 5 = No;
Note: # in LHMS 2015 the question was asked "*Were you ever asked to participate in community service programs as punishment for some school-related problem?"*

LH30 Did you study a foreign language in high school?
Coding: 1 = Yes; 5 = No

LH30A Which languages did you study in high school?
(Multiple responses listed **LH30A_M1 - LH30A_M6)**
Coding: 1 = Spanish; 2 = French; 3 = German; 4 = Italian; 5 = Latin; 6 = Chinese; 7 = English (as second language); 97 = Other

LH31 *In high school, did you take classes or spend time to do the following:*
LH31A Learn to play a musical instrument
LH31B Take singing lessons or sing in a chorus or choir
LH31C Learn woodwork or carpentry
LH31D Learn a craft (e.g., knitting, quilting, embroidery)
LH31E Learn ballet or dance
LH31F Learn to paint or draw or other art
LH31G #Participate in a math or science club
LH31H #Learn drafting or technical drawing
LH31I #Take vocational or trade classes (e.g., auto repair, HVAC)
LH31J #Participate in theatre, drama, or debate club
Coding: 1 = Yes; 5 = No;
Note: # included in LHMS 2017; not in LHMS 2015.

Background literature

Benz, S., Sellaro, R., Hommel, B., & Colzato, L. S. (2016). Music makes the world go round: The impact of musical training on non-musical cognitive functions: A review. *Frontiers in Psychology*, *6*, 2023.

Bialystok, E. (2016). Bilingual education for young children: Review of the effects and consequences. *International Journal of Bilingual Education and Bilingualism*, *21*(6), 666-679.

Hertzog, C., Kramer, A. F., Wilson, R. S., & Lindenberger, U. (2009). Enrichment effects on adult cognitive development. *Psychological Science in the Public Interest, 9*(1).

Jones, R. N., Manly, J., Glymour, M. M., Rentz, D. M., Jefferson, A. L., & Stern, Y. (2011). Conceptual and measurement challenges in research on cognitive reserve. *Journal of the International Neuropsychological Society*, *17*(4), 593-601.

Stern, Y. (2001). What is cognitive reserve? Theory and research application of the reserve concept. *Journal of the International Neuropsychological Society, 8*(3), 448-460.

Walsemann, K. M., & Ailshire, J. A. (2020). Early educational experiences and trajectories of cognitive functioning among US adults in midlife and later. *American Journal of Epidemiology, 189*(5), 403-411.

Wilson, R. S., Boyle, P. A., Yang, J., James, B. D., & Bennett, D. A. (2015). Early life instruction in foreign language and music and incidence of mild cognitive impairment. *Neuropsychology*, *29*(2), 292.

LH32 Approximately how many school clubs or organizations were you involved with during high school?

Coding: Range of values

Note: Excludes 2015 cases since they were collected in 5 categories. See also LH32C.

LH32C Approximately how many school clubs or organizations were you involved with during high school?

Coding: 1 = 0-1; 2 = 2-5; 3 = 6-9; 4 = 10-19; 5 = 20 and more

Note: This is a created variable. Cases from 2017 were recoded into 5 categories to be consistent with 2015 questionnaire.

LH33 During junior/middle and high school, did you participate in organized school, intramural or recreational sports (such as football, basketball, baseball, soccer, swimming, track and field, tennis, hockey, volleyball, gymnastics, rowing, snow sports, etc.)?

Coding: 1 = Yes; 5 = No

LH33A In how many of your junior/middle school and high school years did you participate in organized sport(s)?

Coding: Range of values; 96 = Out of range

LH33B In how many of your junior/middle school and high school years did you participate in organized sport(s)?

(Multiple responses listed **LH33BM1 - LH33BM13)**

Coding: 1 = Baseball; 2 = Basketball; 3 = Football; 4 = Gymnastics; 5 = Hockey; 6 = Rowing; 7 = Soccer; 8 = Swimming; 9 = Tennis; 10 = Track; 11 = Volleyball; 12 = Softball; 13 = Wrestling; 14 = Cheer, Drill team; 97 = Other

Note: Included in LHMS 2017; not in LHMS 2015.

LH33C Did you ever suffer any of the following serious injuries playing organized sports in junior/middle and high school?

LH33C1 Head injury such as concussion

LH33C1A If yes, was this before age 16?

LH33C2 Leg, arm, shoulder or back injury

LH33C3 Other serious injury

Coding: **LH33C1, LH33C2** 1 = Yes; 5 = No; 8 = Don't Remember

LH33C1A, LH33C3 1 = Yes; 5 = No

Background literature

Daneshvar, D. H., Riley, D. O., Nowinski, C. J., McKee, A. C., Stern, R. A., & Cantu, R. C. (2011). Long-term consequences: effects on normal development profile after concussion. *Physical Medicine and Rehabilitation Clinics*, *22*(4), 683-700.

The next group of questions (**LH34 to LH35**) ask about further education and training after high school.

LH34 After high school, did you do any further education at a college, professional, or technical school?
Coding: 1 = Yes; 5 = No

Participants were asked to list the start and end year of training, the names of the colleges/community colleges and professional or technical schools or programs that they attended after high school, and the location of this further education (city/town, state/country). Follow-up questions asked if the institutions were public, private / religious school, if they attended full- or part-time, the major field(s) of study, and the degrees or certificates earned. College/school name and location (city/ state/country) are masked in the public data to avoid identifying LHMS participants. State is assigned a code similar to that used in the residential and K-12 histories (LH 5_xb, LH22_xc). The questionnaire provided space for up to seven colleges/community colleges/professional schools to be listed. The majority of participants listed less than five.

LH35_xA Start year
Coding: Range of values;

LH35_xB End year
Coding: Range of values

LH35_xC State or country
Coding: States were assigned a code to indicate the order they were mentioned by a participant in LH5 (e.g., 1 = First state mentioned, 2 = Second state mentioned, etc.) and addresses outside the US, were coded as 96 = Foreign Country.

LH35_xD Was this a public/state or private/religious school?
Coding: 1 = Public; 2 = Private/Religious

LH35_xE Did you attend full-time, part-time or other?
Coding: 1 = Full-time; 2 = Part-time; 3 = Other

LH35_xF Major / field(s) of study
Coding: Majors/fields of studies utilized the 2010 two-digit codes from the Classification of Instructional Programs (CIP) created by the Integrated Postsecondary Education Data System (IPEDS) under the National Center for Educational Statistics (https://nces.ed.gov/ipeds/cipcode/browse.aspx?y=55). We grouped the two-digit codes for major/field of study into 13 larger categories to protect respondent confidentiality.

1 Business, Management, Marketing, and Related Support Services
2 Communication, Journalism
3 Education
4 Health Professions
5 Liberal Arts and Sciences, General Studies, Humanities, Foreign Languages and Literatures, Linguistics, Theology and Religious Vocations, Visual and Performing Arts
6 Legal Professions, Military Studies and Technologies, Homeland Security, Law Enforcement, Firefighting
7 Agriculture and Related Sciences, Natural Resources and Conservation

8 Architecture, Engineering, Engineering Technologies, Biological and Biomedical Sciences, Mathematics and Statistics, Physical Sciences
9 Social Sciences, Psychology, Family and Consumer Sciences, Human Sciences, Area/Ethnic/Cultural/Gender and Group Studies
10 Communications Technologies and Support Services, Computer and Information Sciences, Library Science
11 Personal and Culinary Services, Parks/Recreation/Leisure and Fitness Studies, Leisure and Recreational Activities
12 Construction Trades, Mechanic and Repair Technologies, Precision Production, Transportation and Materials Moving
13 Other

LH35_xI Degree(s) or certificates earned
Coding: Degrees and certificates/licenses received separate code (adapted from NCES). **Academic degrees** were given a numerical code based on type of degree.

Note: During the cross-wave harmonization, the LHMS 2015 college degree categories were recoded to match the LHMS 2017 categories. Respondents from 2015 did not contribute any observations to the categories 9, 10, or 11 in the harmonized data.

1 Associate's degree (e.g., AA, AS, AAS,)
2 Bachelor's degree (e.g., BA, BS, BM, BBA, BFA, AB, LLB)
3 Master's degree (e.g., MA, MS, MSW, MBA, MRP, MPP, MAT, MEd)
4 Doctorate degree (e.g., PhD, DD)
5 Professional degree (e.g., MD, DO, DDS, JD, OD, DVM, DC)
6 High school equivalency
7 Graduated/Completed/Passed with unspecified degree/license/certification
8 Did not complete/Some courses/Dropped out/Transferred/All but dissertation (ABD); This includes those who wrote "na, none" as opposed to R leaving it blank
9 Specialist degree beyond master's (e.g., EdS)
10 Currently enrolled
11 Continuing education
96 Other

Certificates/licenses were given a one-digit code based on length of program.
Note: Certificates/ licenses coding was not included in the previous 2015 LHMS data

1 Short Term- less than 1 year to complete
2 Moderate Term- at least 1 year but less than 2 years to complete
3 Long Term- at least 2 years but less than 4 years to complete
4 Post-Secondary Credential- an additive license/certification after obtaining a BA or higher (e.g. Teacher's certificate)
5 Military Credential- anything regarding military experience or training, for any length of time
6 Unknown/Other

Background literature

Altonji, J. G., Blom, E., & Meghir, C. (2012). Heterogeneity in human capital investments: High school curriculum, college major, and careers.

Jacobs, J. A. (1995). Gender and academic specialties: Trends among recipients of college degrees in the 1980s. *Sociology of Education*, 81-98.

Partnership history

Partnership and marital history has important consequences for retirement resources, health, and well-being. Women's Social Security benefits, a major retirement resource, often depend on their own lifetime earnings as well as that of their current or former spouse(s). In the past three decades, age of first marriage has risen and cohabitation has become more prevalent. Together, cohabitation and marital histories expand the possibilities to identify the pathways between cohabitation and marriage and to examine potential impacts on personal social networks later in life. We asked LHMS participants to provide information about up to five marriages (including spouse gender, whether lived together before marriage, year married, if still together, and end date where applicable). In addition, we asked about long-term partnerships other than with a spouse (including partner gender, start year, if still together or reason for ending, and end year).

LH36 Have you ever been married?
Coding:1 = Yes; 5 = No; 97 = Did not complete 2017 Fall Supp

LH36_xA Gender of spouse
Coding: 1 = Male; 2 = Female; 97 = Did not complete 2017 Fall Supp

LH36_xB Did you live together before marriage?
Coding:1 = Yes; 5 = No; 97 = Did not complete 2017 Fall Supp

LH36_xC Start year
Coding: Range of values; 99997 = Did not complete 2017 Fall Supp

LH36_xD Are you still together? If not, how did this marriage end?
Coding: 1 = Still together; 2 = Widowed; 3 = Divorced/Separated; 97 = Did not complete 2017 Fall Supp

LH36_xE Year marriage ended
Coding: range of values; 99997 = Did not complete 2017 Fall Supp

Source: Adapted from ELSA and SHARELIFE

LH37 Other than your spouse(s), have you ever lived together with someone else as a couple for at least a year or more?
Coding:1 = Yes; 5 = No; 97 = Did not complete 2017 Fall Supp

LH37_xA Gender of partner

Coding: 1 = Male; 2 = Female; 97 = Did not complete 2017 Fall Supp

LH37_xB Year began living together
Coding: Range of values; 99997 = Did not complete 2017 Fall Supp

LH37_xC Are you still together? If not, how did this relationship end?
Coding: 1 = Split up; 2 = Partner died; 3 = Still together; 97 = Did not complete 2017 Fall Supp

LH37_xD Year relationship ended (if applies)
Coding: Range of values; 99997 = Did not complete 2017 Fall Supp

Source: Adapted from ELSA and SHARELIFE

Related HRS resources
HRS obtains the dates and duration of all marriages and reason(s) for dissolution(s) at entrance to the panel. We aggregated this information from the core interviews in a separate cross-wave file that can be merged with responses using HHID and PN. [To be released October 2022]

Background literature
Bumpass, L. L., Sweet, J. A., & Cherlin, A. (1991). The role of cohabitation in declining rates of marriage. *Journal of Marriage and the Family*, 913-927.
Cherlin, A. J. (2010). Demographic trends in the United States: A review of research in the 2000s. Journal of Marriage and Family, 72(3), 403-419.
Shanahan, M. J. (2000). Pathways to adulthood in changing societies: Variability and mechanisms in life course perspective. *Annual Review of Sociology*, 667-692.

Work history

Work history is an important determinant of economic well-being throughout life. Jobs are opportunities for people to acquire human capital. High wage gains are observed among people who stay in the same job, same occupation, same industry, or work longer hours during their early career. Higher lifetime earnings increase Social Security benefits at retirement, and often raise pension income and savings. We asked respondents to list information about every employer for which they worked (start/end year, type of business/employer, job title) for one year or more after finishing their full-time education. Follow-up questions asked if respondents worked full or part-time and what they did after leaving each job. We also asked a series of questions about the job respondents considered to be most important between the ages of 30 and 40 (location, job title, salary, reasons for leaving, and satisfaction with job). In recognition of gender-related differences in work histories, respondents were also asked about adjustments they and their spouses made to work schedules in order to accommodate childcare responsibilities.

General Background literature
Bianchi, S. M., & Milkie, M. A. (2010). Work and family research in the first decade of the 21st century. *Journal of Marriage and Family, 72(3),* 705-725.

Goldin, C., & Mitchell, J. (2017). The new life cycle of women's employment: Disappearing humps, sagging middles, expanding tops. *Journal of Economic Perspectives*, *31*(1), 161-82.
Kambourov, G., & Manovskii, I. (2009). Occupational specificity of human capital. *International Economic Review*, *50*(1), 63-115.
Neal, D. (1995). Industry-specific human capital: Evidence from displaced workers. *Journal of Labor Economics*, *13*(4), 653-677.
Smart, E. L., Gow, A. J., & Deary, I. J. (2014). Occupational complexity and lifetime cognitive abilities. *Neurology, 83*(24), 2285-2291. https://doi.org/10.1212/wnl.0000000000001075

LH38 – LH40: Family-Work Arrangements

LH38 Since you left full-time education, have you ever done any paid work which lasted for a period of one year or more? (Paid work includes both full-time and part-time work.)
Coding: 1 = Yes; 5 = No; 97 = Did not complete 2017 Fall Supp

LH38A What was the reason(s) you never worked for pay for one year or more? (Multiple responses listed **LH38AM1 – LH38AM6**)
Coding: 1 = Stayed at home to raise children or care for family; 2 = Physical disability or injury; 3 = Mental or emotional disability; 4 = Could not find work; 5 = Was not interested in working; 7 = Other; 97 = Did not complete 2017 Fall Supp

LH39 *Did you ever…*
LH39A stop working at a job to stay home and care for your children?
LH39B cut back on the number of hours worked at a job to care for your children?
LH39C work longer hours to meet the added expenses of having children?
LH39D switch to a different job that was less demanding or more flexible to be more available to your children?
Coding: 1 = Yes; 5 = No; 6 = Does not apply; 97 = Did not complete 2017 Fall Supp

LH40 *Did your spouse or partner ever…*
LH40A stop working at a job to stay home and care for your children?
LH40B cut back on the number of hours worked at a job to care for your children?
LH40C work longer hours to meet the added expenses of having children?
LH40D switch to a different job that was less demanding or more flexible to be more available to your children?
Coding: 1 = Yes; 5 = No; 6 = Does not apply; 97 = Did not complete 2017 Fall Supp

Source: Adapted from the Midlife in the United States Study (MIDUS)

Carr, D. (2002). The psychological consequences of work-family trade-offs for three cohorts of men and women. *Social Psychology Quarterly,* 103-124.

LH41_1A-FM_Flag to LH41_10A-FM_Flag: Industry and job title history after finishing education (Maximum = 10 jobs)

Participants were asked to list the places they had worked for more than one year after finishing full-time education. They reported the start/end years for each job, if they worked full or part-time, what they

did after this job, and the type of employer or business (i.e., industry), and the job title. Detailed 2010 Census codes for industry and occupation are released as restricted data. The codes in the public file are consistent with categories for those variables adopted in the public HRS core interviews. The questionnaire included space for up to 10 jobs to be listed. The majority of participants listed fewer than nine. Some participants listed second job titles with the same employer during the period they worked there, indicating for example a promotion. This second job title is flagged in the current cross-wave file and will be added in future updates.

Related HRS resources
https://hrs.isr.umich.edu/publications/biblio/5955

LH41_xA Start year
Coding: range of values; 99997 = Did not complete 2017 Fall Supp

LH41_xB End year
Coding: range of values; 9996 = Still employed there; 99997 = Did not complete 2017 Fall Supp

LH41_xC Did you work full-time or part-time?
Coding: 1 = Full-time; 2 = Part-time; 97 = Did not complete 2017 Fall Supp

LH41_xD What did you do after leaving this job?
(Multiple responses listed **LH41_xDM1 - LH41_xDM6**)
Coding: 1 = Started next job / continued to work at another job; 2 = Working short-term job(s); 3 = Cared for / started a family / got married; 4 = Unemployed; 5 = Medical leave / disability; 6 = Retired / took buy out package; 7 = Pursued farther education; 8 = Started own business / became self-employed; 9 = Moved / relocated; 10 = Joined military; 11 = Still work at this job; 97 = Other; 997 = Did not complete 2017 Fall Supp

LH41_xEM Type of employer or business
Coding:
1 Agriculture, forestry, fishing and hunting (0170-0290)
2 Mining (0370-0490)
3 Utilities (0570-0690)
4 Construction (0770)
5 Manufacturing (1070-3990)
6 Wholesale trade (4070-4590)
7 Retail trade (4670-6790)
8 Transportation and warehousing (6070-6390)
9 Information (6470-6790)
10 Finance and insurance (6870-6990)
11 Real estate and rental and leasing (7070-7190)
12 Professional, scientific, and technical services (7270-7490)
13 Management, administrative, and support, and waste (7570-7790)
14 Educational services (7860-7890)

15 Healthcare and social assistance (7970-8470)
16 Arts, entertainment, and recreation (8560-8590)
17 Accommodations and food services (8660-8690)
18 Other services (except public administration) (8770-9290)
19 Public administration and active duty military (9370-9870)
99 Not ascertained (DK/RF)
997 Did not complete 2017 Fall Supp

LH41_xFM Job Title

Coding:

1 Management occupations (0010 - 0430)
2 Business and financial operations occupations (0500 - 0950)
3 Computer and mathematical occupations (1000 - 1240)
4 Architecture and engineering occupations (1300 - 1560)
5 Life, physical, and social Science occupations (1600 - 1960)
6 Community and social service occupations (2000 - 2060)
7 Legal occupations (2100 - 2160)
8 Education, training, and library occupations (2200 - 2550)
9 Arts, design, entertainment, sports, and media occupations (2600 – 3540)
10 Healthcare practitioners and technical occupations (3000 – 3540)
11 Healthcare support occupations (3600 – 3650)
12 Protective service occupations (3700 – 3950)
13 Food preparation and serving related occupations (4000 – 4160)
14 Building and grounds cleaning and maintenance occupations (4200 – 4250)
15 Personal care and service occupations (4300 – 4650)
16 Sales and related occupations (4700 – 4960)
17 Office and administrative support occupations (5000 – 5940)
18 Farming, fishing, and forestry occupations (6000 – 6130)
19 Construction and extraction occupations (6200 – 6940)
20 Installation, maintenance, and repair occupations (7000 – 7630)
21 Production occupations (7700 – 8960)
22 Transportation and material moving occupations (9000 – 9750)
23 Military Specific Occupations (9800 – 9830)
99 Not ascertained (DK/RF)
997 Did not complete 2017 Fall Supp

The next set of questions (**LH42 to LH50**) asked participants to report additional details about the job they considered to be their most important job between age 30 and 40. This life period is considered to be the period in the life course when people typically settle into a career track

Background literature

Mehta, C. M., Arnett, J. J., Palmer, C. G., & Nelson, L. J. (2020). Established adulthood: A new conception of ages 30 to 45. *American Psychologist*, *75*(4), 431.
Wahrendorf, M., Blane, D., Bartley, M., Dragano, N., & Siegrist, J. (2013). Working conditions in mid-life and mental health in older ages. Advances in life course research, 18(1), 16-25.

LH42 Now we'd like to learn a little more about the job you held between the ages of 30 and 40 that you consider to be most important (e.g., longest duration, best paying, most satisfying). Which employer was that?

Coding: We coded responses to link to the employer/job title listed in LH41: 1 = Job 1 from LH41; 2 = Job 2 from LH41; etc.; 997 = Did not complete 2017 Fall Supp

LH42B Not relevant/did not work for pay between the ages of 30 and 40

Coding: 1 = Not relevant; 97 = Did not complete 2017 Fall Supp

LH43 Did you work for someone else on that job, or were you self-employed or a partner in a business?

Coding: 1 = Someone else; 2 = Self-employed, 3 = Partner in a business; 97 = Did not complete 2017 Fall Supp

LH44 In what state or country did you work for this employer or business?

Coding: States were assigned a code to indicate the order they were mentioned by a participant in LH5 (e.g., 1 = First state mentioned, 2 = Second state mentioned, etc.) and addresses outside the US, were coded as 96 = Foreign Country. 97 = Did not complete 2017 Fall Supp

LH45M What was your job title? What were your most important activities or duties?

Coding: see **LH41_xFM** (p. xx)

Note: Detailed 2010 Census codes for industry and occupation are released as restricted data. The codes in the public file are consistent with categories for those variables adopted in the public HRS core interviews

LH46M What kind of business or industry did you work in - that is, what did they make or do at the place where you worked?

Coding: see **LH41_xEM** (p. xx)

LH47A How much did you earn before taxes and other deductions when you started that job?

Coding: **R**ange of values; 9999999 = missing; 99999997 = Did not complete 2017 Fall Supp

LH47B Per hour, week, month or year?

Coding: 1 = Hour; 2 = Week; 3 = Month; 4 = Year; 97 = Did not complete 2017 Fall Supp

LH48 Were you covered on that job by a union or employee-association contract?

Coding: 1 = Yes; 5 = No; 97 = Did not complete 2017 Fall Supp

LH49 Do you still work for this employer or business?
Coding: 1 = Yes; 5 = No; 97 = Did not complete 2017 Fall Supp

LH49A Why did you leave or stop working for this employer? (Check all that apply)
(Multiple responses listed **LH49AM1 – LH49AM8**)

Coding:1 = Moved to a higher paying job; 2 = Moved to a job with a better future; 3 = Moved to a more satisfying job; job with different hours, better location, less stress; 4 = Moved to a job that better matched my skills; 5 = Moved or relocated; 6 = To take care of or start a family; got married; 7 = To continue education; 8 = I had poor health/ a disability; 9 = I was laid off, let go, or replaced; temporary assignment ended; contract ended; 10 = I retired; 11 = Company closed, went out of business, or relocated; 12 = Started own business; became self-employed; 13 = Did not like it; problems with the owners; problems with coworkers; hours were cut; 14 = Moved to a different job, unspecified; 15 = Divested ownership in the business; sold the business; 97 = Other; 997 = Did not complete 2017 Fall Supp

LH50 *Please say how much you agree or disagree with each of the following statements regarding this job.*
LH50A The job was physically demanding.
LH50B I had very little freedom to decide how I did my work.
LH50C At work, I felt I had control over what happened in most situations.
LH50D I had a lot to say about what happened on my job.
LH50E The people I worked with could be relied on when I needed help.
LH50F I learned useful skills in this job.
LH50G My skills were not a good match for this job.
LH50H The job was interesting and enjoyable.
Coding: 1 = Strongly disagree; 2 = Disagree; 3 = Agree; 4 = Strongly agree; 5 = Does not apply; 97 = Did not complete 2017 Fall Supp

Related HRS resources
Items adapted from questions included in the core HRS Psychosocial questionnaire. See Psychosocial User Guide 2006-2016 (Questions on Job satisfaction, Job environment, Co-worker support)

Caregiving history

The next series of questions (**LH51 to LH51_A5C**) asked about episodes of unpaid caregiving for a relative or friend.

LH51 Have you ever provided **unpaid** care to a relative or friend with some sort of special need to help them take care of themselves for a **period of 6 months or more**?
NOTE: Raising children without special needs does not apply here. A special need could be an illness, disability, or mental health problem.
Coding: 1 = Yes; 5 = No; 97 = Did not complete 2017 Fall Supp

LH51AxA Relationship to the person

Coding: 1 = Parent/ parent-in-law; 2 = Spouse or partner; 3 = Biological, adopted, or step child; 4 = Other relative or in-law; 5 = Non-relative; 7 = Other; 97 = Did not complete 2017 Fall Supp

LH51AxB Start year
Coding: Range of values; 99997 = Did not complete 2017 Fall Supp

LH51AxC End year
Coding: Range of values; 99997 = Did not complete 2017 Fall Supp

Related HRS resources
Questions included in the core HRS Psychosocial questionnaire. See Psychosocial User Guide 2006-2016. Time/financial exchanges are collected in the core HRS interviews

Background Literature
Pinquart, M., & Sörensen, S. (2011). Spouses, adult children, and children-in-law as caregivers of older adults: a meta-analytic comparison. *Psychology and Aging*, *26*(1), 1.

Health

The next series of questions (**LH52 to LH57A**) asked about participants' health, including medically diagnosed conditions, exercise, and health habits throughout life.

LH52 *Have you ever had any of the following serious conditions or diseases?*
LH52A Chronic breathing problems/asthma?
LH52B Chronic hepatitis or other liver disease?
LH52C HIV or AIDS?
LH52D Inflammatory bowel disease (e.g., Crohn's disease?)
LH52E Kidney disease or failure?
LH52F Meningitis or encephalitis?
LH52G Mononucleosis (commonly referred to as mono)?
LH52H Multiple sclerosis (commonly referred to as MS)?
LH52I Neurological disorders (e.g., seizure, brain, or spinal cord disorders)?
LH52J Thyroid disease?
LH52K Rheumatoid arthritis?
LH52L Gynecological issues [Females Only]? (e.g., fibroids or other problems with uterus or ovaries?)
Coding: 1 = Yes; 5 = No; 97 = Did not complete 2017 Fall Supp

LH53 Have you ever had a pregnancy (or experienced a partner's pregnancy) that ended in a miscarriage, an induced abortion, or a stillbirth?
Coding: 1 = Yes; 5 = No; 97 = Did not complete 2017 Fall Supp

LH54 Have you ever had a major surgery or operation?
Coding: 1 = Yes; 5 = No; 97 = Did not complete 2017 Fall Supp

LH54A If yes, please specify the surgery or surgeries:
(Multiple responses listed **LH54AM1 – LH54AM3**)

Coding: 1 = Cardiovascular; 2 = Muscular skeletal; 3 = Reproductive organs; 4 = Vision; 5 = Other organs; 6 = Cancer related, non-specific; 7 = Other; 97 = Did not complete 2017 Fall Supp

LH55 Have you ever received any professional counseling, treatment, or therapy because of your use of alcohol or drugs?
Coding: 1 = Yes; 5 = No; 97 = Did not complete 2017 Fall Supp

LH56 Have you ever been involved in a major car or vehicle crash or other accident that resulted in serious injury?
Coding: 1 = Yes; 5 = No; 97 = Did not complete 2017 Fall Supp

LH56A If yes, in what year did this accident occur?
Coding: Range of values; 99997 = Did not complete 2017 Fall Supp

LH57 After age 16, how many periods of ill health or disability (physical or mental) have you had that lasted for more than a year that kept you from doing usual activities?
Coding: 0 = None; 1 = One; 2 = Two; 3 = Three; 4 = More than three; 5 = Have been ill or had a disability for all or most of my life; 97 = Did not complete 2017 Fall Supp

LH57A For each of the periods of ill health or disability, write the year the period began, what year the period ended, and the condition which accounted for the period of ill health or disability. If you marked "More than three" in Q57, refer to the three worst periods of ill health or disability.
(Multiple responses listed **LH57AxA – LH574AxC**)

LH57AxA Ill health period start year
Coding: Range of values; 99997 = Did not complete 2017 Fall Supp

LH57AxB Ill health period end year
Coding: Range of values; 99997 = Did not complete 2017 Fall Supp

LH57AxA Health condition
Coding: 1 = Cardiovascular; 2 = Muscular skeletal; 3 = Reproductive organs; 4 = Vision; 5 = Other organs; 6 = Cancer related, non-specific; 7 = Other; 8 = Mental health issues; 9 = Diabetes; 97 = Did not complete 2017 Fall Supp

Physical activity

This section (LH58 and LH59) asked about physical activities after age 18.

LH58 *During each of the following ages, how often did you take part in or train for sports or activities that are **vigorous**, such as running or jogging, swimming, cycling, basketball, football, snow sports, aerobics or gym workout, or tennis?*
LH58A *Between ages 18 and 29*
LH58B *Between ages 30 and 39*
LH58C Between ages 40 and 49

Coding: 1 = Every day; 2 = More than once a week; 3 = Once a week; 4 = One to three times a month; 5 = Hardly ever or never

LH59 *During each of the following ages, how often did you take part in other types of physical activities that are **moderately energetic**, such as walking for more than 30 minutes at a moderate pace, dancing, floor or stretching exercises?*
LH59A *Between ages 18 and 29*
LH59B *Between ages 30 and 39*
LH59C *Between ages 40 and 49*
Coding: 1 = Every day; 2 = More than once a week; 3 = Once a week; 4 = One to three times a month; 5 = Hardly ever or never

Background Literature

Kraal, A. Z., Dotterer, H. L., Sharifian, N., Morris, E. P., Sol, K., Zaheed, A. B., Smith, J., Zahodne, L. B. (2020). Physical activity in early- and mid-adulthood are independently associated with longitudinal memory trajectories in later life. *Journals of Gerontology: Medical Sciences, 76(*8), 1495-1503. https://doi.org/10.1093/gerona/glaa252
Kramer, A. F., Erickson, K. I., & Colcombe, S. J. (2006). Exercise, cognition, and the aging brain. *Journal of Applied Psychology, 101(4),* 1237-1242. https://doi.org/10.1152/japplphysiol.00500.2006

Important achievements

LH60 Please use the space below to tell us about your most important accomplishments or the things that you are most proud of.
(Multiple responses listed **LH60M1 – LH60M3**)
Coding: 1 = Educational attainment, earning a degree, educational honors; 2 = Achievements in the workplace; 3 = Retirement; 4 = Marriage; 5 = Children, grandchildren; 6 = Care for others (not career related); 7 = Friendships; 8 = Health, mental health; 9 = Religion, faith; 10 = Volunteer work, hobbies, community involvement, sports achievement; 11 = Gratitude; 12 = General family (including parents, siblings); 13 = Pride in self (overcoming adversity, characteristics); 14. Financial achievements; 15 = Military service, career; 16 = Other; 997 = Did not complete 2017 Fall Supp

Background literature

McAdams, D. P. (2001). The psychology of life stories. *Review of General Psychology*, *5*(2), 100-122.
Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology*, *52*, 141.

LH61 *Were the questions in this booklet answered by the person whose first name is written on the front cover?*

General Note: Because some respondents completed two questionnaires, one in 2015 and the second in 2017 Fall Supplement, we created two variables that provided information about who completed the booklets: **LH61** is based on 2015, 2017 Spring, and 2017 Fall Full interviews and **LH61_FALLSUPP** is based on 2017 Fall.

LH61 Were the questions in this booklet answered by the person whose first name is written on the front cover?

Coding: 1 = Yes, the person whose name is on the front cover completed the questionnaire by him/herself; 2 = Yes, the person whose name is on the front cover answered the questions, but someone else assisted by writing in the answers for that person; 3 = No, the person whose name is on the front cover did not answer / complete the questionnaire

LH61_FALLSUPP Were the questions in this booklet answered by the person whose first name is written on the front cover?

Coding: 1 = Yes, the person whose name is on the front cover completed the questionnaire by him/herself; 2 = Yes, the person whose name is on the front cover answered the questions, but someone else assisted by writing in the answers for that person; 3 = No, the person whose name is on the front cover did not answer / complete the questionnaire