

Chapter 2

The 2018 Longitudinal Study of Ageing and Health in Viet Nam

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The 2018 Longitudinal Study of Ageing and Health in Viet Nam

Nguyen Cong Vu, Mai Thi Tran, Linh Thuy Dang, and Grace T. Cruz

The purpose of conducting the 2018 Longitudinal Study of Ageing and Health in Viet Nam (LSAHV) is to (i) investigate the health status and well-being of older persons (OPs) and their possible correlates, and (ii) assess the determinants of health status and transitions in health status and overall well-being. Before the LSAHV, the only nationally representative study on OPs was the 2011 Vietnam Aging Survey (VNAS 2011). However, the LSAHV is the first attempt to conduct a longitudinal study on ageing in Viet Nam and, unlike the VNAS 2011, focuses on OPs' health conditions. Thus, the LSAHV will provide a deeper understanding of ageing and health. The study captures emerging issues on health and morbidity as it collected anthropometric measurements such as height and weight, biomarkers such as blood pressure and peak flow, number of functioning teeth, appendicular segmental muscle mass, cognitive functioning, the Washington Group's Short Set of Questions on Disability, the Global Activity Limitation Indicator (GALI), and performance indicators such as gait speed and functional reach. These data will allow an interdisciplinary approach to the analysis of ageing, health, and well-being of OPs. Longitudinal data collected through the 2020 survey will provide a basis for assessing the risk factors related to old-age morbidity, mortality, the timing of the onset of diseases, and functional disability, particularly with respect to socioeconomic and demographic factors.

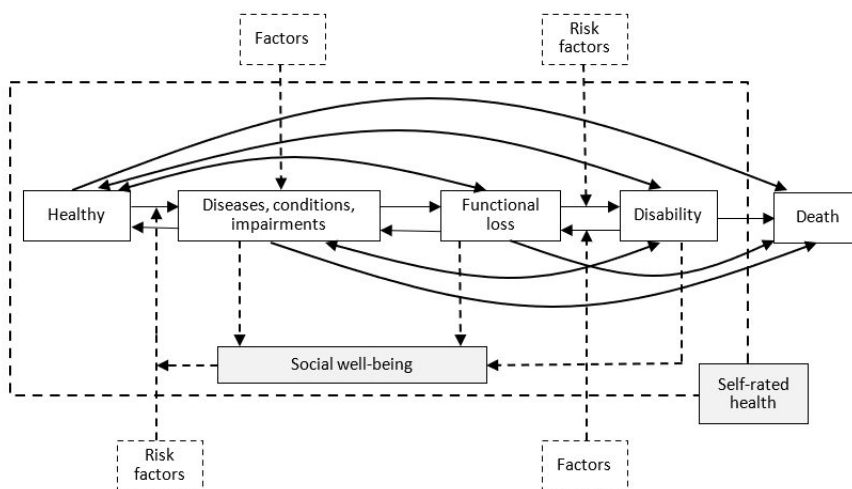
The 2018 LSAHV sheds light on related issues, including the intergenerational flow of wealth and support, the use of information technology, and the availability and nature of care support for OPs, which all directly affect their well-being. The scientific evidence based on information from the LSAHV will be useful for policymakers, health professionals, organisations providing services for OPs, and those working in gerontology and geriatrics.

The LSAHV is part of a comparative study of ageing and health in Viet Nam and the Philippines, two countries with almost similar population size but with different patterns and levels of population ageing and with no longitudinal data on ageing. Both surveys are funded by the Economic Research Institute for ASEAN and East Asia (ERIA). The Institute of Population, Health and Development (PHAD) is the implementing agency in Viet Nam.

Conceptual Framework

The LSAHV follows the same conceptual framework and design as the Longitudinal Study of Ageing and Health in the Philippines. The model of health status and health transitions based on the disablement process is presented in Figure 2.1. The World Health Organization (WHO, 2006) adopts a multifaceted concept of health that includes physical, mental, and social aspects. Based on this definition, the concept of healthy ageing in this study is not just the absence of disease but also, more importantly, the maintenance of functional ability. The model demonstrates the mutual relationships and transitions amongst the parameters from health to the end of life (Crimmins and Seeman, 2001; Saito et al., 2014; Verbrugge and Jette, 1994).

Figure 2.1. Conceptual Model of Health States and Health Transitions according to the Disablement Process



Source: Saito, et al. (2014).

The model goes beyond the traditional mortality and morbidity measures and extends the definition of health outcomes to encompass impairment, functional limitation, and disability. These outcomes help improve the understanding of the multidimensional aspects of health and the mechanisms through which health is affected (Verbrugge and Jette, 1994). In the disablement process, chronic and acute conditions affect functioning of specific body systems, fundamental physical and mental actions, and activities of daily living (ADLs). Other health domains such as mental health and cognitive functioning are considered in many regular demographic studies (Colsher and Wallace, 1991; Herzog and Wallace, 1997).

Five dimensions of the disablement process are (i) health; (ii) diseases, conditions, and impairment; (iii) functional loss; (iv) disability; and (v) death. WHO (2001) defines these dimensions as follows:

- (1) Impairment is the loss of physiological integrity in a body function or anatomical integrity in a body structure caused by disease, injury, or congenital defect. Thus, the survey includes a set of questions on chronic diseases and conditions, pain, falls, depression, and cognitive impairment as measures of diseases, conditions, and impairment.
- (2) Disability is not only physiological impairment and loss of functioning but also loss of individuals' ability to interact with others and with their environment. The definition is from the social-relational model and the biopsychosocial model (Washington Group on Disability Statistics, 2017). In this study, therefore, disability is measured by the following factors: ADLs, instrumental activities of daily living (IADLs), the Washington Group Short Set of Questions on Disability, and the General Activity Limitation Indicator.
- (3) Function loss or limitation refers to restrictions on performing fundamental physical and mental actions used in daily life by one's age and sex group that indicate the overall abilities of the body and mind to do purposeful 'work' (Verbrugge and Jette, 1994). This study used Nagi measurements to estimate functional loss.
- (4) Death is traditionally used as an indicator of population health: mortality or life expectancy. The indicator is computed based on age-specific mortality rates. Information on death will be recorded only in the 2020 survey.

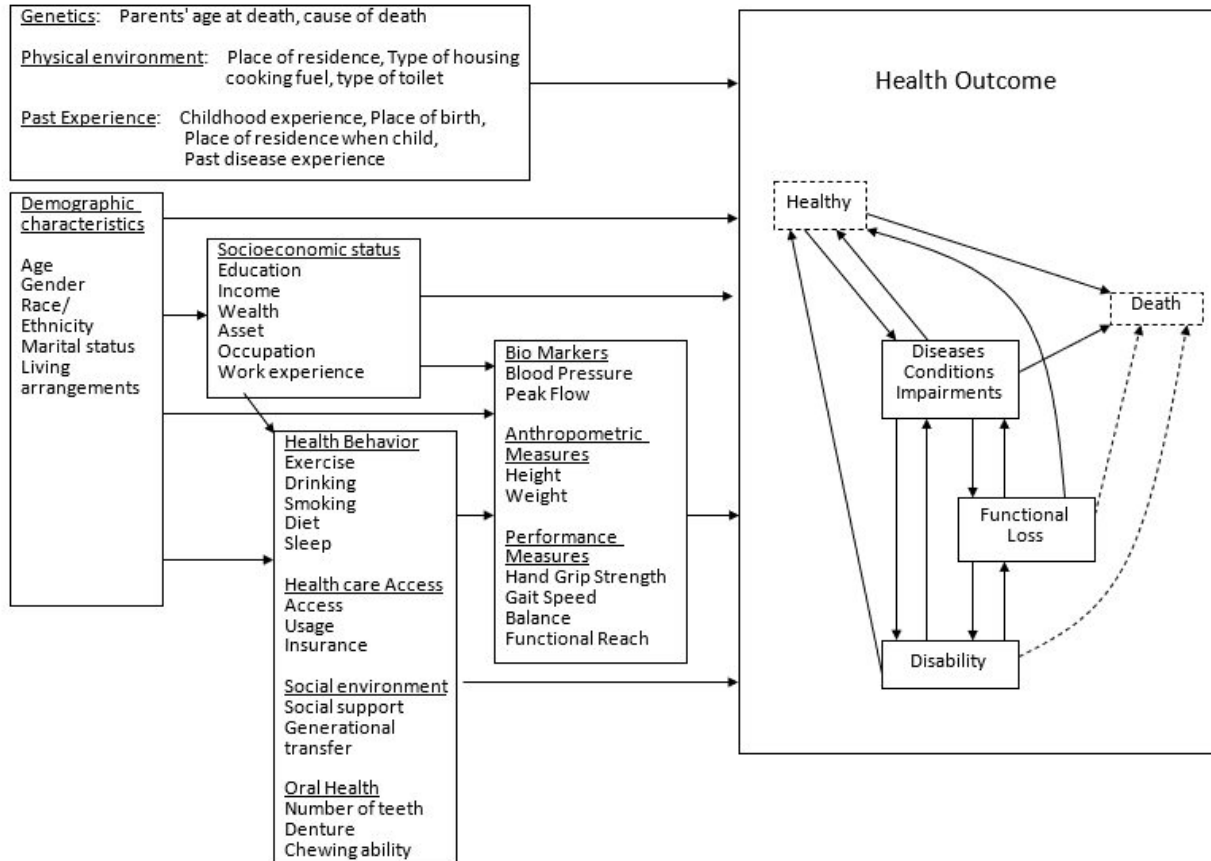
Health status and health-related questions were included in the survey. At baseline, respondents were asked to rate their own health as a global health measure. Then, they were asked about other social aspects of health, such as loneliness and happiness.

We examine health transition. The five dimensions are presented in Figure 2.1. Each box represents prevalence and each arrow represents transition or incidence. There are two sources of change in prevalence. For instance, the prevalence of functional loss may increase through decline of health outflow even though the transition to disability inflow stays constant. The prevalence of functional loss could increase the risk of death. Thus, we need to pay attention not only to the prevalence in each dimension but also to the health transitions amongst the dimensions.

Health transitions are determined in certain health states by the risk factors of health transitions amongst these states, including social, psychological, and environmental factors. They can speed up or slow down the pathway (Verbrugge and Jette, 1994) and influence or modify the process of becoming disabled (Peek et al., 2003). The relationship of these factors to health outcomes is presented in Figure 2.2. Health outcomes in this conceptual framework assume the same meaning as health outcomes in Figure 2.1. Health outcomes are influenced by different factors and the arrows suggest the transitions between these sets of factors. The concepts in each box are explored in the survey.

Health status and overall well-being are affected directly by demographic characteristics such as age; sex; marital status; the OP's childhood experiences (type of community where the OP grew up); parental characteristics (whether parents are alive, age at death, cause of death, and educational attainment); and physical environment (place of residence and type of living conditions). Health outcomes are affected by socioeconomic status, health behaviours, healthcare access, oral health, and social environment. These factors, in turn, are affected by demographic and socioeconomic factors. The last box presents biological risk factors such as blood pressure, body mass index, and grip strength, which have a direct effect on health status and are affected by sociodemographic and other health behaviours.

Figure 2.2. Conceptual Framework for Factors Related to Health Outcome



Source: Saito (2018).

Study Design

Follow-up interviews are scheduled 2 years after the baseline study. For respondents who have died since then, verbal autopsy data will be collected as a basis for estimating mortality rates and their determinants. To ensure that there will be enough respondents for succeeding surveys, the baseline survey oversampled those aged 70–79 with a factor of two and those aged 80 and above with a factor of three. Respondents were interviewed using a tablet.

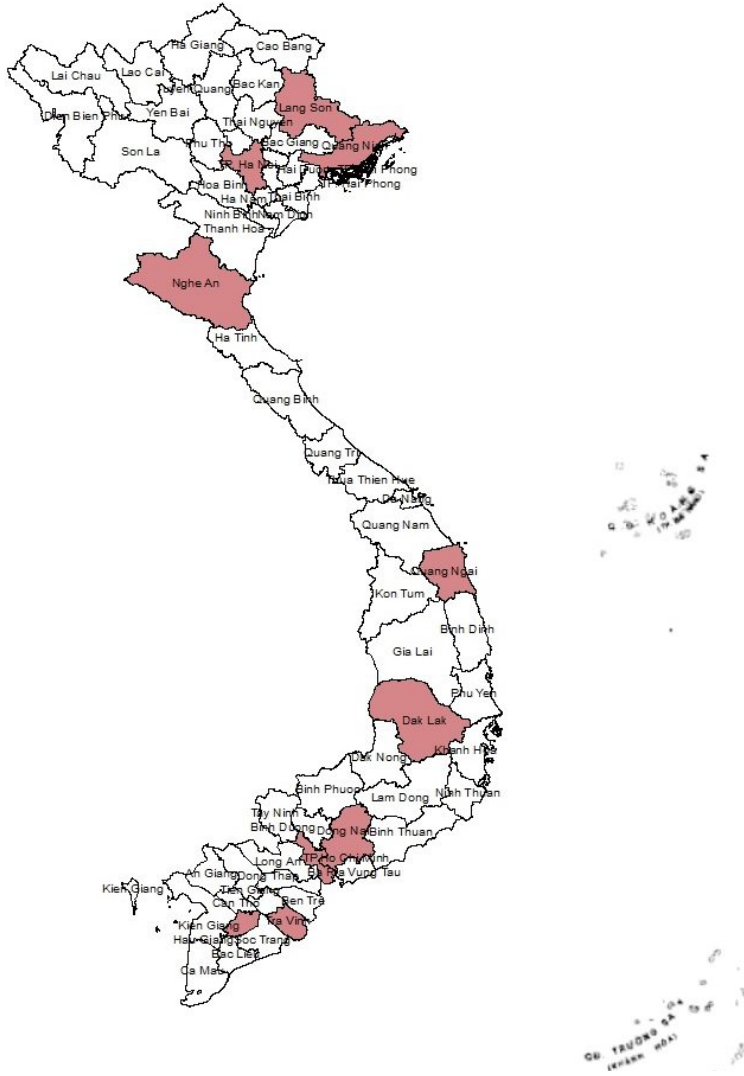
Working closely with the General Statistics Office and the General Office for Population and Family Planning, baseline data collectors employed a multistage sampling design. Provinces are considered the primary sampling units, villages the secondary sampling units, and OPs the ultimate sampling units. Based on the census of 2009, which is the latest, provinces were stratified by estimated population aged 60 and over in 2018. Data were collected in 654 villages from 10 provinces in 6 regions. The chosen provinces are marked in dark colour in Figure 2.3 and listed in Table 2.1 (see the Annex A for a full discussion of the sampling design).

Table 2.1. Sample Areas of the 2018 Longitudinal Study of Ageing and Health in Viet Nam

Province	Region	Number of Villages	Number of Eligible Older Persons Visited	Number of Older Persons Interviewed
TOTAL		654	6,050	6,050
Lang Son	Northern Midlands and Mountains	74	666	666
Quang Ninh	Red River Delta	99	891	891
Nghe An	North Central and Central Coast	76	684	684
Quang Ngai		34	306	306
Dak Lak	Central Highlands	46	414	414
Dong Nai	South East	60	540	540
Tra Vinh	Mekong River Delta	58	522	522
Hau Giang		43	387	387
Ha Noi	Red River Delta (Capital)	82	820	820
Ho Chi Minh City	South East (commercial centre)	82	820	820

Source: Calculated by PHAD using original LSAHV data.

Figure 2.3. The 2018 Longitudinal Study of Ageing and Health in Viet Nam: Sample Areas



Cartography: Nguyen Thi Yen, PHAD.

The LSAHV is designed to provide multilevel and multi-actor data. It covers not only OPs but also their household, primary or potential caregiver, and adult child. The child and caregiver respondents were at least 18 years old at the time of the interview. Data from them help cross-validate some information collected from the OPs, particularly on their health, caregiving, and intergenerational support.

The baseline data collection used five questionnaires:

- (1) Household questionnaire
- (2) Main questionnaire for the OP
- (3) Anthropometric questionnaire for the OP
- (4) Questionnaire for the OP's caregiver
- (5) Questionnaire for the OP's child

The questionnaires were translated into Vietnamese from the English versions used by the study in the Philippines. The Vietnamese study team adapted some questionnaires to local culture and contexts. The questionnaires' content was examined by the LSAHV advisory committee, composed of representatives from the academe, government agencies involved in ageing affairs, international development agencies, and nongovernment agencies.

Each questionnaire is described below:

(1) **Household questionnaire.** Aims to collect detailed demographic and economic information on household members, marital status, education, employment, household assets, access to clean water and sanitation, electricity availability, toilet facility, hunger experienced in the last 3 months, and the OP's children.

(2) **Main questionnaire for the OP.** Explores the health outcome measures and their determinants (Figure 2.2) and other measures of well-being. Provides a significant amount of information on the OP's health, such as self-assessed health; illnesses; functional ability (ADLs, IADLs, and Nagi); mental health (Center for Epidemiological Studies Depression Scale) and cognition; incontinence; personal habits such as smoking and drinking; and health utilisation.

The main questionnaire collected the following:

- Socioeconomic and demographic characteristics
- Health status
- Physical ability and disability
- Mental health
- Healthcare utilisation
- Income and assets
- Attitudes and beliefs
- Activities, social isolation, and information technology
- Services for OPs
- Children and grandchildren
- Consent for anchor child and caregiver
- Cognitive assessment

(3) **Anthropometric questionnaire.** Provides information for an interdisciplinary assessment of health outcomes. The assessment was done by integrating biomarkers and other physiological indicators in the demographic analysis of health outcomes. Data were collected on biomarkers (blood pressure and peak flow); anthropometric measures (height and weight); and performance measures (handgrip strength, gait speed, balance, and functional reach). The survey used the Tanita Segmental Body Composition Monitor to gather information on body weight, body mass index, body fat percentage, total body water percentage, muscle mass, physique rating, bone mass, basal metabolic rate, and visceral fat.

(4) **Caregiver questionnaire.** Based on a caregiver–older adult dyad survey conducted in Singapore, to provide information on the prevalence and nature of caregiving, including relationship of the caregiver to the care recipient, preparation for caregiving, caregiving activities, number of hours allotted for caregiving, well-being of caregivers, and support network and intervention programmes for caregivers. The survey collected information on the caregiver’s assessment of the OP’s difficulty in performing ADLs, which can be used to cross-validate the OP’s self-assessment.

(5) **Adult Child questionnaire.** Developed based on a parent–child dyad survey in Taiwan, which was part of a longitudinal study for OPs, and on a three-generation survey conducted in the United States. The questionnaire for Viet Nam examined the relationship between the adult child and the OP.

The data on parent–child dyads show the nature of intergenerational relationships, support provision, and expectations of filial piety.

The caregiver and adult child interviews also aim to provide more information on the potential consequences of changes in the OP's health status. The interviews aim to shed light on how the family is mobilised to provide support and services for their elder members. The questionnaire gathered basic socio-demographic data on the caregiver and adult child and their perception of the OP's health status. Additional contact information of the OP was gathered from the interviews with the caregiver and adult child. The information increases the chance of tracking OPs in the follow-up study in 2020.

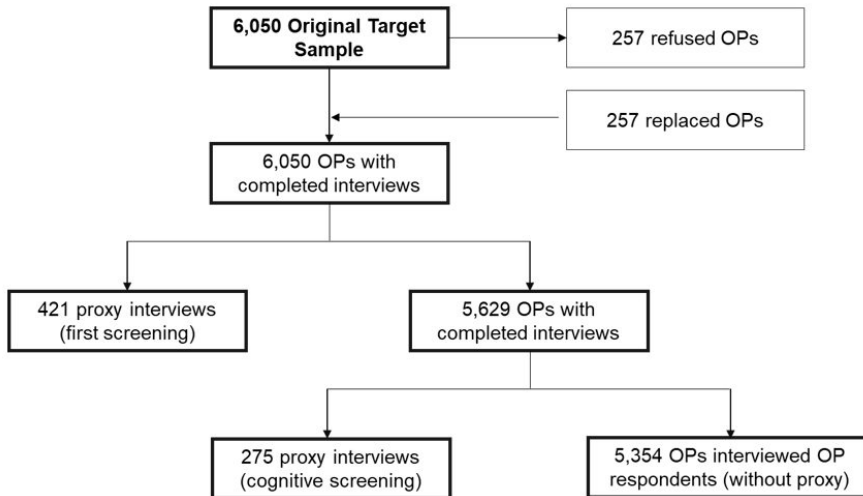
Study Sample

The baseline data were collected from a target sample of 6,050 OPs aged 60 and over. A total of 5,793 were interviewed from December 2018 to May 2019, for a response rate of 96%: 257 OPs either refused to participate or were not available for interview despite repeated visits (Figure 2.4) and were replaced; 421 OPs with difficulty hearing and/or speaking or with psychological disorders were interviewed by proxy; and 5,629 OPs were given a cognitive test to determine their ability to answer the questionnaire. The test used the Short Portable Mental Status Questionnaire for cognitive screening. Because the test has not yet been validated in Viet Nam, the standard cut-off scores recommended by Pfeiffer (1975) were adopted. In the standard score system, the cut-off score is determined by the OP's highest educational attainment.¹ The LSAHV is the first study in Viet Nam to use a cognitive assessment test to determine the OP's eligibility and fitness to answer the questions. After the screening, 5,354 OP scored above the cut-off. They were thus eligible to proceed with the interview. For the 275 OPs with lower cut-off scores, a proxy was allowed to answer factual questions.

¹ Pfeiffer (1975) adopted the following criteria for cognitive assessment: 0–2 errors = normal mental functioning, 3–4 errors = mild cognitive impairment, 5–7 errors = moderate cognitive impairment, 8 or more errors = severe cognitive impairment. One more error is allowed in the scoring if a respondent has had a grade school education or less. One less error is allowed if the respondent has had education beyond high school. To be eligible for the LSAHV interview, an OP with an elementary education or less should have five incorrect answers or less. An OP with a high school education should have four incorrect answers or less, while an OP with a college education or higher should have three incorrect answers or less to be eligible for interview.

Table 2.2 shows that 5,782 respondents (96% of the total respondents) were interviewed to collect anthropometric data. OPs who were bedridden, disabled, or sick and unable to perform the required measurements were excluded from the anthropometric measurements. The remaining 5,347 respondents (92% of the total respondents) were subjected to body mass and inner body scan using the Tanita Segmental Body Composition Monitor. For the caregiver and adult child survey, a total of 3,689 caregivers and 2,898 children were interviewed. The adult children who were also the caregivers were interviewed using the caregiver questionnaire instead of the adult child questionnaire.

Figure 2.4. Study Sample



Source: Calculated by PHAD using original LSAHV data.

Table 2.2. Number of Respondents per Questionnaire

Questionnaire	Number of Respondents
Household	6,050
Main	6,050
Adult child	2,898
Caregiver	3,689
Anthropometric	5,782
With Tanita measures	5,347
Without Tanita measures	435

Source: Calculated by PHAD using original LSAHV data.

Training of Field Personnel

The LSAHV team conducted a training session for field supervisors and field interviewers in each study province. They were local people who understood the local culture, languages, and locations. The training session included a review of the duties and responsibilities of field personnel, clarification of the concepts and questions used in the five questionnaires, an explanation of how to conduct the performance tests and measures in the anthropometric questionnaire, and mock interviews using computer-assisted personal interview versions of the questionnaires with the participation of OPs who were not in the list of selected villages. A field manual was developed and distributed to all field personnel during the training.

Fieldwork

The survey data were collected from 14 December 2018 to 30 May 2019. Each province had a team including one supervisor from PHAD, provincial supervisors, and field interviewers. The PHAD supervisor was present throughout the fieldwork to monitor data collection and help the data collectors answer all questions arising in the fieldwork. Provincial supervisors were responsible for field supervision.

Data Processing

The program – REDCap, a secure application for conducting surveys created in 2004 at Vanderbilt University, United States – was used for data collection. Field interviewers were requested to transfer data to the server using 4G or Wi-Fi by the end of the day. The data files were regularly checked by the PHAD supervisor.

The raw data were exported from the REDCap server into an Excel format and then converted into Stata 16 for data cleaning and analysis.

In this report, the number of cares in the tables is the interviewed number of cases but the percentages are based on weighted numbers of OPs.

Ethics in Research

Researching emotional status was given special consideration to ensure that subjects were protected under the regulations of international research ethics. The implementation process of the LSAHV was carefully reviewed by the Institutional Review Board of the PHAD, which is under the authorisation of the American Medical Board, to minimise risks to the interviewees.

All interviewees and/or their legal representatives had to express consent to participate in the interviews. The interviews were conducted in private to ensure confidentiality and privacy.

The identities of all the participants interviewed and the recorded information on the questionnaires about their relatives and the data analysis were encrypted and kept confidential. As the data were collected digitally, all the final original data were secured in the encrypted server of PHAD and copies in the password-protected hard drive. The dataset to be used for data analysis and sharing has been anonymised, i.e. information on name, address, telephone, GPS locators, and date of birth were removed.

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