At the onset of the COVID-19 pandemic, the Survey of Health, Ageing, and Retirement in Europe (SHARE) was in a unique position to respond to the need for high quality survey data on people’s changing living situations. Implemented as two telephone interviews in the summer of 2020 and 2021 in 27 European countries and Israel, the SHARE Corona Surveys present a great advantage by their integration into the longitudinal, multidisciplinary and ex-ante harmonised design of the SHARE study. This allows researchers to trace changes from the pre-pandemic period, through the different stages of the pandemic, and the post-pandemic situation. This article lays out the research aims and how the two Corona Surveys fit in the general design of SHARE. It presents the main design features of the SHARE Corona Surveys following the survey life cycle. It starts with information on procurement, contracting, funding, ethics, and data protection and sampling, followed by information on instrument design, translations, questionnaire content and interviewer training. Last, fieldwork, panel
care and data processing are described. Focused on topics of health behaviour, health care, economics and social relationships, the balanced panel sample of the two SHARE Corona Surveys comprises more than 48,000 interviews and provides valuable information on how the 50+ population coped with the COVID-19 pandemic. The experience of implementing the SHARE Corona Surveys also offers insights into use of agile project management methods for large survey infrastructures and moving towards a multi-mode design in an ongoing panel data collection project.

Keywords COVID-19 • SHARE data • survey design • longitudinal survey • cross-national data • social relationships • economics • health behaviour • healthcare • mode switch


**Introduction**

The global COVID-19 pandemic spread rapidly over Europe in early 2020 and had a great impact on all aspects of people’s lives, especially through the risk of serious illness and death for the older population. To contain the pandemic, governments resorted to various social distancing measures (see Hale et al, 2021) that had a significant impact on the economic and social well-being of their populations (Brugiavini et al, 2021) and intensified social, economic and health inequalities (Bonfatti et al, 2023a). The pandemic interrupted social contacts, confined people to their homes and ushered in a deep recession. The lockdowns had important implications for labour and housing markets (Lee et al, 2020; Cortes and Forsythe, 2023; Guglielminetti et al, 2023), living arrangements (Berniell et al, 2023a) and social relationships (Litwin and Levinsky, 2022; Alizadeh et al, 2023).

As the pandemic was unfolding, data on the living situation of older people during the lockdown were scarce. Simultaneously, there was an enormous demand for rapid research results and scientific evidence from both the affected population and policy makers to shed light on the short- and long-term implications (Scherpenzeel et al, 2020). The Survey of Health, Ageing and Retirement in Europe (SHARE) seeks to address this gap with its two SHARE Corona Surveys (SCS). The SCS aim to provide researchers and policy makers with high quality data on the effects of the pandemic itself (for example, in terms of adverse health outcomes) and its related epidemic control measures in the SHARE countries. The surveys provide harmonised and representative data on COVID-related infection, the disruption in social lives and care arrangements, the economic and housing consequences, the physical and mental health of respondents and their access to healthcare (for an overview, see Yilmaz et al [2021; 2024]). The surveys were fielded in the summer of 2020 and 2021 as Computer Assisted Telephone Interviews (CATI), collecting data targeted to the living situation of people 50 years and older. More than 57,000 respondents were
interviewed in 2020 in 27 European countries\(^1\) and Israel, from which about 48,000 were re-interviewed one year later, ranging from about 600 interviews in Cyprus to about 4,000 in Estonia (see Figure 1).

The main advantage of the SCS is their embeddedness within the larger infrastructure of SHARE. Established in 2004, SHARE is a cross-national longitudinal survey, collecting data on the 50+ population’s physical and mental health, family and social life, and employment and economic situation in a biennial cycle. The two SCS are part of a ‘before-during-after’ data collection design in response to the pandemic (see Figure 2) and can be merged with the regular SHARE waves. The first two elements in this scheme are the SHARE Wave 8 main face-to-face interview, whose fieldwork started at the end of 2019 and was interrupted due to the outbreak of the pandemic, and the first SCS (SCS1). The third element, the second SCS (SCS2), was designed as a follow-up to SCS1, taking a longer-term perspective on the health

![Figure 1: Map with sample sizes of countries participating in both SHARE Corona Surveys (excluding End-of-Life interviews)](image)

Source: SHARE Wave 8 COVID-19 Survey 1 and SHARE Wave 9 COVID-19 Survey 2, Release 9.0.0 (n=48,364).
outcomes, economic hardships and social disruptions. The fourth and final element of this data collection design is the SHARE Wave 9 main face-to-face interview, which lasted from October 2021 to Summer 2022.

Study design

The design of the SCS was guided by three overarching principles, in line with the overall design of SHARE:

1. a longitudinal perspective, aiming to capture changes over the life course and ageing process of respondents;
2. a multidisciplinary approach, enabling empirical research on the interactions between biomedical and socio-economic aspects in various areas such as demography, economics, epidemiology, gerontology, psychology, public health and sociology; and
3. cross-national ex-ante harmonisation, which aims to deliver comparable data of the highest quality and allows to compare the diverse health and social systems across the SHARE countries despite national differences. The ex-ante harmonisation accompanies all steps of the survey life cycle, from sampling to translations, fieldwork procedures and data processing (Börsch-Supan et al, 2013; Mneimneh et al, 2019).

The following describes the key aspects of the study design from a survey life cycle perspective. It will be highlighted whenever the two SCS deviated from the general design features and practices of SHARE.

Procurement, contracting and funding

Due to the new situation imposed by the pandemic, an adjustment to the Wave 8 data collection contract became necessary for SHARE-ERIC (Survey of Health, Ageing and Retirement in Europe – European Research Infrastructure Consortium) and the contracted survey agencies. This adjustment included a new annex to the contract, which allowed the continuation of fieldwork in the panel sample via
telephone interviews and contained all relevant methodological, operational and technical specifications to ensure data collection in a scientifically harmonised way in every SHARE country.

The procurement for SCS2 was carried out together with Wave 9 and introduced a new feature, the splitting of the Wave 9 data collection contract into separate task orders, each covering different parts of the SHARE survey. This allowed a much more flexible ordering of the different parts of the survey to be carried out by the same survey agency, given the dynamic situation during the pandemic.

SCS1 was largely funded by the remaining funds from the discontinued Wave 8 fieldwork. In addition, the EU Commission’s Directorate-General for Employment, Social Affairs, and Inclusion (DG EMPL) granted an extension (VS/2020/0313) for a couple of countries that were previously financed by another grant (VS 2019/0332). SCS2 received funding through Horizon 2020 and the Coronavirus Global Response initiative launched by the EU Commission under the topic of ‘Behavioural, social and economic impacts of the outbreak responses’ with its proposal for ‘Non-intended health, economic and social effects of the COVID-19 epidemic control decisions: Lessons from SHARE (SHARE-COVID19)’, Project Number: 101015924.

**Ethics and data privacy**

The switch to telephone interviewing made it necessary to address the related ethical and data protection aspects. From a data protection perspective, compliance with the European and national data protection regulations, in particular the General Data Protection Regulation (GDPR), safeguarding of respondents’ personal data had to be ensured first and foremost when introducing the new survey mode and the related instruments and infrastructure. This included the introduction of appropriate technical and organisational measures to guarantee the security of data processing as well as a diligent documentation of these measures.

Furthermore, the procedures for obtaining respondents’ consent had to be adapted to the new interview setting, which included the following adjustments:

- A new advance letter was developed and sent to all panel respondents, explaining the situation, announcing the telephone interview, and including the standard SHARE data protection statement with detailed information to enable the respondents to give informed consent.
- While the standard SHARE data protection statement could be used unchanged, the consent question had to be tailored to the telephone interviews, meaning that all information necessary to enable the respondent to give valid consent was read out by the interviewer.
- Furthermore, an additional procedure has been implemented to provide further information to respondents, including an option of sending the data protection statement again.

Due to the changes regarding the survey mode, the questionnaire content, and the means of obtaining consent and processing respondents’ personal data, the concept and procedures of SCS1 were also submitted to the responsible ethics committee for review in the form of an amendment to the ethics approval of the suspended Wave 8 data collection. The ethics committee reviewed the additional material and
information and confirmed that the design and practical implementation of SCS1 did not raise any ethical concerns. SCS2 was again submitted for ethical review together with the documentation for Wave 9 and received a positive ethics vote.

**Sampling design features**

The target population of SHARE comprises people aged 50 and over at the time of sampling, who have their main residence in the country of interview. Cohabiting spouses or partners of 50+ respondents are included in the target population regardless of their own age as the household level is important for SHARE (for more information on the general sampling procedure and eligibility in SHARE, see Bergmann et al, 2019). The target population of SCS1 was defined as the 50+ population in 2016 (that is, the time of the latest baseline/refreshment samples drawn in Wave 7) that survived up to 2020 (that is, the beginning of the data collection for SCS1). Similarly, the target population of SCS2 was defined as the 50+ population in 2016 that survived up to 2021. Given that SHARE’s longitudinal dimension is one of the main strengths of its data profile, eligibility for the SCS1 interview was restricted to panel households that had participated in at least one previous wave, regardless of whether they had a completed Wave 8 interview. This meant that SCS1 could be fielded also in Portugal, where the Wave 8 fieldwork could not start before the outbreak of the pandemic. Only refusals in Wave 8 were carefully excluded to be in strict accordance with GDPR. While in most countries the complete eligible panel sample could be fielded again, only in two countries, namely the Netherlands and Sweden, a stratified sample based on all panel households was selected for cost reasons (see Bergmann et al [2022] for more details on the sample composition). Other than the panel sample, the recruitment of the Wave 8 refreshment samples (that is, households participating for the first time) was not continued after the suspension of the regular face-to-face fieldwork, mainly because telephone numbers were unavailable for most address-based refreshment samples. Instead, the already drawn and not recruited refreshment samples were continued in Wave 9, when face-to-face interviewing was possible again (Bergmann et al, 2024). When respondents were contacted for SCS2, eligibility was consequently restricted to those with a completed SCS1 interview. However, an exception was made for partners of respondents without an SCS1 interview, who could participate in SCS2 if they wished to.

**Instrument design and translations**

The development of SCS1 was performed under great time pressure; only four months had passed from the decision to administer the survey to the start of fieldwork with a newly designed, tested, and translated instrument. The conceptual design phase posed challenges for cross-national adaptations, as the lived experience of the pandemic differed greatly among the SHARE countries. Panel stability with the previous SHARE waves and across the two SCS, that is, asking identical questions across waves, was another significant concern for the choice of questions (see Yilmaz et al [2021; 2024]). Furthermore, adapting the technical infrastructure in which the questionnaire was embedded was even more demanding (for details, see De Bruijne et al, 2021). There was a need for a short development phase of the generic instrument, quick iterations regarding the translation into the over 40 language versions in SHARE, and
feedback loops from the country teams to the questionnaire design. To achieve this, a centrally running web-based questionnaire programmed in Quest was employed (in contrast to Blaise that was in use before), which supports the telephone interviews and allows smooth communication with the other SHARE tools used for managing the translation process (TranslationCTRL), the respondents’ contact and household information (CaseCTRL), and eligibility (SampleCTRL).

The necessary implementation of fieldwork in a different data collection mode due to the pandemic facilitated the transition from face-to-face to other interview modes in SHARE. The move to a different mode concept for SCS1 set the first blueprint for the multi-mode survey in SCS2 and Wave 9, which enabled the survey agencies to switch from one mode (telephone) to another (face-to-face) within the same interviewer’s software to conduct the interviews in the right data collection mode (Schuller et al, 2024).

**Questionnaire content**

Given the constrains imposed by differences in how the pandemic affected people’s lives across Europe, the CATI mode, and the desire to ensure panel stability, questions were selected to capture the lived experiences of the 50+ population during the pandemic in all its aspects. The SCS contain five core areas: health and health behaviour; COVID-19 related infection; quality of healthcare; work and economic situation; and social networks (Yilmaz et al, 2021). This comprehensive focus allows evidence-based policy advice with SHARE data, reflecting both the needs of researchers and the state of the art in survey methodology and practice.

**Health and health behaviour:** Questions were asked on general physical health (subjective health and new diagnoses, conditions, and prescription medicine) and mental health (anxiousness, depression, sleep and loneliness) before and during the pandemic, and adherence to safety measures (going out, meeting people, social distancing and personal hygiene). For SCS2, new questions on activities outside the home, such as travelling abroad or number of contacts with other people, and vaccination (against COVID-19, flu and pneumonia) were added.

**COVID-19 infections and illness:** This area comprised questions on the presence and prevalence of COVID-19 related symptoms and infections for the respondents and personal social circle, COVID-19 tests, hospitalisation and death due to COVID-19. For SCS2, new questions on complaints, or symptoms, of long-COVID were added.

**Quality of healthcare:** Questions on postponed and denied medical treatments, difficulties in accessing healthcare, satisfaction with received healthcare were asked. For SCS2, new questions on catching up with missed treatments were added.

**Work and economic situation:** This area had questions on unemployment and business closures, times and durations, working from home and adequacy of resources, internet use and increasing digitalisation, changes to working hours (short-time work and/or overtime), financial support due to the pandemic, household’s ability to make ends meet, needing to postpone payments or dip into savings. For SCS2, a question on savings regret was added.

**Social networks:** Questions on frequency of contact with family and friends, help given and received, personal care given and received, and voluntary activities were posed.
Additionally, the SCS included a limited number of items on whether respondents had moved and, if so, questions about their new residential area and dwelling. Nevertheless, the total length of the SCS was kept short, averaging about 15 minutes for SCS1 and 20 minutes for SCS2.

**Interviewer training**

Another important challenge concerned interviewer trainings. SHARE follows a multiplier approach for its interviewer trainings, called Train-the-Trainer: The SHARE Central coordination team trains representatives from the survey agencies and provides the blueprint for the national trainings in the individual countries (for more detailed information, see Sand et al, 2019). For SCS1, only interviewers who had completed general interviewer training and the SHARE training for Wave 8 were employed. For SCS2, survey agencies employed also new interviewers who were trained accordingly. Given the pandemic restrictions, the trainings for the two Corona Surveys had to be relayed to webinars, to be followed by country-specific National Training Sessions, also in virtual format.

Furthermore, the mode switch necessitated adaptations in contacting the households and handling refusals. In this respect, the number of contact attempts required by SHARE before a household can be assumed a final non-interview household was increased from six to ten contact attempts at different times during working days and the weekend for each SCS. Additionally, new advance letters for the telephone interviews were sent along with the standard data protection statement, including a monetary unconditional incentive, gift or voucher in countries where this was possible. As a shorter version of the data protection statement was also read out over the telephone, interviewers received additional training for establishing informed consent in this mode.

**Fieldwork times**

While the regular SHARE questionnaire has a long pretest period of usually 2–4 months for conducting face-to-face interviews, followed by data analyses, questionnaire adaptations and a new round of software development, the pretest for the SCS1 was much shorter and lasted only a couple of days, during which the technical set-up and the smooth operation of the questionnaire was tested in all participating countries and used languages. For SCS2, there was a two-stage testing phase to test first the SCS2 in CATI mode and then the SHARE main interview as Computer Assisted Personal Interview (CAPI) for the planned Wave 9 fieldwork one year later, again in all countries (see Figure 3). Both test runs were conducted by trained interviewers via telephone as the situation did not allow for face-to-face interviews. By this, the fieldwork time for the test runs could be reduced to about one week for the CATI instrument and just under two weeks for the CAPI instrument.

The main data collection of SCS1 was fielded between June and August 2020 in all SHARE countries except Austria, where fieldwork was slightly delayed. SCS2 was fielded between June and August 2021, again in all 28 countries. As can be seen in Figure 3, the synchronised execution of fieldwork was largely successful.

Despite the quick mode switch from CAPI to CATI and the unprecedented situation for all involved parties, the fieldwork performance was remarkable in many...
Figure 3: Fieldwork times in all 28 SHARE countries

SHARE managed to collect more than 57,000 interviews in 2020 and over 48,000 interviews in 2021. The balanced sample of respondents, who participated in both waves of the study, includes 48,356 individuals. Table 1 presents an overview of the realised individual interviews in SCS1 and SCS2.
Table 1: SHARE Corona Surveys: realised interviews (excl. End-of-Life interviews) per country

<table>
<thead>
<tr>
<th>Country</th>
<th>SCS1</th>
<th>SCS2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>2,742</td>
<td>2,313</td>
</tr>
<tr>
<td>Belgium</td>
<td>3,919</td>
<td>3,451</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>879</td>
<td>705</td>
</tr>
<tr>
<td>Croatia</td>
<td>2,149</td>
<td>1,911</td>
</tr>
<tr>
<td>Cyprus</td>
<td>842</td>
<td>653</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>2,712</td>
<td>2,112</td>
</tr>
<tr>
<td>Denmark</td>
<td>2,042</td>
<td>1,593</td>
</tr>
<tr>
<td>Estonia</td>
<td>4,675</td>
<td>4,069</td>
</tr>
<tr>
<td>Finland</td>
<td>1,502</td>
<td>1,311</td>
</tr>
<tr>
<td>France</td>
<td>2,133</td>
<td>1,853</td>
</tr>
<tr>
<td>Germany</td>
<td>2,834</td>
<td>2,039</td>
</tr>
<tr>
<td>Greece</td>
<td>3,858</td>
<td>3,399</td>
</tr>
<tr>
<td>Hungary</td>
<td>1,057</td>
<td>862</td>
</tr>
<tr>
<td>Israel</td>
<td>1,588</td>
<td>1,291</td>
</tr>
<tr>
<td>Italy</td>
<td>3,922</td>
<td>3,358</td>
</tr>
<tr>
<td>Latvia</td>
<td>1,056</td>
<td>975</td>
</tr>
<tr>
<td>Lithuania</td>
<td>1,333</td>
<td>1,259</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>964</td>
<td>867</td>
</tr>
<tr>
<td>Malta</td>
<td>913</td>
<td>790</td>
</tr>
<tr>
<td>Netherlands</td>
<td>805</td>
<td>730</td>
</tr>
<tr>
<td>Poland</td>
<td>3,091</td>
<td>2,794</td>
</tr>
<tr>
<td>Portugal</td>
<td>1,156</td>
<td>1,073</td>
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<td>Romania</td>
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<td>1,467</td>
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<td>Slovakia</td>
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<td>921</td>
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<tr>
<td>Slovenia</td>
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<tr>
<td>Spain</td>
<td>2,206</td>
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<tr>
<td>Switzerland</td>
<td>1,962</td>
<td>1,751</td>
</tr>
<tr>
<td>Total</td>
<td>57,547</td>
<td>49,263</td>
</tr>
</tbody>
</table>


Fieldwork monitoring and panel care

Besides bi–weekly monitoring reports containing key indicators of fieldwork performance, SHARE Central carries out two kinds of verification procedures to establish that an interview has taken place and was done properly through random and focused back–checks (see Hannemann and Bergmann, 2021a). The random back–checks follow up on 10 per cent of all interviewed households with a set of verification questions to confirm that the interview took place. In addition, focused back–checks flag suspicious interviews based on a number of indicators that have been developed to detect falsifications. For the SCS fieldwork, the set of verification questions for the random back–checks were adapted to fit the CATI mode, such as excluding questions about physical measurements and the use of showcards. In addition, the indicators for flagging interviews based on focused back–checks were
reduced, to focus more on interview timing and duration, item nonresponse and duplicates (Hannemann and Bergmann, 2021b; 2024).

Moreover, SHARE provides survey agencies standardised recommendations for good panel care practices via the SHARE data collection contract. To keep respondent information up to date, elicit high engagement and minimise attrition, a ‘thank you’ letter is sent to respondents after their participation, in addition to season’s greetings cards. Survey agencies are asked to keep track of post-office returns of cards and advance letters, check register data for death and provide a service hotline for respondents. Furthermore, SHARE prioritises stability in survey agencies and interviewers so that interviewers can establish a good rapport with the respondents, further contributing to panel care. During the SCS, survey agencies were requested to assign the same trained interviewers who normally conduct the face-to-face interviews to the same households. As such, any subcontracting of external call centres was refused to build on the (existing) relationship between interviewers and respondents. Finally, as interviewers could not do face-to-face interviews and thus were not able to deduct any travelling costs, their (home office) times were reimbursed.

Data processing and statistical adjustments for the publicly released data

As for all SHARE waves, data processing was conducted centrally for all countries. During SCS1 information on household composition was not asked again if a household had already completed the Wave 8 face-to-face interview. For those who had not yet participated in Wave 8, questions on changes in the household composition were asked. This information was then updated during SCS2 for all households.

For both surveys the raw data was extracted centrally and biweekly during fieldwork as csv files. The SHARE Central coordination team processed the data further and produced so-called ‘fieldwork check files’ to detect inconsistencies or mismatches with previous waves. The respective SHARE country teams, who are fluent in the respective languages, worked on these check files, sometimes also following up with the interviewer. Resulting corrections were included in the data cleaning programs that are run centrally for all countries and waves, for example, adding English labels to make the data more user-friendly. The cleaned data versions were then used to produce the scientific releases of the SHARE data.

For both SHARE Corona Surveys, weights and imputations were provided as generated variables in the public release. These datasets include two sets of calibrated cross-sectional weights for the two waves of the SCS and a set of calibrated longitudinal weights for the balanced panel of respondents who participated in both waves of the study. The weights of each subsample were computed separately by country using a calibration function, a first set of population margins for the gender-age groups (that is, males and females in four age classes) and a second set of population margins for regional areas (De Luca et al, 2021; De Luca and Li Donni, 2024). The weights of each subsample were defined at the individual level for inference to the target population of individuals and at the household level for inference to the target population of households.

Missing values due to item non-response in the SCS were imputed using the hot-deck method for variables with a low fraction of missing values and the Fully Conditional Specification method for selected monetary variables that showed a high fraction of missing data (for example, overall monthly household income). As
for the CAPI data, the CATI imputation database contains five multiple imputations of the missing values and a flag variable associated to each imputed variable, which allows the users to identify the imputed observations (for a detailed description of the imputation specifications, see De Luca et al., 2021; De Luca and Li Donni, 2024).

Access to all SHARE datasets is provided free of charge for scientific use globally, subject to European Union and national data protection laws, as well as the publicly available conditions of use. The SHARE data are distributed by SHARE-ERIC to registered users through the SHARE Research Data Center. In addition, registered SHARE users can apply for access to an additional dataset that includes the exact date of the COVID-19 interviews, whereas the regular release only includes the interview month and year.4

The release 0.0.1 beta of SHARE Wave 8 COVID-19 data has been available for researchers since December 2020, only four months after fieldwork ended (DOI: 10.6103/SHARE.w8cabeta.001). The dataset of SCS1 was updated in February 2022 with the release of SCS2, and again in March 2024 with the Wave 9 release (SHARE-ERIC, 2024a; 2024b).

**Research potential by combining SHARE data sources**

The unique benefit of the SCS is the possibility to combine the data with the various data sources of the SHARE survey, broadening the research potential extensively. More precisely, the information on respondents during the COVID-19 pandemic can be enriched with valuable background information on the social, economic and health-related living situation of the respondents in a life-course perspective, as well as with contextual information at the national, regional and interviewer level based on the following datasets:

- The longitudinal face-to-face interview data from the *SHARE main waves* before and after the COVID-19 pandemic make it possible to isolate the effects of the epidemic control measures by controlling for pre-pandemic circumstances, study subgroups of populations, apply country comparisons, and trace the change in living circumstances during and after the pandemic.
- The *SHARE End-of-Life interviews* with proxies (mostly a family or household member, a neighbour or any other person of the closer social network) of deceased panel respondents provide additional information on the respondent’s last year of life and the circumstances of their death. In SCS2 and SHARE Wave 9, the End-of-Life interview featured adaptations to account for the impact of the COVID-19 pandemic on the lives of the respondents who passed away. A set of new questions was introduced to link the conditions of the death to the COVID-19 pandemic. These questions seek to identify which aspects of end-of-life care such as hospital stays, care needs, or quality of help received were affected by the pandemic (Fabel et al., 2024).
- The *SHARELIFE interviews* conducted in Waves 3 and 7 give a detailed picture of the life courses of the respondents, ranging from childhood conditions, partners and children, housing and financial history, and employment history5 to detailed questions on health and healthcare (Börsch-Supan and Schröder, 2011; Philip and Wagner, 2019), which broadens the scope of analyses even further.
Share Corona Surveys

- *Data linkage to administrative records* offers great possibilities to expand the potential of the SCS. Currently, data linkage is possible in Germany, Denmark and the Netherlands. Administrative records generally cover data on pensions, employment histories and income, as well as health and education records, with some country variation in contents from the different data providers (Herold et al, 2021).

- The *Social Policy Archive for SHARE* (SPLASH) provides open-access contextual macro data and a social policy archive in a standardised and up-to-date format. In relation to the COVID-19 pandemic, SPLASH provides contextual data that complement the interview data for the study of the non-intended consequences of the containment measures. The SPLASH COVID-19 database focuses on two main policy areas, labour markets and healthcare, while also providing harmonised data on health and epidemiological indicators in the SHARE countries, such as stringency indices of government responses and incidence and mortality rates (López-Falcón, 2021). The data until 2023 can be linked on the country or the NUTS-1 level to the SCS.

- The *SHARE-HCAP* data, collected after Wave 9, exploit the international variation of health and life circumstances in five SHARE countries to identify which interactions of bio-medical and socio-economic conditions over the life course affect cognition in later life (Douhou et al, 2024). The aim of the study is to uncover life-course pathways to first mild cognitive impairment and then, possibly, dementia. Combined with the cognitive function data collected in pre-pandemic period (Wagner and Douhou, 2021), the HCAP data support various analyses on possible effects of the pandemic on cognition.

- The *Interviewer Survey*, conducted for the fourth time in Wave 9, offers further possibilities for methodological research. Conducted prior to fieldwork, Wave 9 adaptations ask, inter alia, how interviewers perceive the impact of the COVID-19 pandemic on their work, especially in the context of face-to-face interviewing (Quezada et al, 2024).

**Conclusion**

The two SCS are a unique data source. The panel nature of the data allows for the analysis of changes from the early and the middle stages of the pandemic rather than giving a one-shot impression. However, the greatest value comes from the fact that the SCS is embedded in the larger SHARE survey, with its already high-quality standards, representativeness of the data, large number of interviews, comparability across countries, and the ability to link the data to other SHARE datasets collected before and after the pandemic. These are major advantages over the many ad-hoc studies that were carried out during the pandemic.

The data from the two SCS will help to better understand the impact of lockdowns on people’s mental health, health behaviours and social relationships. They can also be used to analyse labour market implications (for example, job loss, short-time work, working from home) and to explore the impact of control measures on income, wealth and healthcare inequalities. In addition, the data can help identify solutions to improve future epidemic control measures by considering the spread of
the disease and its relationship with people’s contact and activity patterns. They can also serve to explore ways of improving the housing and living arrangements of the older generation during a pandemic (for example, living alone, co-residence, nursing homes). Finally, the data allow for the study of societal resilience: By accounting for the geographical patterns of the disease and their relationship with social patterns, we can learn about preparedness for future epidemics, and it will be possible to optimise epidemic control measures. Therefore, SHARE aims to contribute to making healthcare systems and societies more resilient to pandemics in terms of prevention, protection, and treatment of the population aged 50+.

The two SCS have been a great scientific success. After the release of SCS1 in December 2020, SHARE noted an exceptional increase in data users, which accelerated further after the release of SCS2. At the time of this writing, more than 200 publications based on the SCS data have been published. Of particular note is the ‘First Results Book’ (Börsch-Supan et al, 2023), which contains initial analyses of the SHARE data on health (Gruber and Atzendorf, 2023; Tolstrup Wester et al, 2023), healthcare (Bergeot and Jusot, 2023; Smolić et al, 2023) and health behaviours (Hannemann et al, 2023), labour markets (Börsch-Supan et al, 2023; Brugiavini et al, 2023), income and inequality (Bonfatti et al, 2023b; Chłoń-Dominičzak et al, 2023; Schumacher and Bethmann, 2023), social and geographical patterns (Bergmann and Wagner, 2023; Scheel-Hincke et al, 2023), and housing and living conditions (Berniell et al, 2023b; Fawaz et al, 2023). Scientific and data dissemination efforts included presentations of results at major international conferences. Furthermore, the data were presented in workshops and summer schools. Dissemination activities targeted policy makers, social organisations and the public. These included SHARE findings, newsletters, press releases and policy briefs. To date, the SHARE Corona data have been used extensively by the European Union (EU) and the Organisation for Economic Co-operation and Development (OECD) to analyse the consequences of the COVID-19 pandemic. For example, the EU report ‘Social and Economic Consequences of COVID-19’ analyses the impact of containment measures. Further, the OECD report ‘The COVID-19 Pandemic and the Future of Telemedicine’ draws on SHARE research to outline how the pandemic affected people aged 50 and over.

For a complex cross-national panel survey like SHARE, the pandemic presented huge challenges that SHARE had to respond to at a much faster pace than the standard fieldwork procedures were used to. What helped was that the SHARE team had already started to adopt agile project management methods before the outbreak of the pandemic. The development, testing and fielding of the SCS accelerated the adaptation to agile methods and presented a great advantage for implementing the two surveys in such a short time. Furthermore, the pandemic concretised earlier-developed plans to move SHARE towards a more responsive multi-mode survey design in the future. In this respect, the SCS have been a crucial step for SHARE to become (1) more flexible to respond quickly to a changing research environment, (2) more efficient by adopting a multi-mode approach that incorporates more cost-effective data collection modes, (3) more resilient to the threat of declining response rates (for example, by taking greater account of respondents’ needs and situation at each stage of the data collection process), and (4) more inclusive of additional data sources and to link regional and administrative records with survey data. By carefully implementing these advances, SHARE will continue to meet its main goal
of providing comprehensive, high-quality data that accurately reflect the complexity of SHARE’s research objectives to support evidence-based policy making.

Notes
1 Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and Switzerland.
3 SHARE provides a set of Stata do-files and ado-files accompanied by a user guide that illustrates step-by-step how to compute calibrated cross-sectional and longitudinal weights. The supplementary material on calibrated weights also includes a dataset with updated information on population size and number of deaths by year, gender, age and NUTS1 code. Registered users can download this supplementary material on calibrated weights from the SHARE data dissemination website.
4 More information can be found at the website: https://share-eric.eu/data/data-access.
5 The employment history data are also released as a job episodes panel dataset (SHARE Job Episodes Panel; Brugiavini et al, 2019).
6 https://splash-db.eu/.
7 Czech Republic, Denmark, France, Germany and Italy.

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Conflict of interest
The authors declare that there is no conflict of interest.

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