

NATIONAL STUDY OF CAREGIVING (NSOC) I-III
USER GUIDE

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Version 3.0

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Overview

The National Study of Caregiving (NSOC) is a nationally representative study of family and other unpaid caregivers to older persons living with limitations in daily activities. NSOC been conducted three times in conjunction with the National Health and Aging Trends Study (NHATS) at periodic intervals (2011, 2015, 2017).

In NSOC, interviews were conducted by telephone with family and unpaid helpers to NHATS participants who were receiving assistance with self-care, mobility, or household activities (the latter, for health or functioning related reasons). The 30-minute interview included questions about activities for which help was provided, duration and intensity of help, effects on helpers of providing assistance, support services used by helpers, and basic demographic information.

This user guide accompanies the NSOC I, II and III cross-sectional files and NSOC III longitudinal files. A separate user guide is available for NSOC time diary files.

Goals of NSOC

Together NHATS and NSOC are the only national study that provide both care recipient and care giver perspectives on late-life care. Rather than identify a single primary caregiver for interview, interviews were attempted with all eligible helpers for whom contact information was obtained. This design yields a caregiver sample that is representative of all eligible caregivers and allows insights into how caregiving responsibilities are distributed.

NSOC can be used to address a variety of salient questions about family care in the US including:

- What help is provided to older adults and by whom?
- How are caregiving activities distributed within families?
- How does caregiving intersect with work, child care, and other valued activities?
- What out-of-pocket costs do caregivers contribute as part of their care provision?
- What support services do informal caregivers know about, seek, and use?
- What are the consequences of providing care for health and wellbeing?
- How are care demands and provision changing over time?
- How does care provision and its consequences differ at the end of life?
- What are the reasons caregiving stops and how do roles change over time?
- How do caregivers spend their time over the day and what are consequences for wellbeing?

Design

In each round, NSOC has been conducted by telephone with persons identified as helpers in the corresponding round of NHATS. For example,

- NSOC I followed caregivers to the NHATS Sample Person (SP) identified in NHATS Round 1 in 2011;
- NSOC II followed caregivers identified in NHATS Round 5 in 2015; and
- NSOC III followed caregivers identified in NHATS Round 7 in 2017.

We refer to these as “cross-sectional” samples because they consist of caregivers active in the last month or year.

NSOC III incorporated two additional sample-related features:

- Interviews were conducted with last month of life caregivers identified in NHATS Round 7 (who were included in the NSOC III cross-sectional sample); and
- A longitudinal component was added in which NSOC II caregivers were re-interviewed.

Several new sections were also added in NSOC III about care provided in the last month of life, reasons the caregiver stopped providing help, and interactions with the health care system. In NSOC III caregivers who assisted in the last month were also eligible for a 24-hour time diary interview, which was scheduled at the end of the NSOC III interview.

Eligibility

NSOC I-III Cross-Sectional Files

Caregivers to Living Sample Persons. Eligibility for each round of NSOC was determined separately for NHATS participants and for helpers of those individuals.

NHATS participants were Medicare enrollees who were ages 65 and older and living in the contiguous U.S. Sample persons (including those living in residential care settings other than nursing homes) who were receiving help with certain activities were eligible for NSOC. A Sample Person was eligible if, in the last month, he or she was receiving help with any of the following activities:

Mobility

- Getting around outside
- Getting around inside
- Getting out of bed

Self-care Activities

- Eating
- Bathing, showering or washing up
- Getting to or using the toilet
- Dressing

Household Activities for health or functioning reasons¹

- Laundry
- Shopping for personal items
- Preparing hot meals
- Paying bills and banking
- Keeping track of medications

¹ Individuals who live in residential care facilities and received assistance from a person at the place they live were assumed to receive that assistance for health and functioning reasons.

Once a Sample Person was deemed potentially eligible for NSOC, all helpers identified by the participant as helping with any activity were reviewed for NSOC eligibility. If at least one helper was deemed eligible, then the Sample Person was considered eligible for NSOC.

Helpers were eligible for NSOC if they helped an NSOC-eligible Sample Person with *any* activity (listed below) and either were related to the Sample Person (relationship codes = 2 through 29 or 91) whether paid or not or were unrelated to the Sample Person and not paid to help. Activities that triggered NSOC eligibility for the caregiver include:

Mobility

- Getting around outside
- Getting around inside
- Getting out of bed

Self-care Activities

- Eating
- Bathing, showering or washing up
- Getting to or using the toilet
- Dressing

Household Activities for any reason (health and functioning or other reason)—

- Laundry
- Shopping for personal items
- Preparing hot meals
- Paying bills and banking
- Keeping track of medications

Other activities—

- Money matters other than bills or banking
- Medical activities (sitting in with the sample person at physician visits; helping with insurance decisions)
- Transportation

If the number of NSOC-eligible helpers for a Sample Person exceeded 5, 5 helpers were selected at random and the remaining helpers were considered ineligible for NSOC. Because of this restriction, N=61, N=108 and N=87 caregivers were not sampled in NSOC I, II and III, respectively.

See Appendix A for items in the CC Section (Caregiver Eligibility and Contact Information) administered at the end of the Sample Person Interview to determine SP and Helper eligibility for NSOC I-III.

Caregivers in the Last Month of Life. NSOC III introduced a Last Month of Life caregiver sample. The eligibility criteria for the Last Month of Life caregiver sample was determined separately for NHATS participants and for helpers of these individuals. The NHATS Sample person was eligible if a Last Month of Life interview was completed in NHATS Round 7. The caregiver was eligible if they assisted in the last month of life with any of the mobility or self-care activities listed above.

NSOC III Longitudinal Files

All caregivers who participated in NSOC II were eligible for the longitudinal component of NSOC III. If the NHATS SP that they cared for was non-response in Round 6 or 7, no attempt was made to contact the caregiver.

NSOC III Time Diaries

All caregivers to living SPs who participated in NSOC III were eligible to complete a “yesterday” time diary documenting activities over a 24-hour period during a follow-up interview conducted on a randomly selected day of the week.

Sample Sizes

Table 1 shows sample sizes by round and sample type.

In NSOC I-III, interviews were conducted with 2,007, 2,204 and 2,361 caregivers to living NHATS SPs, respectively. In addition, in NSOC III 291 caregivers of deceased older adults were interviewed as part of the cross-sectional sample.

In the NSOC III longitudinal sample, 1,453 caregivers were interviewed from 2,204 NSOC II participants.

Table 1. Sample Sizes NSOC I, II and III			
	Cross-sectional Samples		Longitudinal Sample
	Living SPs	Last Month of Life	
NSOC I			
Eligible NHATS Round 1 participants	2,423	--	--
Eligible Caregivers	4,935	--	--
Interviewed Caregivers	2,007	--	--
NSOC II			
Eligible NHATS Round 5 participants	2,417	--	--
Eligible Caregivers	5,212	--	--
Interviewed Caregivers	2,204	--	--
NSOC III			
Eligible NHATS Round 7 participants	1,947	267*	--
Eligible Caregivers	4,131	545**	2,204
Interviewed Caregivers	2,361	291	1,453
Eligible for Time Diary Interview	2,324	--	1,074
Time Diaries Completed	1,901	--	928

*6 eligible NHATS Round 7 participants who died prior to NSOC are included in the Last Month of Life sample.

**8 eligible caregivers for NHATS participants who died prior to NSOC are included in the Last Month of Life sample.

Response Rates

For each round, NSOC response rates were calculated in two stages.

In NSOC I, the NHATS SP refused to give caregiver contact information for 1,573 out of the 4,935 eligible caregivers, yielding a 68.1% unweighted first stage response rate. Among eligible caregivers for whom the SP did not refuse to provide information (N=3,362), 1,355 were not interviewed, yielding a 59.7% unweighted second stage response rate.

In NSOC II, the NHATS SP refused to give caregiver contact information for 1,711 out of the 5,212 eligible caregivers, yielding a 67.2% unweighted first stage response rate. Among eligible caregivers for whom the SP did not refuse to provide information (N=3,501), 1,297 were not interviewed, yielding a 63.0% unweighted second stage response rate.

In NSOC III's cross-sectional sample of caregivers to living SPs, caregiver contact information was unavailable for 315 out of 4,131 eligible cross-sectional caregivers of living SPs, yielding a 92.4% unweighted first stage response rate. Among eligible caregivers with contact information (N=3,816), 1,455 were not interviewed, yielding a 61.9% unweighted second stage response rate. Among eligible cross-sectional caregivers to living SPs, 90.2% completed a time diary interview. For the sample of last month of life caregivers, contact information was unavailable for 44 out of 545 eligible cross-sectional caregivers, yielding a 91.9% unweighted first stage response rate. Among eligible last month of life caregivers with contact information (N=501), 210 were not interviewed, yielding a 58.1% unweighted second stage response rate.

The longitudinal sample had two sources of non-response: nonresponse to the NHATS Round 6 or 7 interviews (12.0% of eligible SPs yielding a first stage response rate of 88%) and caregiver nonresponse among those with completed NHATS interviews (25.1%, yielding a second stage response rate of 74.9%).

Table 2. Response Rates NSOC I, II and III				
		Cross-sectional Samples		Longitudinal Sample
		Living SPs	Last Month of Life	
NSOC I	Stage 1: Contact info provided	68.1	--	--
	Stage 2: Response	59.7	--	--
NSOC II	Stage 1: Contact info provided	67.2	--	--
	Stage 2: Response	63.0	--	--
NSOC III	Stage 1: Contact info available	92.4	91.9	--
	Stage 2: Response	61.9	58.1	--
NSOC III	Stage 1: NHATS respondent did not refuse	-	--	88.0
	Stage 2: Response	--	--	74.9

NSOC III	Time Diary Response	81.8	--	86.4
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See the NHATS technical paper on NSOC weights for discussion of how sampling weights were adjusted to account for non-response.

Content

Here we provide a brief overview of the content of NSOC. We first provide reference period conventions. We then provide an overview of the questionnaire sections available by round and sample type and an overview of skip patterns for cross sectional and longitudinal samples. Finally, we review the scope and nature of content in each section. The instruments were purposefully similar across rounds to facilitate trend analyses, but we note cases when items were moved or added.

Reference Period Conventions

The NSOC instrument fills the question with a different reference period depending on the type of respondent. In all three rounds, caregivers of living SPs who helped in the last month are asked about the time frame “in the last month.” Caregivers of decedents who helped in the last month of their life are typically asked “in the last month of {his/her/SP’s} life.” Caregivers who did not help in the last month (or the last month of SP’s life), but helped in the last year (or last year of SP’s life) are typically given the fill “in the last month that you helped {him/her/SP}.” In addition, some sections, like Health Care Interactions (HC) use a reference period of the last year.

SP Status	Caregiver Status	Reference Period
SP Living	Helped Last Month	In the last month
SP Living	Helped Last Year (not Last Month)	In the last month that you helped {SP}
SP Deceased	Helped Last Month of Life	In the last month of {SP’s} life
SP Deceased	Helped Last Year (not Last Month) of Life	In the last month that you helped {SP}

Questionnaire Sections Available by Round and Sample Type

Sections of the questionnaire administered in NSOC I and NSOC II were repeated in NSOC III (Table 4). To accommodate caregivers in the last month of life and caregivers in NSOC II who were no longer helping NHATS Round 7 participants in NSOC III, new sections (ST and LL) were added and skip patterns were implemented. New content, such as interactions with the health care system (HC) and a time diary appointment and interview (AP, TD), were also added, and measures related to transportation and distance between caregiver and recipient were moved to their own section (DI).

Table 4. Questionnaire Sections Available by Round and Sample Type				
	NSOC I, II	NSOC III		
	Cross-sectional Sample (SP Alive)	Cross-sectional Sample		Longitudinal Sample
		SP Alive	Last Month of Life ¹	
Care Activities (CA)	x	x	x	x
Duration of Care (DC)	x	x	x	x
Reasons Stopped (ST)	-	x	x	x
Last Month of Life (LL)	-	-	x	x
Health Care Interactions (HC)	-	x	x	x
Aspects of Caregiving (AC)	x	x	x	x
Support Environment (SE)	x	x	x	x
Distance to SP (DI)	-	x	x	x
Participation (PP)	x	x	-	x
Health (HE)	x	x	-	x
Household and Demographics (HD)	x	x	x	x
Race Ethnicity (RL)	x ²	x	x	x
Employment and caregiving (EC)	x	x	-	x
Health Insurance (HI)	x	x	x	x
Appointment for Time Diary (AP)	-	x	-	x
Time Diary (TD)	-	x	-	x

¹Caregivers identified in NHATS Round 7 LML interviews.
²Added in NSOC II.

Skips within Cross-Sectional Samples

Table 5 presents an overview of skips within the cross-sectional samples (“x” means the section was asked; “-“ means the section was skipped). In both NSOC I and II, caregivers identified in NHATS as currently helping, who then reported in the Care Activities (CA) Section of NSOC that they provided no assistance in the last month or year, were considered ineligible. In NSOC III, these caregivers were also ineligible for the cross-sectional sample.²

In NSOC III, individuals who helped in the last year but not the last month were asked questions about the reasons they stopped (ST) but were not asked the Participation (PP), Health (HE), or Employment and Caregiving (EC) sections, and were not eligible for the Time Diary Appointment (AP) section or Time Diary (TD) interview in NSOC III.

In NSOC III, caregivers who helped in the last month of life were asked the Last Month of Life (LL) section but skipped some of the Aspects of Care (AC), Support Environment (SE), and Health Insurance (HI) items along with the entire Participation (PP), Health (HE), and

² In NSOC III, caregivers who had previously helped in NSOC II were interviewed even if they had not helped in the last month or year as part of the longitudinal sample.

Employment and Caregiving (EC) sections. Those who helped only in the last year of life (but not last month) were only administered the Care Activities (CA), Duration of Care (DC), reasons they stopped providing care (ST), and Race Ethnicity (RL) sections. The fl7spdied flag may be used to identify caregivers who helped deceased SPs.³

	SP Living (NSOC I-III)		SP Deceased (NSOC III)	
	Helped Last Month	Helped Last Year (not Last Month)	Helped Last Month of Life	Helped Last Year (not Last Month) of Life
Care Activities (CA)	x	x	x	x
Duration of Care (DC)	x (skip DC13-14 in NSOC III)	x (skip DC13-14 in NSOC III)	x (skip DC13-14)	x (skip DC13-14)
Reasons Stopped (ST)	-	x	-	x
Last Month of Life (LL)	-	-	x	-
Health Care Interactions (HC) ¹	x	x	x	-
Aspects of Caregiving (AC)	x	x	x (skip AC1-4, 9)	-
Support Environment (SE)	x	x	x (skip SE1-3)	-
Distance to SP (DI) ¹	x	x	x	-
Participation (PP)	x	-	-	-
Health (HE)	x	-	-	-
Household and Demographics (HD)	x	x	x	-
Race Ethnicity (RL) ²	x	x	x	x
Employment and caregiving (EC)	x	-	-	-
Health Insurance (HI)	x	-	x (skip HI18-HI25)	-
Appointment for Time Diary (AP) ¹	x	-	-	-
Time Diary (TD) ¹	x	-	-	-

¹Added in NSOC III

²Added in NSOC II

Skips within Longitudinal Sample

The longitudinal sample also generally followed the skips in Table 5 with two exceptions. As noted above caregivers who did not help in the last month or last year were interviewed for the longitudinal sample, following the routing for those who stopped helping. Caregivers of living and deceased SPs who were NSOC II participants skip DC9-12 (which ask about care started within the interval) and are instead asked DC13-14 (which focuses on whether care was continuous since NSOC II).

Questionnaire Sections

Care Activities (CA): This section asks about ways in which the caregiver helped the sample

³ This variable flags caregivers to SPs who completed an LML interview in 2017 and caregivers to SPs who died between the 2017 NHATS interview and NSOC.

person in the last month. Questions cover household chores, personal care, mobility, physical assistance, and transportation assistance. Caregivers are asked about the frequency of help in the last month and, for some activities, how help was provided (e.g. by going on line to do money management). Questions also ask about helping with a range of health- and medical-related activities and distance to the care recipient.⁴ Difference in placement of CA items across the rounds are summarized in the following table.

	NSOC I	NSOC II	NSOC III
Household, personal care, mobility, physical assistance, transportation	CA1-CA10	CA1-CA10	CA1-CA10
Health-related activities	CA11a-h	CA11a-h	CA11a-d, CA11A2a-b, CA6Ba-b
Medical care activities	CA12a-d	CA12a-d, CA12E	HC1,5,6a,6b, HC3
Distance	CA13-CA14b	CA13-CA14b	DI1-DI2b
Helped in last year, not last month	Box CA15-CA17	Box CA15-CA17	Box CA15-CA17

For a small number of cases the SP died after the NHATS but prior to the NSOC interview. In these cases month and year of death are recorded in *cca7mthdied* and *cca7yrdied*.⁵

Duration of Care (DC): Questions elicit days and hours spent helping the sample person in the last month. Caregivers who helped with personal care or mobility also were asked hours spent helping with these activities only. All cross-sectional helpers were asked when they began providing care in months and years. In NSOC III, those who were NSOC II participants were asked instead whether they have continuously provided care since NSOC II and if not how many months they went without helping SP.

Last Month of Life (LL): In NSOC III, caregivers who assisted in the last month of the older adult’s life were asked a series of questions about how they assisted. These items were modeled closely after the LML section in NHATS. Items focus on managing pain, breathing, and sadness/anxiety, whether the caregiver was provided training, medical decision making at the end of life, and communication with providers.

Health Care (HC): In NSOC III, a new series about family caregivers’ interactions with health care providers was added. Questions inquire about the frequency and nature of family and unpaid caregivers’ interactions with the sample person’s medical providers, including extent to which usual care provider: listened to what family caregivers had to say, asked about family caregiver’s understanding of the sample person treatments, or asked whether the family caregiver needed help managing sample person’s treatments. Family caregivers are asked whether they helped sample persons after an overnight stay in the hospital, whether they were discharged directly home or to

⁴ The health-related items asked at CA11 in NSOC I and II remained in CA in Round III, but some were moved to CA11A2 and others to CA6B, so items have a different label in NSOC III (but similar name). Medical activities were moved to HC in NSOC III. Distance items were moved from CA to DI in NSOC III. Starting in NSOC II caregivers are asked how much communicating with the Sample Person’s doctor helped them with caring for the Sample Person (CA12E in NSOC II and HC3 in NSOC III).

⁵Month and year of death for these and all other deceased SPs are recorded in flags at the beginning of this section (*fl7spdied*, *fl7spmthdec*, *fl7spsyrdied*).

another facility, and whether they were provided training they needed to manage the sample person's post-hospital care. As in prior rounds, caregivers are also asked about health care tasks, including making appointments, logging into an online account to view information about study participant health, coordinating care across more than one provider, and helping change or add health insurance or prescription drug plans and handling other health insurance matters.

Aspects of Caregiving (AC): Questions focus on positive and negative views of the helper's relationship with the Sample Person and the experience of being a helper. Helpers were asked whether helping is financially, emotionally, or physically difficult and to rate the level of difficulty (from 1 a little difficulty to 5 very difficult). Questions about family disagreements concerning the sample person's care and about personal consequences (exhaustion, no time for self) were also included. In NSOC II, a question was added about how well the family shares responsibility for the Sample Person's care. In NSOC III, a new series about difficulty with providing care with activities mentioned in CA and LL was added.

Distance (DI): Previously items CA13-CA14b, the Distance section was made a separate section in NSOC III. These items capture usual mode of transportation to visit SP and how long it takes to get to SP's home. Caregivers who live with the SP skip these items.

Support Environment (SE): This section includes questions on availability of friends and family to help with care and other resources of support. Caregivers were asked whether they used services such as support groups, training, and financial help, including Medicaid and, if so, how they found out about services. For services not used, they are asked if they ever looked for services and from what sources. Caregivers also were asked about their role in obtaining devices, environmental supports, and paid help for the Sample Person.

Participation (PP): These questions mirror the participation items in the NHATS Sample Person interview. Caregivers were asked about taking part in activities (e.g. visiting family and friends, attending religious services, doing volunteer work, working for pay). Follow-up questions for each activity were about the importance of the activity and whether helping SP kept the person from participating in the activity.

Health and Wellbeing (HE): In a set of questions that mirror the SP interview, helpers were asked whether they had ever been diagnosed with a list of common chronic conditions and height and weight (from which body mass index can be calculated). Helpers were also asked whether in the last month they had experienced particular impairments and symptoms (e.g. pain, breathing problems, low energy, upper and lower body impairments, sleep quality). If impairments were reported, the severity (degree to which the impairment interfered with daily activities in the last month) was assessed. Subjective wellbeing items included brief depression and anxiety screening instruments (PHQ2 and GAD2), positive and negative affect (feeling cheerful, bored, upset, etc.), self-actualization (life purpose and growth), and self-efficacy. For sensitivity, specificity, and recommended cut-points for the PHQ-2, the GAD-2 and a 4-item combined measure, see Kroenke et al. (2003, 2007, 2009) and Lowe et al. (2009).

Race Ethnicity (RL): Questions on race, and primary race if more than one, as well as Hispanic ethnicity are included. In NSOC II derived race/ethnicity variables drawn from multiple sources were included in the v2 file (released December 2018).

Household Composition and Demographics (HD): This section includes marital status of the caregiver, numbers of children and number under age 18, household size, education, spouse/partner education and age. Items for any living children, numbers of children and numbers under age 18 were updated in the NSOC II v2 file (released December 2018)

Employment and Caregiving (EC): Labor force participation questions were patterned after those in the NHATS Sample Person interview and include hours of work in the last week and work schedule and current occupation. Persons who were absent from work in the last month, were asked reasons for absence, which include vacation, sick leave, time off to help the sample person, sick leave for other family members, and personal time. Persons who reported taking time off to help the sample person were asked hours and days of work missed. Caregivers who were working were asked whether helping affects work and how much (on a scale from 1: helping makes work a little harder to 10: helping makes work a lot harder). This information can be used to create a work productivity loss indicator (see Wolff 2016).

Health Insurance and Income (HI): This section elicits economic information, including whether the helper has health insurance coverage, checking/savings accounts, retirement accounts, and other stocks or mutual funds; home ownership; and total income for individuals (or couples). The remaining questions in this section ask about payments the caregiver made for care needs of the sample person (e.g. medications, mobility devices, in-home help) and financial gifts to or from the sample person.

Appointment for Time Diary (AP): In NSOC III, caregivers who had provided assistance to an older adult in the last month were asked to schedule an appointment to complete a 24-hour time diary over the phone. This section captures information about the appointment. Days of the week were randomly assigned so that the time diaries represent all weekdays and weekend days.

Time Diary (TD): In NSOC III, a 24-hour time diary was administered by telephone to caregivers who provided assistance to an older adult in the last month. The diary captures all activities, beginning at 4am the previous day, and continuing through 4 am the day of the interview. Respondents are asked what they were doing, where they were, who did the activity with them, who else was there, for care and household activities who the activity was for. For three randomly selected activities, respondents were asked how they felt during the activity (experienced wellbeing). The diary was modeled after the Panel Study of Income Dynamic's Disability and Use of Time Supplement (see Freedman and Cornman 2015).

Data Files, Linking IDs, and Derived Variables

The NSOC cross-sectional data release consists of 3 files in Rounds I and II and 5 files in Round III. The NSOC III longitudinal data release consists of 3 files and the NSOC III time diary release consists of 2 files. Sample sizes are shown below for each file by round. See Appendix B for derived variables included in these files.

Sample	File	NSOC I	NSOC II	NSOC III
Cross-sectional	NSOC File	2,007	2,204	2,652
Cross-sectional	Sample Person Tracker File	8,245	8,334	6,312
Cross-sectional	Other Person Tracker File	38,097	52,285	49,065
Longitudinal	NSOC File	-	-	1,453
Longitudinal	Sample Person Tracker File	-	-	7,576
Longitudinal	Other Person Tracker File	-	-	49,688
Cross-sectional and Longitudinal	Time Diary Summary File	-	-	3,210
Cross-sectional and Longitudinal	Time Diary Activity File	-	-	56,361

NSOC Cross-sectional Files

The NSOC file provides one record for each caregiver who participated in NSOC (who cared for an older adult in the last year). This file may be linked to NHATS files with spid (Sample Person Identifier) and other NSOC files with opid (Other Person Identifier). In all three rounds, the NSOC Files include: gender (derived variable based on op1gender from NHATS OP file and NSOC HD 11 & 12); relationship to the sample person (from the NHATS OP file); month of NSOC interview; and days between NHATS SP interview and NSOC interview.

In NSOC II and III, the NSOC Files also include (using information from both NSOC and NHATS): marital status, number of children, number of people living with the caregiver, the caregiver’s education and their spouse or partner’s education, the caregiver’s month and year of birth and age, their partner’s month and year of birth and age, and indicators of race/ethnicity. In NSOC III, the NSOC File also includes a variable indicating whether the caregiver cared for a living or deceased SP.

The *Sample Person Tracker File* includes all persons with an SP interview in the relevant round and identifies each NHATS respondent (spid) who had a caregiver eligible for NSOC. The file includes a variable (fl#dnsoc) that distinguishes sample persons who were eligible for NSOC from all other sample persons as well as counts of the number eligible. NSOC III also includes a flag that indicates the vital status (alive/deceased) of the NHATS SP (fl7dtracksstat).

The *Other Person Tracker File* identifies caregivers who are eligible for NSOC (spid and opid). This file contains one observation for each person in the NHATS OP file, which includes all household members, children, helpers, and social network members associated with each sample person. This file may be linked to NHATS files and other NSOC files using spid and opid. The file contains a single derived variable that characterizes NSOC eligibility and result status.

The Time Diary Files. In NSOC III, two additional files are provided that include information on activities and wellbeing on the previous day. The Time Diary Summary File identifies each caregiver eligible for the time diary interview and also includes summary information about the diary day. The Time Diary Activity File provides one record for each activity mentioned in the diary. These files may be linked to other NSOC file(s) with spid and opid variables. Cross-

sectional and longitudinal cases are distinguished with flag variables included on these files. A separate user guide documenting the time diary files and their use is available (Freedman and Cornman 2019).

NSOC Longitudinal Files

In NSOC III, three longitudinal files are provided. The Longitudinal NSOC file includes one record for each caregiver who participated in NSOC II and completed an NSOC III interview. This file may be linked to NHATS files with the *spid* variable and to other NSOC files with *spid* and *opid* variables. The Longitudinal Sample Person Tracker File includes all persons with an SP interview in 2015 and identifies each NHATS respondent who had a caregiver eligible for the longitudinal component of NSOC III (*spid*). The Other Person Tracker File identifies each caregiver in NSOC II who is eligible for NSOC III (*spid* and *opid*).

Overview of Weights

The NSOC files also contain weights that account for differential probabilities of selection and nonresponse along with variables for variance estimation. In NSOC III separate cross sectional weights are available for caregivers to living and deceased SPs and two longitudinal weights (a tracker weight and analytic weight) are provided.⁶ A technical paper describing the creation of NSOC Weights and their use is also available.

Sample	File: weight	NSOC I	NSOC II	NSOC III
Cross-sectional	NSOC File: caregivers to living SPs	w1cgfinwgt0-56	w5cgfinwgt0-56	w7cgfinwgt0-56
Cross-sectional	NSOC File: caregivers to deceased SPs	-	-	w7cglmlfinwgt0-56
Longitudinal	NSOC File: tracker weight	-	-	lw7cgtrwgt0-56
Longitudinal	NSOC File: analytic weight	-	-	lw7cgfinwgt0-56
Cross-sectional	Time Diary Summary File: diary weight	-	-	t7diarywgt0-56
Cross-sectional	Time Diary Activity File: detailed wellbeing weight	-	-	t7dwbwgt0-56
Longitudinal	Time Diary Summary File: diary weight	-	-	lt7diarywgt0-56
Longitudinal	Time Diary Activity File: detailed wellbeing weight	-	-	lt7dwbwgt0-56

Variable Names and Missing Data Conventions

Variable names. Variable names in the NSOC cross-sectional files follow a standard convention. Variables start with “c” (for caregiving), followed by section letters (e.g. CA or DC), followed by NHATS round number (e.g. 1, 5 or 7). This “stem” is followed by a name that reflects the question asked. Whenever possible we used the same name across rounds of NSOC, allowing only the round number (or if section changed, the section letters) to vary. Variables in the NSOC

⁶ Time diary weights are also available and are described in further detail in the Time Diary technical report.

longitudinal files are nearly identical to those in the cross-sectional files but are preceded by an “1” (for longitudinal).

Derived variable names. Variables that are created for users (“derived” variables), use the same naming convention as other variable names, but a “d” is included after the round number.

Flags. Flags are special variables some are set earlier in the interview; others are derived from information in the interview. Typically flags do not originate from a single item in a section. Flags start with “fl”, then the round number, and then “d” if they are derived, followed by a description of the flag.

Routing flags indicate a skip pattern, or in some cases a skip error (see data notices and corrections, below). Routing flags use the convention “fl” before “c” then the item number with the routing issue, the NHATS round number, and the word “routing” (e.g. flcac5routing). In NSOC III, fl7routing is provided, which indicates whether the caregiver helped in the last month and the SP was alive (2), helped in the last month and the SP was deceased (3) or did not help in the last month or last month of life (4).

Missing Data. NSOC I and II use the NHATS conventions of assigning -1 to variables with purposeful skips, -7 to refused and -8 to don’t know and -9 to missing. In the NSOC III cross-sectional file we expanded the purposeful skip indicator to reflect *why* an individual skipped an item as follows:

- 4 if they did not help in the last month or last month of life
- 3 if they helped in the last month and the SP was deceased
- 2 if they helped in the last month and the SP was alive.

Data Notices and Corrections

Version 2 of NSOC II included three updates:

- recoding and replacing the race and ethnicity variables
- revisions to 3 derived variables related to children of NSOC respondents (any living children; number of living children; number of living children under age 18).
- revised weights based on removing a small number of ineligible cases from control totals

In NSOC II and III, a few variables were affected by routing errors. Flags are included to indicate cases affected.

Cross Sectional NSOC II File:

- flcac5routing: 136 persons incorrectly skipped items about disagreement over care (AC8) and doing fair share (AC8A) based on relationship to SP (BOX AC8).
- flche5routing: 9 persons incorrectly skipped whether helping interrupted sleep (HE15)
- flcca5routing: 392 persons who were not in SP’s household incorrectly skipped how they usually get to SP’s to visit (CA13) and how long it takes (CA14).
- flchd5routing: 392 persons who were not in SP’s household incorrectly skipped how many people lived in their household (HD6). The NHATS SP household size was used

to calculate poverty guidelines (at BOX HI11), which are used to compute the percentage of poverty amounts for HH11-HH13.

Cross Sectional NSOC III File:

A small number of caregivers had an incorrect value for relationship to NHATS SP and/or whether lived in the NHATS SP's household. Consequently, the following cases have been flagged with routing errors.

- flcdc7routing: 4 persons routed incorrectly through DC
- flcac7routing: 31 persons incorrectly skipped items about disagreement over care (AC8) and doing fair share (AC8A)
- flcdi7routing: 9 persons incorrectly skipped the DI section
- flchd7routing: 27 persons incorrectly skipped the HD section
- flchi7routing: 1 person routed incorrectly through HI (skipped HI8-HI25)

Longitudinal NSOC III File:

A small number of caregivers had an incorrect value for relationship to NHATS SP and/or whether lived in the NHATS SP's household. Consequently, the following cases have been flagged with routing errors.

- lflcdc7routing: 3 persons routed incorrectly through DC
- lflcac7routing: 16 persons incorrectly skipped items about disagreement over care (AC8) and doing fair share (AC8A)
- lflcdi7routing: 31 persons incorrectly skipped the DI section
- lflchd7routing: 9 persons incorrectly skipped the HD section

Using Multiple Rounds of NSOC

Multiple NSOC Rounds may be used to study both caregiving trends and dynamics.

Researchers interested in comparing population-level estimates of caregiving at multiple points in time to understand caregiver trends should use the cross-sectional files and exclude caregivers to deceased SPs in NSOC III.

Researchers interested in examining individual-level changes in caregiving can link NSOC II with the NSOC III longitudinal file using spid and opid variables.

Obtaining NSOC Data

NSOC files are designated as Sensitive for purposes of data release. The Instruments and Crosswalk are publicly available at www.nhats.org. To obtain the data files and codebook, go to Sensitive and Restricted Data on the NHATS website and then select Sensitive Data. Download the document titled *Obtaining NHATS Sensitive Data* and follow the instructions.

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APPENDIX A. NHATS CC Section Determining NSOC Eligibility

Rounds 1 and 5

Section	CC	
BOX CC1A	BOXCC1A	NOT ON FILE
	<p>If MO6 = 1 (GETS HELP TO GO OUTSIDE) or if MO18 = 1 (GETS HELP GETTING AROUND INSIDE) or if MO25 = 1 (GETS HELP GETTING OUT OF BED) or if SC3 = 1 (GETS HELP EATING) or if SC11 = 1 (GETS HELP WITH BATHING) or if SC17 = 1 (GETS HELP USING TOILET) or if SC23 = 1 (GETS HELP GETTING DRESSED) or if HEALTHREASONHELPWITHLAUNDRY flag = 1 (YES) or if HEALTHREASONHELPWITHSHOPPING flag = 1 (YES) or if HEALTHREASONHELPWITHMEALS flag = 1 (YES) or if HEALTHREASONHELPWITHBANKING flag = 1 (YES) or if HEALTHREASONHELPWITHHELPTRACKMEDS flag = 1 (YES) or if FACILITY flag = 1 (YES), SP is eligible for NSOC</p>	
BOX CC1C	BOXCC1C	NOT ON FILE
	<p>Loop through BOX CC1C for each PERSON ROSTER member with a HELPER flag = 1 (YES).</p> <p>If PERSON ROSTER member HELPER flag = 1 (YES) and RELATIONSHIP to SP = 2-29 or 91, set CAREGIVER ELIGCG=1 (YES).</p> <p>Else if PERSON ROSTER member HELPER flag = 1 (YES) and HL5 (PAID HELP) = 2 (NO, NOT PAID), set CAREGIVER ELIGCG=1 (YES).</p> <p>Otherwise, if PERSON ROSTER member HELPER flag = 1 (YES), set CAREGIVER ELIGCG flag=2 (NO).</p> <p>Write CAREGIVER ELIGCG flag value to PERSON ROSTER for each member with a HELPER flag=1 (YES).</p> <p>If there are 5 or less PERSON ROSTER members with CAREGIVER ELIGCG flag=1 (YES), set NSOC flag = 1 (YES) and write CAREGIVER SMPCG flag=1 (YES) to PERSON ROSTER for each member.</p> <p>Else if there are more than 5 PERSON ROSTER members with CAREGIVER ELIGCG flag=1 (YES), set NSOC flag=1 (YES) and go to Box CC1d.</p> <p>If no PERSON ROSTER member CAREGIVER ELIGCG flag=1 (YES), set NSOC flag= 2 (NO).</p>	
BOX CC1D	BOXCC1D	NOT ON FILE
	<p>When there are more than 5 PERSON ROSTER members with CAREGIVER ELIGCG flag=1 (YES), generate and assign a CAREGIVER RANDOM NUMBER with an interval of 0-1 for each PERSON ROSTER member with CAREGIVER ELIGCG flag=1 (YES).</p> <p>Sort the PERSON ROSTER members in ascending order of their random numbers. Assign CAREGIVER SMPCG flag=1 (YES) for the first 5 caregivers. Assign CAREGIVER SMPCG flag = 2 (NO) for the remaining caregivers.</p> <p>Write CAREGIVER RANDOM NUMBER and CAREGIVER SMPCG flag to PERSON ROSTER for each member with a CAREGIVER ELIGCG flag=1 (YES). </p>	

Round 7

Section	CC
BOX CC1	<p>BOX CC1 NOT ON FILE</p> <p>If (MO6 = 1 (GETS HELP TO GO OUTSIDE) or MO18 = 1 (GETS HELP GETTING AROUND INSIDE) or MO25 = 1 (GETS HELP GETTING OUT OF BED) or SC3 = 1 (GETS HELP EATING) or SC11 = 1 (GETS HELP WITH BATHING) or SC17 = 1 (GETS HELP USING TOILET) or SC23 = 1 (GETS HELP GETTING DRESSED) or HEALTHREASONHELPWITHLAUNDRY flag = 1 (YES) or HEALTHREASONHELPWITHSHOPPING flag = 1 (YES) or HEALTHREASONHELPWITHHMEALS flag = 1 (YES) or HEALTHREASONHELPWITHBANKING flag = 1 (YES) or HEALTHREASONHELPWITHHELPTRACKMEDS flag = 1 (YES) or FACILITY flag = 1 (YES)) and DECEASED flag <>1 (YES), Set SPHIGHNEED flag = 1 (YES).</p> <p>If (MO6 = 1 (GETS HELP TO GO OUTSIDE) or MO18 = 1 (GETS HELP GETTING AROUND INSIDE) or MO25 = 1 (GETS HELP GETTING OUT OF BED) or SC3 = 1 (GETS HELP EATING) or SC11 = 1 (GETS HELP WITH BATHING) or SC17 = 1 (GETS HELP USING TOILET) or SC23 = 1 (GETS HELP GETTING DRESSED)) and DECEASED flag=1 (YES), Set SPHIGHNEEDEOL flag =1 (YES).</p>
BOX CC2	<p>BOX CC2 NOT ON FILE</p> <p>If SPHIGHNEED flag =1 (YES) or SPHIGHNEEDEOL flag=1(YES), go to BOX CC3. Otherwise, go to BOX CC5 (Determination).</p>
BOX CC3	<p>BOX CC3 NOT ON FILE</p> <p>Loop through BOX CC1C for each PERSON ROSTER member with a HELPER flag = 1 (YES).</p> <p>If INHH flag = 1 (YES), write SP address1, address2, city, state, and zip to PERSON ROSTER for PERSON ROSTER member.</p> <p>If PERSON ROSTER member HELPER flag = 1 (YES) and RELATIONSHIP to SP = 1-29 or 91, set CAREGIVER ELIGCG=1 (YES).</p> <p>Else if PERSON ROSTER member HELPER flag = 1 (YES) and PAIDHELP (from HL5 or HM3) = 2 (NO, NOT PAID), set CAREGIVER ELIGCG=1 (YES).</p> <p>Otherwise, if PERSON ROSTER member HELPER flag = 1 (YES), set CAREGIVER ELIGCG flag=2 (NO). Write CAREGIVER ELIGCG flag value to PERSON ROSTER for each member with a HELPER flag=1 (YES). Loop through the PERSON ROSTER to create NSOC CG ELIGCG COUNT. If CAREGIVER ELIGCG= 1 (YES), increment NSOC ELIGCG COUNT by 1.</p> <p>If there are more than 5 PERSON ROSTER members with CAREGIVER ELIGCG flag=1 (YES), go to BOX CC4 (Sampling).</p> <p>Else if there are 1-5 PERSON ROSTER members with CAREGIVER ELIGCG flag=1 (YES), write CAREGIVER SMPCG flag=1 (YES) to PERSON ROSTER for each member, Loop through the PERSON ROSTER to create NSOC CGSMPCG COUNT. If CAREGIVER SMPCG= 1 (YES), increment NSOC ALL SMPCG COUNT by 1, and go to BOX CC5 (Determination).</p> <p>Otherwise, if there are 0 PERSON ROSTER members with CAREGIVER ELIGCG flag=1 (YES), set NSOC CGSMPCG COUNT=0, and go to BOX CC5 (Determination).</p>

BOX CC4**BOX CC4**

NOT ON FILE

When there are more than 5 PERSON ROSTER members with CAREGIVER ELIGCG flag=1 (YES), generate and assign a CAREGIVER RANDOM NUMBER with an interval of 0-1 for each PERSON ROSTER member with CAREGIVER ELIGCG flag=1 (YES).

Sort the PERSON ROSTER members in ascending order of their random numbers. Assign CAREGIVER SMPCG flag=1 (YES) for the first 5 caregivers. Assign CAREGIVER SMPCG flag = 2(NO) for the remaining caregivers.

Loop through the PERSON ROSTER to create NSOC CGSMPCG COUNT. If CAREGIVER SMPCG= 1 (YES), increment NSOC ALL SMPCG COUNT by 1.

Write CAREGIVER RANDOM NUMBER and CAREGIVER SMPCG flag to PERSON ROSTER for each member with a CAREGIVER ELIGCG flag=1 (YES).

BOX CC5**BOX CC5**

NOT ON FILE

Loop through PERSON ROSTER members with CAREGIVER SMPCG flag=1 (YES) or CG LAST NSOC flag=1 (YES).

If CAREGIVER SMPCG flag=1 (YES) and CG LAST NSOC flag = 1 (YES) set CG TRC flag=1 (CONTINUING).

Else if CAREGIVER SMPCG flag=1 (YES) and CG LAST NSOC flag <> 1(YES) set CG TRC flag=2 (NEW).

Else if CAREGIVER SMPCG flag <>1 (YES) and CG LAST NSOC flag = 1(YES) and CG DECEASED flag <>1 (YES) set CG TRC flag=3 (STOPPED).

Else if CAREGIVER SMPCG flag <>1 (YES) and CG LAST NSOC flag = 1(YES) and CG DECEASED flag =1 (YES) set CG TRC flag=4 (DECEASED).

Loop through PERSON ROSTER members with CAREGIVER SMPCG flag=1 (YES) or CG LAST NSOC flag=1 (YES).

If CAREGIVER SMPCG <> 1 (YES) and CG LAST NSOC flag = 1 (YES), increment NSOC CG OTHER COUNT by 1.

If all ROSTER MEMBERS have a CG TRC flag=4 (DECEASED) go to BOX CC19. (Write out case)

Otherwise go to CC5.

APPENDIX B. NSOC Derived Variables

NSOC Cross-sectional files

Variable Name VARIABLE LABEL	CODING SPECIFICATIONS	VALUES and VALUE LABELS
c#dgender C# D HD 11 12 CG GENDER	NSOC I, II and III: op#gender from the NHATS OP file was confirmed in the NSOC interview. Caregivers were given the opportunity to correct the gender reported by the SP.	1 = male 2 =female
c#relatnshp C# OPRELATNSHP FROM OP FILE	NSOC I, II and III: c#relatnshp = op#relatnshp (the relationship to the SP as reported by the SP)	Relationship codes in op#relatnshp codes
c#intmonth C# MONTH OF NSOC INTERVIEW	NSOC I, II and III: Month of the NSOC interview	1 = May 2 = June 3 = July 4 = August 5 = September 6 = October 7 = November
c#dintdays C# D DAYS BETWN SP INT CG INT	NSOC I, II and III: Days between the NHATS SP interview and the NSOC interview	1 = 30 days or less 2 = 31 to 60 3 = 61 to 90 4 = 91 to 120 5 = 121 days or more
chd#dmartstat C# D HD1 MARITAL STATUS	NSOC II: chd5dmartstat=hh5dmarstat if c5relatnshp=2 Otherwise, ch5dmarstat=HD1 NSOC III: -4 if fl7routing=4 5 if r7dresid=6 and c7relatnshp=2 Else chd7dmartstat=hh7dmarstat if c7relatnshp=2 and fl7spdied = -1 Else chd7dmartstat=HD1	-8 = DK -7 = RF -4 Did not help last month or in last month of life 1 = Married 2 = Living with a partner 3 = Separated 4 = Divorced 5 = Widowed 6 = Never married

<p>chd#dchldlvng C# D HD3 HAVE CHILDREN LIVING</p>	<p>NSOC II: chd5dchldlvng=1 if (c5relatnshp=2 & cs5dnumchild>0) or ((c5relatnshp=3 or 4 or 5 or 6 or 7 or 8) & op5numchldrn>0) chd5dchldlvng=2 if (c5relatnshp=2 & cs5dnumchild=0) or ((c5relatnshp=3 or 4 or 5 or 6 or 7 or 8) & op5numchldrn=0) ELSE chd5dchldlvng=chd5chldlvng</p> <p>NSOC III: -4 if fl7routing=4 1 if c7relatnshp=2 & cs7dnumchild>0 and fl7spdied = -1) 2 if (c7relatnshp=2 & cs7dnumchild=0 and fl7spdied = -1) Else chd7dchldlvng=chd7chldlvng</p>	<p>-9 Missing -8 DK -7 RF -4 Did not help last month or in last month of life -1 Inapplicable 1 YES 2 NO</p>
<p>chd#dnumchild C# D HD4 NUMBER OF CHILDREN</p>	<p>NSOC II: chd5dnumchild=cs5dnumchild if c5relatnshp=2 chd5dnumchild=op5numchldrn if chd5chldlvng=-9 & (c5relatnshp=3 or 4 or 5 or 6 or 7 or 8) ELSE chd5dnumchild=chd5numchild</p> <p>NSOC III: -4 if fl7routing=4 chd7dnumchild = cs7dnumchild if c7relatnshp=2 and fl7died = -1 Else chd7dnumchild = HD4</p>	<p>0 to XX -4 = Did not help last month or in last month of life -1 = Inapplicable</p>
<p>chd#dnumchu18 C# D HD5 NUMBER CHILDREN UNDER 18</p>	<p>NSOC II: chd5dnumchu18 = if c5relatnshp = 2: Count of persons where op5relatnshp = 3 or 4 or 7 or 8 and op5age is > 0 and <18 chd5dnumchu18=op5numchdu18 if chd5chldlvng=-9 & (c5relatnshp=3 or 4 or 5 or 6 or 7 or 8) ELSE chd5dnumchu18=chd5numchu18</p> <p>NSOC III: -4 if fl7routing=4 if c7relatnshp= 2 and fl7spdied = -1: Count of persons where op7relatnshp = 3 or 4 or 7 or 8 and op7age is > 0 and <18 ELSE chd7dnumchu18=chd7numchu18</p>	<p>0 to XX -9 = Missing -8 = DK -7 = RF -4 = Did not help last month or last month of life -1 Inapplicable</p>
<p>chd#dnuminhh C# D HD6 NUMBR OF PEOPLE LIVE HERE</p>	<p>NSOC II: chd5dnuminhh=hh5dhshldnum if op5prsninhh=1 Else chd5dnuminhh=HD6</p>	<p>0 to XX -4 = Did not help last month or in last month of life</p>

	<p>NSOC III: -4 if fl7routing=4 Else chd7dnuminhh= hh7dshldnum if op7prsninhh=1 and fl7died = -1 Else chd7dnuminhh=HD6</p>	-1 = Inapplicable
<p>chd#deduc C# D HD7 HIGHEST DEGREE OR GRADE</p>	<p>NSOC II: chd5deduc= op5leveledu if c5relatnshp=2 Else chd5deduc=HD7</p> <p>NSOC III: -4 if fl7routing=4 Else chd7deduc= op7leveledu if c7relatnshp=2 and fl7spdied = -1 Else chd7deduc=HD7</p>	<p>-8 = DK -7 = RF -4 Did not help last month or in last month of life 1 = No schooling completed 2 = 1st to 8th grade 3 = 9th to 12th grade (no diploma) 4 = High school graduate (High school diploma or equivalent) 5 = Vocational, technical, business, or trade school certificate or diploma (beyond high school level) 6 = Some college but no degree 7 = Associate's degree 8 = Bachelor's degree 9 = Master's, professional, or doctoral degree</p>
<p>chd#deducsprt C# D HD8 SPOUS PARTR HIGH DEGREE</p>	<p>NSOC II: chd5deducsprt = el5higstschl if r5dcontnew=2 & c5relatnshp=2 Else chd5deducsprt= el1higstschl if r5dcontnew=1 & c5relatnshp=2 Else chd5deducsprt=HD8</p> <p>NSOC III: -4 if fl7routing=4 Else chd7deducsprt = el5higstschl if r5dcontnew=2 & c7relatnshp=2 and fl7spdied = -1 Else chd7deducsprt= el1higstschl if r5dcontnew=1 & c7relatnshp=2 and fl7spdied = -1 Else chd7deducsprt=HD8</p>	<p>-8 = DK -7 = RF -1 = Inapplicable -4 Did not help last month or in last month of life 1 = No schooling completed 2 = 1st to 8th grade 3 = 9th to 12th grade (no diploma) 4 = High school graduate (High school diploma or equivalent) 5 = Vocational, technical, business, or trade school certificate or diploma (beyond high school level)</p>

		6 = Some college but no degree 7 = Associate's degree 8 = Bachelor's degree 9 = Master's, professional, or doctoral degree
chd#dcgbrthmt C# D HD9 CG BIRTHDATE MONTH	NSOC II: chd5dcgbrthmt= op5birthmth if c5relatnshp=2 Else chd5dcgbrthmt=HD9 NSOC III: -4 if fl7routing=4 chd7dcgbrthmt= op7birthmth if c7relatnshp=2 & fl7spdied = -1 Else chd7dcgbrthmt=HD9	-8 = DK -7 = RF -4 Did not help last month or in last month of life 1= January 2 = February 3 = March 4 = April 5 = May 6 = June 7 = July 8 = August 9 = September 10 = October 11 = November 12 = December
chd#dcgbrthyr C# D HD9 CG BIRTHDATE YEAR	NSOC II: chd5dcgbrthyr =op5birthyear if c5relatnshp=2 Otherwise, chd5dcgbrthyr = HD9 NSOC III: -4 if fl7routing=4 chd7dcgbrthyr = op7birthyear if c7relatnshp=2 and fl7spdied = -1 Else chd7dcgbrthyr =HD9	-8 = DK -7 = RF -4 Did not help last month or in last month of life Year of caregiver's birth
chd#dage C# D HD9 CG AGE	NSOC II: chd5age=op5age if c5relatnshp = 2 Otherwise, chd5age = age calculated from HD9 NSOC III: Use derived birth month and year in calculation:	-8 = DK -7 = RF -4 Did not help last month or in last month of life Age in years

	chd7dcgbrthmt and chd7dcgbrthyr	
chd#dspbrthmt C# D HD10 SPOUS PARTR DOB MONTH	NSOC II: chd5dspbrthmt =r5dbirthmth if c5relatnshp=2 Otherwise, chd5dspbrthmt=HD10 NSOC III: -4 if fl7routing=4 Else chd7dspbrthmt =r5dbirthmth if c7relatnshp=2 and fl7spdied = -1 Else chd7dspbrthmt=HD10	-8 = DK -7 = RF -4 Did not help last month or in last month of life 1= January 2 = February 3 = March 4 = April 5 = May 6 = June 7 = July 8 = August 9 = September 10 = October 11 = November 12 = December
chd#dspbrthyr C# D HD10 SPOUS PARTR DOB YEAR	NSOC II: chd5dspbrthyr= r5dbirthyr if c5relatnshp=2 Otherwise, chd5dspbrthyr= HD10 NSOC III: -4 if fl7routing=4 Else chd7dspbrthyr= r5dbirthyr if c7relatnshp=2 Else chd7dspbrthyr= HD10	-8 = DK -7 = RF -4 Did not help last month or in last month of life Year of caregiver's spouse/partner's birth
chd#dspouage C# D HD10 SPOUS PARTR AGE	NSOC II: chd5dspouage=r5dintvwrage if c5relatnshp=2 Otherwise, chd5dspouage=age calculated from HD10 NSOC III: -4 if fl7routing=4 chd7dspouage=r7dintvwrage if c7relatnshp=2 and fl7spdied = -1 Else chd7dspouage=age calculated from HD10	-8 = DK -7 = RF -4 Did not help last month or in last month of life Age in years
crl#dcgracehisp C# D CG RACE AND HISPANIC ETHNICITY	NSOC II:	

	<p>1 if (cr15dyourrace1 = 1 and cr15dprimarace = -1 and cr15dhisplatno NE 1) or (cr15dprimarace = 1 and cr15dhisplatno NE 1)</p> <p>2 if (cr15dyourrace2 = 1 and cr15dprimarace = -1 and cr15dhisplatno NE 1) or (cr15dprimarace = 2 and cr15dhisplatno NE 1)</p> <p>3 if (cr15dyourrace3 = 1 and cr15dprimarace = -1 and cr15dhisplatno NE 1) or (cr15dyourrace4 = 1 and cr15dprimarace = -1 and cr15dhisplatno NE 1) or (cr15dyourrace5 = 1 and cr15dprimarace = -1 and cr15dhisplatno NE 1) or (cr15dprimarace = 3 or 4 or 5 and cr15dhisplatno NE 1)</p> <p>4 if cr15dhisplatno = 1</p> <p>5 if (cr15dyourrace1 = -7 or -8 and cr15dyourrace2 = -7 or -8 and cr15dyourrace3 = -7 or -8 and cr15dyourrace4 = -7 or -8 and cr15dyourrace5 = -7 or -8 and cr15dprimarace = -1 and cr15dhisplatno NE 1) or (cr15dprimarace = -7 or -8 and cr15dhisplatno NE 1)</p> <p>6 otherwise</p> <p>NSOC III:</p> <p>1 if (cr17yourrace1 = 1 and cr17primarace = - 1 and cr17hisplatno = 2 or -7 or -8) or (cr17primarace = 1 and cr17hisplatno = 2 or -7 or -8)</p> <p>2 if (cr17yourrace2 = 1 and cr17primarace = - 1 and cr17hisplatno = 2 or -7 or -8) or (cr17primarace = 2 and cr17hisplatno = 2 or -7 or -8)</p> <p>3 if [(cr17yourrace3 = 1 or cr17yourrace4 = 1 or cr17yourrace5 = 1) and cr17primarace = - 1 and cr17hisplatno = 2 or -7 or -8] or (cr17primarace = 3 or 4 or 5 and cr17hisplatno = 2 or -7 or -8)</p> <p>4 if cr17hisplatno =1</p> <p>6 if (cr17yourrace1 through cr17yourrace5 and cr17hisplatno) = 2 or -7 or -8 or -1</p> <p>Else 5 if cr17primarace = -7 or -8 or -1</p>	<p>1 =White, non-Hispanic 2 =Black, non-Hispanic 3 =Other (Am Indian/Asian/Native Hawaiian/Pacific Islander/other specify), non-Hispanic 4 =Hispanic</p> <p>NSOC II: 5 = DKRF 6 = Missing</p> <p>NSOC III: 5 = More than one and DKRF primary 6 = DKRF</p>
<p>FLAG fl7routing C7 F NSOC ROUTING</p>	<p>NSOC III: 2 if fl7spdied=-1 and fl7helpplstmth=1 3 if fl7spdied=1 and fl7helpplstmth=1</p>	<p>2 = Helped last month, SP alive</p>

	4 if fl7helpyear=1 or fl7nohelpyear=1	3 = Helped last month of life, SP deceased 4 = Did not help last month or in last month of life
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NSOC SP Tracker Files (Cross-Sectional)		
fl#dnsoc R# F CC SP IS ELIGIBLE FOR NSOC	NSOC I, II and III: 1 if SP meets NSOC eligibility criteria -1 otherwise	1 = SP eligible for cross-sectional NSOC -1 = Inapplicable
fl#dnsocnt R# F CC CNT HLPRS ELG FOR NSOC	NSOC I, II and III: Number of caregivers eligible for NSOC (up to 5) for each eligible SP	1 to 5 -1 = Inapplicable
fl#dcgphnt R# F CC CNT HLPRS SP GAVE PHNE	NSOC I and II: Number of eligible caregivers that eligible SP provided phone contact information for	0 to 5 -1 = Inapplicable
fl#dcgadonly R# F CC HLPRS ADDRESS ONLY	NSOC I and II: Number of eligible caregivers that eligible SP provided address for (but no phone contact)	0 to 5 -1 = Inapplicable
fl#dcgcontactinfo R# F CC HLPRS SP GAVE CONTACT INFO	NSOC III: Number of eligible caregivers that eligible SP provided contact information for	0 to 5 -1 = Inapplicable
fl#dnsocomp R# D CC CNT HLPRS WITH NSOC COMP	NSOC I, II and III: Number of eligible caregivers who participated in NSOC for each eligible SP	0 to 5 -1 = Inapplicable
fl#dtracksstat R# F D SP VITAL STATUS AT INTERVIEW	NSOC III: 1 if SP is living at 2017 NHATS & NSOC [r7status =60 or 63 and CA1PRE NE 7] and fl7dnsoc=1 2 if r6status=62 and fl7dnsoc=1 (longitudinal NSOC III only) 3 if r7status=62 and fl7dnsoc=1 4 if [r7status = 60 or 63 and CA1PRE=7 for all op7dnsocelig caregivers] and fl7dnsoc=1 5 if r7status = [60 or 63 and CA1PRE NE 7 for at least one op7dnsocelig caregiver and CA1PRE=7 for least one op7dnsocelig caregiver] and fl7dnsoc=1 -1 otherwise	1 = SP interview at 2017 NHATS & alive at NSOC 2 = SP 2016 LML 3 = SP 2017 LML 4 = SP interview at 2017 & deceased at NSOC 5 = SP interview at 2017 & more than 1 caregiver & at least 1 caregiver reports SP deceased at NSOC -1 = Inapplicable

NSOC OP Tracker Files (Cross-Sectional)
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op#dnsocelig R# D CAREGIVER IS ELIGIBLE FOR NSOC	NSOC III: 1 if OP meets eligibility criteria -1 otherwise	1 Helper eligible for cross-sectional NSOC -1 Inapplicable
op#dnsoc R# D NSOC STATUS	NSOC I and II: 1 = eligible helper who was interviewed 2 = eligible helper not interviewed for whom SP gave phone contact 3 = eligible helper not interviewed SP refused contact information 4 = eligible helper not interviewed other (could not locate, too ill, other) 5 = eligible helper who was not fielded for NSOC interview (SP broke off interview before contact information could be obtained; CAPI programming error) 6 = helper ineligible because SP had more than 5 caregivers and caregiver was not sampled 7 = helper found ineligible upon contact (SP died, caregiver under age, caregiver died, caregiver said had not helped in last year) -1 = all other persons on the NHATS OP file NSOC III: 1 = eligible helper who was interviewed 2 = eligible helper refused interview 3 = eligible helper not interviewed other reasons 4 = eligible helper and not interviewed SP did not provide contact information 6 = helper ineligible because SP had more than 5 caregivers and helper not sampled 7 = Named by SP as a helper but determined ineligible (caregiver under age, caregiver died) -1 = all other persons on the NHATS OP file Note: LML caregivers interviewed in NSOC III. See fl7dtrackspstat.	NSOC I and II: 1 = Eligible and interviewed 2 = Eligible and not interviewed phone number provided 3 = Eligible and not interviewed SP refused 4 = Eligible and not interviewed other 5 = Eligible and not fielded for NSOC 6 = 5+ caregivers and not sampled 7 = Ineligible -1 = Inapplicable NSOC III: 1 = Eligible and interviewed 2 = Eligible and caregiver refused 3 = Eligible and caregiver not interviewed other reasons 4 = Eligible and not interviewed SP did not provide contact information 6 = >5 caregivers and not sampled 7 = Named by SP but ineligible -1 = Inapplicable
op#dnsoccomplete R# D CAREGIVER NSOC COMPLETE	NSOC III: 1 = NSOC interview complete -1 = Inapplicable	1 = NSOC interview complete -1 = Inapplicable

op#dtrackspstat R# D SP VITAL STATUS AT INTERVIEW	NSOC III: 1 if SP is living at 2017 NHATS & NSOC SP is living at 2017 NHATS & NSOC [r7status = 60 or 63 and CA1PRE NE 7] and op7dnsocelig=1 2 if r6status=62 and op7dnsocelig=1 (longitudinal NSOC III only) 3 if r7status=62 and op7dnsocelig=1 4 if SP deceased between 2017 NHATS and NSOC III [r6status NE 62 or 86 and r7status NE 62 or 86 and NSOC caregiver reports SP deceased [CA1PRE=7]	1 = SP interview at 2017 NHATS & alive at NSOC 2 = SP 2016 LML 3 = SP 2017 LML 4 = SP died betwn NHATS & NSOC -1 = Inapplicable
op#dnamedhelper R# D OP NAMED AS HELPER IN NHATS	NSOC III: 1 if OP named as helper in NHATS interview -1 otherwise	1 = OP named as helper in NHATS interview -1 = Inapplicable

NSOC SP Tracker Files (Longitudinal)

lfl#dnsoc R# F CC SP IS ELIGIBLE FOR NSOC	NSOC III: 1 if SP has any OP with lop7dnsocelig=1 -1 otherwise	1 = SP eligible for longitudinal NSOC -1 = Ineligible
lfl#dnsoccnt R# F CC CNT HLPRS ELG FOR NSOC	NSOC III: Number of caregivers eligible for NSOC (up to 5) for each eligible SP	1 to 5 -1 = Inapplicable
lfl#dnsocomp R# D CC CNT HLPRS WITH NSOC COMP	NSOC III: Number of eligible caregivers who participated in NSOC for each eligible SP	0 to 5 -1 = Inapplicable
lfl7dtrackspstat R7 F D SP VITAL STATUS	NSOC III: 1 if SP is living at 2017 NHATS & NSOC [r7status = 60 or 63 and CA1PRE NE 7] and lfl7dnsoc=1 2 if r6status=62 and lfl7dnsoc=1 3 if r7status=62 and lfl7dnsoc=1 4 if [r7status = 60 or 63 and CA1PRE=7 for all lop7dnsocelig caregivers] and lfl7dnsoc=1 5 if r7status = 60 or 63 and (CA1PRE NE 7 for at least one op7dnsocelig caregiver and CA1PRE = 7 for at least one op7dnsocelig caregiver) and lfl7dnsoc=1 9 if [r6status>64 or r7status>63] and lfl7dnsoc=1 Otherwise -1 (all OPs for SP have lop7dnsocelig NE 1)	1 = SP is alive at 2017 NHATS & NSOC 2 = SP 2016 LML 3 = SP 2017 LML 4 = SP interview at 2017 & deceased at NSOC 5 = SP interview at 2017 & more than 1 caregiver & at least 1 reports SP deceased at NSOC 9 = SP not interviewed in 2017 and no LML interview in 2016/2017 -1 = Inapplicable

NSOC OP Tracker Files (Longitudinal)		
lop#dnsocelig R# D CAREGIVER IS EIGIBLE FOR NSOC	NSOC III: 1 if OP completed NSOC II and meets eligibility criteria 2 if OP completed NSOC II and does not meet eligibility criteria -1 otherwise	1 = Helper eligible for longitudinal NSOC 2 = Helper ineligible for longitudinal NSOC -1 Inapplicable
lop#dnsoc R# D NSOC STATUS	NSOC III: 1 = eligible helper who was interviewed 2 = eligible helper refused interview 3 = eligible helper not interviewed other reasons 4 = eligible helper and not interviewed SP did not provide contact information 8 = eligible helper not fielded due to no SP interview 9 = eligible caregiver who is deceased Otherwise -1 if lop7dnsocelig NE 1 Note: LML caregivers interviewed in NSOC III. See lfl7dtrackspstat.	1 = Eligible and interviewed 2 = Eligible and caregiver refused 3 = Eligible and caregiver not interviewed other reasons 4 = Eligible and not interviewed SP did not provide contact information 8 = Eligible and not fielded no SP interview in 2017 9 = Eligible caregiver deceased -1 = Inapplicable
lop#dnsoccomplete R# D CAREGIVER NSOC COMPLETE	NSOC III: 1 = NSOC interview complete -1 = Inapplicable	1 = NSOC interview complete -1 = Inapplicable
lop#dtrackspstat R# D SP VITAL STATUS AT INTERVIEW	NSOC III: 1 if [r7status = 60 or 63 and CA1PRE NE 7] and lop7dnsocelig=1 2 if r6status=62 and lop7dnsocelig=1 3 if r7status=62 and lop7dnsocelig=1 4 if [r7status=60 or 63 and CAPRE7=1] and lop7dnsocelig=1 9 if [r6status>64 or r7status>63] and lop7dnsocelig=1 -1 if lop7dnsocelig NE 1	1 = SP interview at 2017 NHATS & alive at NSOC 2 = SP 2016 LML 3 = SP 2017 LML 4 = SP interview at 2017 & deceased at NSOC 9 = SP not interviewed in 2017 and no LML interview in 2016/2017
lop#ddeceased R# D CG DECEASED STATUS	NSOC III: 1 if (op6ddeceased=1 and r7status = 60 or 62 or 63) or op7ddeceased=1 or identified as deceased prior to NSOC III -1 otherwise	1 = Caregiver deceased -1 = Inapplicable