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Julia Simonson · Jenna Wünsche ·
Clemens Tesch-Römer *Editors*

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Julia Simonson · Jenna Wünsche · Clemens Tesch-Römer
Editors

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Part I
Introduction

1 Introduction: Ageing in Times of the Pandemic – Findings from the German Ageing Survey (DEAS)

Julia Simonson, Jenna Wünsche and Clemens Tesch-Römer

This book contains reports written by scientists from the German Centre of Gerontology (DZA) on the situation of people in the second half of life during the Covid-19 pandemic. The focus is on the first two waves of the pandemic, summer 2020 and winter 2020/2021, in Germany. The analyses are based on the German Ageing Survey (DEAS), a longitudinal study that has been running since 1996 and, hence, allows us to compare the pre-pandemic situation with the situation after the onset of the Covid-19 pandemic. The findings concern people aged between 46 and 90 living in private households (residents of long-term care facilities could not be included in these analyses; see Kaspar et al. (2023) for more information on this topic). The book describes different facets of the living situations of people in the second half of life, from work and income to subjective well-being and social support to societal participation. Although the book was originally written in German for the public discourse in Germany, we felt it was important to also publish our findings in English to contribute to international research discussions on ageing and policies for older people. In this introductory chapter, we describe (1) the epidemiological, social and political situation in Germany at the beginning of the pandemic, (2) the research questions that guided our reporting, (3) the German Ageing Survey (DEAS), which forms the basis of our empirical analyses, and (4) central findings of the chapters in this book.

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1.1 Germany at the Beginning of the Pandemic

The global Covid-19 pandemic arrived in Germany in late January 2020. To contain the pandemic, the federal and state governments imposed broad restrictions on public life in mid-March 2020, as did many other countries around the world at the same time. The measures included significant restrictions on economic activities, the education system, mobility and social contacts. During this "first lockdown", almost all educational institutions were closed, public transport in trade and services was largely stopped, cross-border passenger transport and mobility between federal states were severely restricted, and cultural and sporting events were banned or limited to a few participants. Beginning in early May 2020, some restrictions were temporarily lifted again. After a phase with low infection rates in summer 2020, there was an increase in the number of new cases. A second pandemic wave arrived in autumn 2020, which was met with renewed social distancing measures from the beginning of November 2020 ("lockdown light"). From mid-December, pandemic-control measures were tightened, and schools, day-care centres and parts of the retail and service sector were closed again ("second lockdown"). The first vaccinations against Covid-19 took place at the end of 2020. Of course, the pandemic continued and COVID-19 will still be a part of our everyday lives by the time this book is published.

In crises, older people are often seen as one of the most vulnerable groups (Carter 2021). Although the Covid-19 pandemic and the measures imposed during the lockdowns had a significant impact on people from all age groups, the pandemic was a particular challenge and threat for older people. The probability of becoming severely ill with Covid-19 or of dying from the disease in the event of infection increases significantly with age (Robert Koch Institute 2021). For this reason, older people may have withdrawn from public life to a greater extent than younger people or may have been excluded from it because of a desire to prevent them from contracting Covid-19, especially during the first phases of the pandemic, when no vaccines were available. The Covid-19 pandemic may also have had an impact on the views on ageing in society and among older people themselves. Since the beginning of the Covid-19 pandemic in Germany, one-sided portrayals that overemphasise the vulnerability of older people, sweepingly portrayed as a "risk group", have repeatedly been found in the media, but also in the political discourse (Kessler and Bowen 2020). Such blanket characterisations of older people as a vulnerable at-risk group neglect the vast differences within the group of older individuals and may have prompted people to view old age more negatively (Ayalon et al. 2021).

Older people are not a homogeneous group in many respects. Life in old age develops depending on many factors, especially on the socio-economic resources available to a person, but also on their experiences and events at earlier life stages (Settersten 2006). When considering older people's different and possibly unequal living situations, it is important to bear in mind that people in the second half of life have already lived a considerable part of their lives and come to old age with correspondingly different prerequesites. For the analysis of social inequality in old age, it should also be noted that different aspects of inequality can interact ("intersectionality") and new inequalities may be layered upon already existing inequalities in old age, potentially reinforcing them (Mahne et al. 2017). Changing living situations and opportunities for social participation in the second half of life due to the Covid-19 pandemic may have differed due to individual and socio-structural conditions, such as age, gender and education.

1.2 Research Questions

The book Ageing in Times of the COVID-19 Pandemic aims to answer central questions about the situation of people in the second half of life during the Covid-19 Pandemic, based on the longitudinal study German Ageing Survey (DEAS). DEAS offers the exceptional opportunity to trace and analyse changes in the living situations of people aged 46 years and older that occurred as a result of the Covid-19 pandemic. The following research questions will be addressed in the chapters of this book:

I. What were the living situations of people during the Covid-19 pandemic and how did they change? Here, it is important to disentangle and contrast different areas of life, as they may have been affected differently by the pandemic. The present book focuses on the following thematic areas, all of which are pertinent to the study of ageing: income and work, self-rated health and well-being, social support and loneliness, and societal participation.
II. For which groups did the Covid-19 pandemic pose a particular challenge? To identify those groups of people whose living situations were particularly affected by the Covid-19 pandemic, this book puts an emphasis on age, education and gender differences.

Age was included as a differentiating variable because the second half of life is not one phase but includes several different stages of life. For the analyses, we used different age groups, corresponding to life phases with specific role

requirements (e.g., employment, grandparenthood). In addition, age groups likely reflected different birth cohorts (Elder and George 2016). The historical circumstances and events that shape the life course of a cohort can be used as explanatory patterns for differences and social inequalities. Members of different age groups and cohorts may have been affected by the pandemic in different ways.

Gender is a key differentiating variable because it is central to social inequality across the life course (Backes 2007) and because the living situations of people in middle and older age groups differ according to gender in a variety of ways. Women often have better social integration than men (e.g. Antonucci et al. 2014), they take on more caregiving responsibilities than men (e.g., Ehrlich 2019) and they are less likely to be employed (e.g. Simonson et al. 2011). However, women also suffer more frequently from symptoms of depression (e.g., Wolff and Tesch-Römer 2017) and from deteriorating functional health than men (e.g., Wolff et al. 2017). Because of the different living situations, we could expect the pandemic's impact to have varied between women and men in the second half of life.

Finally, education is also a central determinant of social inequality in all stages of life (Gross et al. 2011). Higher education is associated with easier access to social positions, opportunities for participation and good working and living conditions. The impact of the pandemic was likely to be differentiated by education and to be particularly pronounced among those with lower education.

In addition to these aspects of diversity and inequality, other differentiating aspects of the living situation are included in some of the chapters—for instance, retirement status, income, status of informal caregiving and health status.

1.3 The German Ageing Survey (DEAS) as a Barometer of Social Change

The analyses presented in this book are based on the German Ageing Survey (DEAS), which is a long-term study by the German Centre of Gerontology (DZA) on changes in the living situations and ageing trajectories of people in the second half of life. It is funded by the German Federal Ministry for Family Affairs, Senior Citizens, Women and Youth (BMFSFJ). The study is based on cross-sectional and longitudinal surveys of several thousand participants aged 40 and older. Participants are selected on the basis of a sample of residents stratified by age, gender and region. The data of the German Ageing Survey are therefore representative of the resident population of Germany living in private households in the second half of life. As the German Ageing Survey combines large

cross-sectional samples with longitudinal data collection, it is an example of a cohort-sequential study (Klaus et al. 2017). For more than two decades, the study has regularly surveyed women and men as they progress toward old age (1996, 2002, 2008, 2011, 2014, 2017, 2020/21). The DEAS questionnaire includes questions on respondents' current living situations in terms of their social relationships and social support, well-being and health, work and retirement, economic situation, attitudes and values, housing and mobility, and basic sociodemographic data. The wide variety of topics covered by DEAS combined with the long observation period of more than a quarter century allows us to gain comprehensive insights into ageing and the living situations of people in the second half of life. In addition, the cohort-sequential design of the survey allows us to study ageing in times of social change. The German Ageing Survey is therefore the central study on age and ageing in Germany. More than 20000 people have participated in the study so far.

The German Ageing Survey also allows us to take a closer look at and better understand living situations in crises like the one we are currently experiencing due to the Covid-19 pandemic. So far, the German Ageing Survey (DEAS) has allowed us to study the Covid-19 pandemic's impact on the lives of people in middle and older adulthood up to and including the phase of the second lockdown in winter 2020/21. From the onset of the pandemic until winter 2020/2021, two surveys were conducted for the German Ageing Survey, each of which surveyed individuals who had previously participated in the study at least once. In summer 2020 (8 June until 22 July 2020), a written survey was conducted in which 4823 persons aged 46 years and older participated. Because the aim was to obtain information on the effects of the pandemic as quickly as possible and due to the pandemic conditions, a paper-and-pencil survey was preferred over a personal interview. In the short written survey in summer 2020, people in the second half of life directly reported on how their living situation had changed since the onset of the pandemic.

In winter 2020/21 (4 November 2020 until 1 March 2021), another survey was conducted. In this instance, 5402 persons, also aged 46 years and older, participated. The standard survey mode of the DEAS is a face-to-face computer-assisted interview (CAPI). Yet due to the Covid-19 pandemic, telephone interviews had to be conducted instead. Following the interview, participants completed a written questionnaire (drop-off). The drop-off questionnaire addressed more subjective topics—such as attitudes, values, and views on ageing, well-being, and other more sensitive areas, as well as topics that did not require differentiated filtering. 619 of the 4419 respondents to the drop-off questionnaire made use of the option

to complete it as an online questionnaire (Stuth 2022, for DEAS documentation and data see also the Research Data Centre of the DZA).

The empirical chapters included in this book use data from the two DEAS surveys conducted during the pandemic (see Fig. 1.1). The addition of earlier DEAS waves enabled a comparison to be made with pre-pandemic times. Importantly, the two DEAS observation points since the beginning of the crisis reflect very different pandemic phases. At the time of the first survey in summer 2020, case numbers were very low and the situation was relaxed in terms of infection risk. However, at that time, the economic and social impacts of the first pandemic wave and the lockdown were still very present and felt. The information that people provided in the short written questionnaire in summer 2020 may therefore still very much have been influenced by the pandemic shock they had experienced shortly beforehand. By the time of the second survey in the winter of 2020/21, case numbers were comparatively high again, and pandemic-containment measures restricted public life. Despite these aggravated pandemic circumstances, a "habituation effect" with regard to the pandemic situation may already have been evident here. Alternatively, the winter assessment of 2020/21 might also indicate that pandemic-related distress had entered the chronic phase or may even have been amplified.

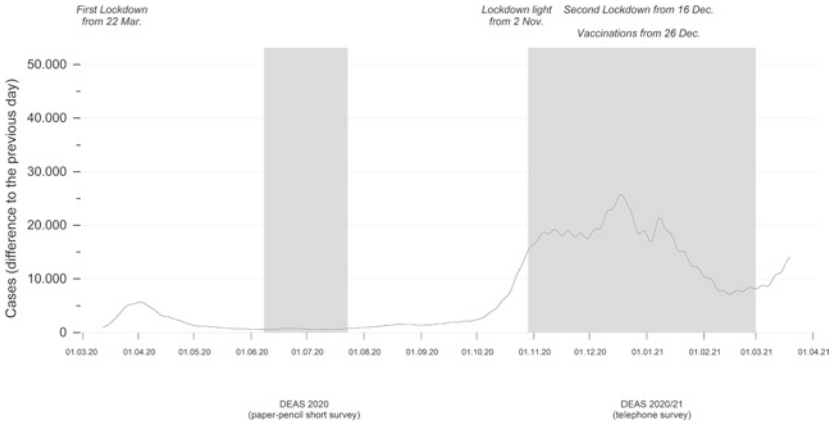

Fig. 1.1 The German Ageing Survey in the first year of the Covid-19 pandemic. *Source* Total overview of cases and deaths transmitted to the Robert Koch Institute per day, Last update: 06.09.2022. https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Daten/Fallzahlen_Gesamtuebersicht.html

When interpreting the results presented in the empirical chapters, it is also important to bear in mind the different assessment modes that were employed in the latest DEAS waves (2017 and before: face-to-face plus paper-and-pencil/online, summer 2020: paper-and-pencil only, winter 2020/21: telephone plus paper-and-pencil/online). We cannot rule out the possibility that observable changes, interpreted as effects of the Covid-19 pandemic, were overlaid (strengthened or weakened) by mode effects.

In the analyses included in this book, weighted proportion values and weighted arithmetic averages are presented using methods that take stratified sampling into account. Group differences or differences between survey waves are tested for their statistical significance. A significance level of $p<0.05$ is used. If a finding is statistically significant, it can be assumed with at least 95 per cent probability that an observed difference exists not only in the sample but also in the population living in private households in Germany. If a finding is not statistically significant, it is possible that observed differences in the sample occurred only by chance.

1.4 Central Findings

In the following, central findings of the 12 chapters in this book are presented. The chapters themselves present the findings more thoroughly and in greater detail. It should be kept in mind that these findings refer to community-dwelling people in the second half of life (46–90 years) in Germany during the first two waves of the Covid-19 pandemic (summer 2020 and winter 2020/2021).

Income and work during the Covid-19 pandemic

In the first months of the pandemic (March to July 2020), strong effects on income and working situations could be seen. In addition, social inequality increased in certain aspects of life.

The financial situations of the self-employed and those with low pre-pandemic incomes were substantially affected by the pandemic, while retirees were less affected.

Laura Romeu Gordo, Heribert Engstler, Claudia Vogel, Julia Simonson and Alberto Lozano Alcántara show in their chapter that for one fifth of the population in the second half of life in Germany, household income decreased in the first months of the Covid-19 pandemic (March to June/July 2020). Retirees were better off than people who were not in receipt of a pension: they were less likely to report a reduction in their household income. The self-employed were the

hardest hit financially by the pandemic. More than 60 per cent of self-employed people reported a loss of household income, and almost a quarter of them even mentioned a substantial reduction in their income. Moreover, social inequality increased in the first months of the pandemic: non-retirees, who already had low incomes before the Covid-19 crisis, were the most likely to have seen their household incomes fall sharply.

The working situations of employees changed dramatically due to the pandemic.

Heribert Engstler, Laura Romeu Gordo and Julia Simonson describe that during the first months of the Covid-19 pandemic between March and June/July 2020, one fifth of middle-aged and older employees in Germany had to reduce their working hours substantially and had to avail of the German government's furlough scheme (in German called Kurzarbeit, i.e. short-time work). The general reduction in working hours was accompanied by a substantial increase in working from home. However, not everyone experienced reductions in working hours. One sixth of employees had to work more overtime than usual after the start of the Covid-19 pandemic. Employees in the public sector and key workers in so-called system-relevant professions were above the average in this regard.

Self-rated health and well-being during the Covid-19 pandemic

Resilience in the Covid-19 pandemic characterised some areas of self-rated health and well-being. In summer 2020, only a minority perceived the virus as a substantial threat, and the self-rated health of those who did not contract Covid-19 remained rather stable. Yet, informal carers were at risk of experiencing more symptoms of depression. In respect to physical activities, the pandemic was associated with a sharp decline, especially for those groups with high pre-pandemic levels of physical activities (younger, female and highly educated individuals).

In summer 2020, only a minority of people in the second half of life perceived the Covid-19 pandemic as a substantial threat.

Markus Wettstein, Claudia Vogel, Sonja Nowossadeck, Svenja M. Spuling and Clemens Tesch-Römer show that the majority of individuals in the second half of life (more than 90 per cent) perceived the Covid-19 pandemic as a low or moderate threat only, but individuals who rated their health as less good felt significantly more threatened by the pandemic than individuals who rated their health as very good or good. More than 85 per cent felt that they could influence the risk of contracting Covid-19 at least to a moderate extent.

The self-rated health of older people who did not experience a Covid-19 infection remained rather stable.

Stefan Stuth and Jenna Wünsche describe in their chapter that the self-rated health of people in the second half of life did not deteriorate between 2017 and the second pandemic wave in winter 2020/21. However, a closer look at the trajectories in self-rated health in different age groups showed that the most favourable trend was evident in the youngest age group. Gender and socio-economic status had no moderating impact.

Informal care-givers experienced an increased risk of mental health problems during the Covid-19 pandemic.

Ulrike Ehrlich and Daniela Klaus show that informal care-givers' mental wellbeing declined substantially during the Covid-19 pandemic. The proportion of care-givers with symptoms of depression increased between 2017 (6 per cent) and 2020 (15 per cent). In contrast, the self-rated health of informal care-givers remained rather stable during the Covid-19 pandemic. About a quarter of informal care-givers reported a lack of informal and professional help.

Many people in the second half of life reduced their physical activity due to the pandemic.

Sonja Nowossadeck, Markus Wettstein and Anja Cengia describe in their chapter that a quarter of people in the second half of life reported having reduced their sporting activities due to the pandemic. However, a substantial minority (about 8 per cent) reported that they had done more exercise during the first months of the pandemic than before.

Social support and loneliness during the Covid-19 pandemic

People in the second half of life did not reduce their caring activities during the pandemic: the proportion of informal care-givers even increased temporarily and the proportion of grandparents caring for their grandchildren remained stable. Loneliness increased during the first months of the pandemic, and all age groups were similarly affected.

Informal caregiving temporarily increased during the first months of the pandemic, while the employment rates among care-givers remained stable.

Ulrike Ehrlich, Nadiya Kelle and Mareike Bünning show that during the first wave of the pandemic, more people were engaged in informal caregiving and that women provided more hours of care than men. In the second pandemic wave, participation in care tasks was as high as it had been before the pandemic. The employment rate of care-givers remained stable during the pandemic. This applied both to low-intensity and high-intensity care-givers. An especially politically important finding is the fact that policy packages to reconcile care and work

were hardly used. Only one per cent of care-givers used the option to take "short-term absence from work" or "care leave" to care for family members.

Grandchild care remained remarkably stable during the Covid-19 pandemic.

Mareike Bünning, Ulrike Ehrlich, Felix Behaghel and Oliver Huxhold show in their contribution that the proportion of grandparents providing care for their grandchildren remained largely stable. In 2017, 39 per cent of grandparents regularly looked after their grandchildren. In the winter of 2020/21, the figure was 34 per cent (difference not statistically significant). However, grandparents around retirement age (60–69 years) were less likely to care for their grandchildren during the Covid-19 pandemic than in 2017. The amount of time grandparents spent on caring for their grandchildren remained stable during the pandemic.

Loneliness increased significantly among people in middle and older adulthood during the Covid-19 pandemic.

Oliver Huxhold and Clemens Tesch-Römer present findings that during the first wave of the pandemic, more people in the second half of life felt lonely than in previous years. While the loneliness rate for people aged 46 to 90 was about 9 per cent in 2014 and 2017, this rate increased by more than 50 per cent during the Covid-19 pandemic, reaching 14 per cent in the summer of 2020. Loneliness increased to a similar extent for all age groups, for women and men, and for different educational groups, and neither close social relationships nor good neighbourhood quality were protective against the increase in loneliness.

Societal participation during the Covid-19 pandemic

Despite a public discourse that described older people as helpless victims of the Covid-19 pandemic, older people resiliently volunteered during the pandemic, and only a small minority reported discrimination due to their age. Surprisingly, the rates of people with internet access increased only moderately.

Volunteers remain resilient in the Covid-19 pandemic.

Julia Simonson & Nadiya Kelle show that during the second wave of the Covid-19 pandemic (winter 2020/2021), the proportion of volunteers remained largely stable compared to pre-pandemic times; the amount of time spent volunteering also remained unchanged. Age, gender and educational differences in volunteering participation likewise persisted.

Age discrimination during the Covid-19 pandemic was the exception, not the rule.

Markus Wettstein and Sonja Nowossadeck show that perceived age discrimination in the first wave of the pandemic was not the rule. Only about 5 per cent of people in the second half of life reported experiencing discrimination because of their age. While age discrimination was reported at similar rates by all age

groups, by women and men, and by different educational groups, there was a higher age discrimination rate for people with poor self-rated health.

Internet access and internet use increased during the Covid-19 pandemic, but only moderately.

Lisa Kortmann, Christine Hagen, Cordula Endter, Julia Riesch and Clemens Tesch-Römer report that between 2017 and 2020, the proportion of people who had access to the internet increased by about 4 percentage points—from 82.6 per cent in 2017 to 86.4 per cent in 2020. This increase was most pronounced in the 61–75 age group. However, differences in access to the internet between population groups—by age, gender, and education—did not decrease. One fifth of people who had access to the internet reported using the internet more frequently during the Covid-19 pandemic. The most frequent use of the internet was searching for information, maintaining social contacts and entertainment.

1.5 Outlook

This book is not only aimed at national and international researchers but also at people who are active in civil society and in developing policies for older people. We hope that the book can be useful in putting a spotlight on the living situations of people in the second half of life in the first year of the pandemic—that it can direct attention to the risk groups that have been hard hit by the pandemic while also highlighting the resilience and adaptive capacities of many people in the second half of life. This might help to identify a need for action in certain areas of life and for programmes to mitigate the negative consequences of the pandemic. It can also flag up the opportunity to rely on the potential of active ageing during the pandemic.

The findings show a strong impact of the Covid-19 pandemic on working situations, incomes, loneliness, physical activity, and care-givers' mental health, but it also underscores an astonishing resilience in respect to grandchild care, volunteering, and self-rated health. Social inequality due to age, gender, education, health or care status may have increased in certain respects—with regard to income and informal care—or remained stable compared to pre-pandemic times—in the areas of volunteering or internet access. A decrease of social inequality was not found in any of the aspects of daily life discussed in this book.

For both researchers on ageing and policymakers, it may be surprising to learn that old age was not a risk factor in itself. For instance, loneliness increased in all age groups in the second half of life during the pandemic, and only a very small minority of older people reported being discriminated against due to their

age. This has implications for policies on ageing and older people. With respect to the social consequences of the pandemic, older people should not be described as helpless victims, but as resilient actors who can continue to contribute through volunteering and caring activities. Programmes and interventions should be tailored to risk groups—for instance, to older people with low incomes, to informal care-givers and to people without access to the internet.

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Part II

Income and Work During the Covid-19 Pandemic

2 What Changes in their Financial Situation did People in the Second Half of Life Report After the First Wave of the Covid-19 Pandemic? Results of the German Ageing Survey

Laura Romeu Gordo, Heribert Engstler, Claudia Vogel, Julia Simonson and Alberto Lozano Alcántara

2.1 Key Messages

In June and July 2020, a brief survey on the effects of the Covid-19 crisis was conducted as part of the German Ageing Survey (DEAS). The survey focused on changes in various areas of life that occurred as a result of the pandemic and the pandemic-containment measures among people who were in the second half of life—that is, aged 46 and older. In addition, respondents reported perceived changes in their income situation and standard of living after mid-March 2020.

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For one fifth of people in the second half of life, household income decreased in the first months of the Covid-19 crisis. For 5.4 per cent of people aged 46 and over, income even fell sharply. Yet, for three quarters of people in the second half of life, household income did not change after mid-March. Income increases were even reported by 3.7 per cent of people in this age group.

Retirees were less likely to report a reduction in their household income than people who were not in receipt of a pension. For 31.3 per cent of non-retirees, household income decreased. In contrast, only 11.4 per cent of retirees reported decreases in household income.

The self-employed were the hardest hit financially by the crisis. 61.1 per cent of self-employed people reported a loss of income, and 22.7 per cent of them even mentioned a substantial reduction in their income. About one third of marginally employed, salaried and non-employed persons reported a reduction in their household income.

Female pensioners were slightly less likely than male pensioners to report a reduction in their household income during the Covid-19 crisis. Household income decreased for 14.9 per cent of all pensioners and for just 8.4 per cent of female pensioners. Among non-retirees, just under a third of both men and women reported reductions in household income.

Non-retirees who already had low incomes before the Covid-19 crisis were the most likely to have seen their household income fall sharply. Persons without pension benefits who were in the lowest fifth of the income distribution experienced income losses more frequently than the other income groups in the first months of the Covid-19 pandemic. 17.9 per cent of persons in this group reported a sharp decline in their household income. By contrast, of those in the top fifth, only 4.2 per cent reported a large reduction in their household income in the three months after March 2020.

The lower the household income, the more often a reported decrease in income was also accompanied by a deterioration in perceived living standards. Among people with low incomes who experienced a reduction in household income, more than half (55.4 per cent) were unable to maintain their subjective standard of living. Among people with high incomes, less than a quarter (22.3 per cent) said that their standard of living had also deteriorated, despite a decrease in income.

2.2 Introduction

In an effort to contain the Covid-19 pandemic, federal and state governments in Germany began enacting a list of unprecedented pandemic-containment measures in March 2020 (the first lockdown). These decisions substantially restricted

economic and educational activity as well as social contact. While they succeeded in bringing down the rates of infection, the measures also had dramatic consequences for the country's economic life. Businesses in many industries suffered enormous losses in sales, forcing them to introduce furlough measures for their employees in an effort to save costs (Bellmann et al. 2020). However, other businesses saw demand grow. The healthcare sector, for example, had to meet an increased demand for a variety of products, including personal protective equipment and ventilators. Although there was already a shortage of workers in the health sector prior to the Covid-19 pandemic (Federal Employment Agency 2019), demand for personnel rose sharply and had to be met by using overtime. Gross domestic product (GDP) fell by 10.1 per cent in the second quarter of 2020 compared to the previous quarter—a record-breaking decline and a figure significantly larger than those reported during the 2008 financial crisis and its associated economic slump (Federal Office of Statistics 2020).

In this chapter, we investigate the effects of the first Covid-19 lockdown on the self-reported income situations and subjective standards of living of people in the second half of life. These findings can help policymakers to appropriately design the current and future measures necessary to curb epidemics and to assess their consequences for financial inequality in society.

The impact of the first and second lockdowns on the incomes of people in the second half of their lives depended, among other things, on whether and how their employment situation was affected by pandemic-containment measures. The measures likely had a wide range of varying financial consequences (involving both losses and gains in income) for a variety of groups and occupations (Schröder et al. 2020). People employed on marginal contracts, for example, likely faced severe financial problems, both because such groups were largely not covered by furlough schemes and because they were very frequently employed in the hospitality industry, which was severely affected by closures (Grabka et al. 2020). In addition, as women more frequently have marginal employment contracts, they likely faced more serious financial consequences.

In addition, the financial impact likely depended heavily on political decisions regarding public financial transfers in response to the crisis. In this regard, one should pay attention to the Covid-19 emergency aid provided for the self-employed but also to the annual adjustments made in statutory pensions. It can be assumed that people in receipt of pensions had more stable financial situations than employees, as post-retirement income such as pensions and annuities were not affected by the Covid-19 crisis, and also because the pension increase due for summer 2020 took place as planned.

Any possible increase in income inequality due to the Covid-19 crisis was likely determined primarily by whether people who already had a low income before the pandemic were more frequently and more severely affected by a loss of income than people with a higher income. The Covid-19 crisis also likely boosted the incomes of certain occupational groups due to increased demand for overtime, higher bonus payments and/or improved sales in industries where the pandemic drove up demand for relevant products and services. However, it should be remembered that increasing income inequality during the crisis may have been driven by income stability among some groups if other groups suffered reductions in income at the same time. Income inequality may also have increased if people who already had high incomes before the pandemic were more likely to enjoy either continued income stability or even improvements during the crisis.

Variations in standards of living tend to be related to, but are not entirely dependent on, changes in income. The main method used in assessing standards of living is to measure how well people are able to cover their everyday needs using the resources available to them. In addition to clothing and food, such needs also include housing as well as ancillary costs like heating and expenses relating to health and care needs. Whether people have the capacity to participate in social and cultural life and organise their daily lives as they wish or whether financial constraints make this excessively difficult are also important considerations when assessing living standards. The Covid-19 crisis imposed restrictions in almost every area of life, as people were forced to adjust their daily activities to conform with social distancing and hygiene rules, together with bans on events and the temporary closure of hospitality-sector businesses. On top of this, the cost of living may well have increased for many in the lower income segment, either because they were temporarily unable to access routinely available services such as subsidised lunches at canteens or discounted food at the food bank, or because charitable services such as soup kitchens and neighbourhood stores were no longer able to provide low-cost meals or coffee. A great many voluntary and social services were suspended from March to July 2020 and such closures particularly affected low income individuals in their everyday lives.

Thus, a variety of consequences can be conjectured regarding the effects of the Covid-19 pandemic on people's subjective evaluations of their standard of living. For instance, standards of living likely severely deteriorated for people who did not possess enough financial resources to compensate for any declines in their incomes or loss of support they suffered, especially if they also continued to face consistently high or rising costs in their everyday lives during the pandemic. This line of argument would seem to suggest that the Covid-19 crisis was likely accompanied by an increase in social inequality.

Research questions
Against this background, we ask the following research questions:

- To what extent were people in their mid-40s and older financially affected by the Covid-19 crisis in Germany in the first months after it began? In particular, what proportions of people reported that their household income fell sharply as a result of the crisis?
- Were retirees less likely to report being financially affected by the Covid-19 crisis than people of working age?
- Did self-employed people experience income losses more often than other employment groups?
- Were there gender differences? Were women more likely to report being financially affected by the Covid-19 crisis than men?
- Did the Covid-19 crisis increase income inequality? Were there differences between lower and higher income groups in terms of the frequency and extent of income changes?
- To what extent did income reductions affect self-reported standards of living? Did the effects of income reductions on living standards differ between groups with low and high incomes?

The results of this chapter are based on evaluations of a paper-pencil survey of persons aged 46 and older conducted in June/July 2020. The analyses include data from the 4796 persons who provided information on changes in their household income. The analysis of the financial effects on the different income groups included 4021 persons for whom information on the level of household income was also available from the previous survey in 2017.

- *Self-reported changes in household income:* The question asked how total household income had changed since the beginning of the Covid-19 crisis in mid-March 2020. The 5-point response scale ranged from "substantially reduced" to "substantially increased". In the results shown, the categories "somewhat increased" and "substantially increased" were combined.
- *Self-reported changes in standards of living:* The question asked how the respondent's own standard of living had changed since the beginning of the Covid-19 crisis in mid-March 2020. The 5-point response scale ranged from "much better" to "much worse". In the results presented, the categories "better" and "much better" are combined.

The differences among the groups of interest were investigated through a descriptive comparison between retirees and non-retirees, women and men, employment groups and income groups.

Retirees or pensioners were defined as persons who received an old-age pension or a disability pension. Among the non-retirees, we distinguished between the non-employed and those in gainful employment (self-employed, civil servants, marginally employed people and employees).

The low-, middle- and high-income groups were defined based on data from the German Ageing Survey (DEAS) 2017. Individuals were distinguished according to whether they belonged to the bottom 20 per cent (with an income of up to 1267 EUR), the middle 60 per cent (with an income of 1270 to 2667 EUR) or the top 20 per cent (with an income of 2700 EUR and more) in the distribution of the monthly household net equivalised income of persons in the second half of life. In the following, the low-income group is also referred to as the lowest income fifth and the high-income group as the top income fifth.

2.3 Reported Changes in Household Income from Mid-March 2020

One fifth of people in the second half of life experienced reduced household income in the first months of the Covid-19 crisis

In the German Ageing Survey conducted in June/July 2020, 74.8 per cent of people aged 46 and over said that their household income had not changed since mid-March (Fig. 2.1). For one fifth of respondents, household income had decreased since the beginning of the pandemic and for 5.4 per cent it had even decreased significantly. In contrast, only 3.7 per cent of the people reported an increased household income.

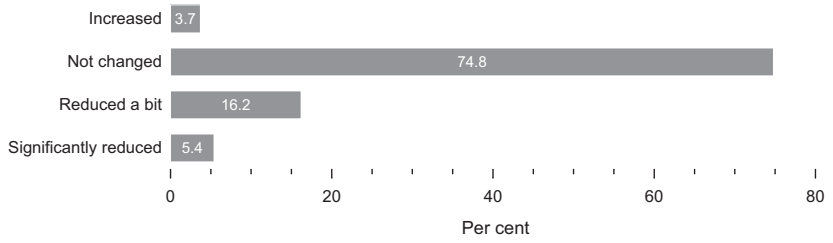

Fig. 2.1 Self-reported changes in household income since March 2020 (in per cent). *Source* DEAS 2020 (n = 4796), weighted analyses

Retirees were less likely to report a reduction in their household income than people who did not receive a pension

The impact of the Covid-19 crisis on income depended on whether income was predominantly earned through employment or through other means (e.g. public financial transfers). People who received an old-age pension or a disability pension were less likely to report a reduction in their household income during the pandemic than people who did not receive a pension. Persons who did not receive a pension were predominantly people of working age. For 31.3 per cent of respondents without pensions, household income decreased (somewhat for 23.5 per cent and substantially for 7.8 per cent). In contrast, only 11.4 per cent of pension recipients experienced a decrease in income (somewhat for 8.7 per cent and substantially for 2.7 per cent), for 85.3 per cent, household income remained unchanged (Fig. 2.2).

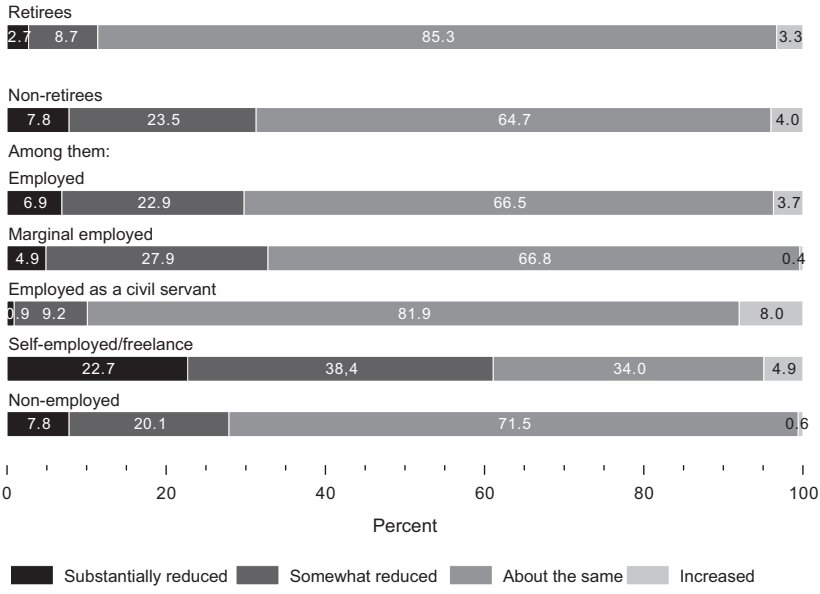

Fig. 2.2 Self-reported changes in household income of persons without and with pension since March 2020 (in per cent). *Source* DEAS 2020 (n = 4734), weighted analyses. The changes in household income are significantly different between persons without and with a pension. The changes in household income between the different employment status are also significantly different

The self-employed were hardest hit financially by the crisis

The financial impact of the crisis strongly depended on employment status (Fig. 2.2). While only 10.1 per cent (somewhat for 9.2 per cent, substantially for 0.9 per cent) of civil servants experienced reductions in household income and 8.0 per cent reported an increase, 61.1 per cent of the self-employed reported income losses. 22.7 per cent of them even experienced substantial reductions. This makes them the employment group with the greatest financial losses in the first months of the Covid-19 crisis. At the same time, 4.9 per cent of the self-employed reported that their household income had increased. These two trends led to an increase in inequality within the self-employed group. About one third of the marginally employed, the employed and the non-employed reported that their household income had decreased.

Female pensioners were slightly less likely than male pensioners to have reported a reduction in their household income during the Covid-19 crisis

The reported changes in household income in the first months of the Covid-19 pandemic differed by gender. Male pensioners were slightly more likely than female pensioners to have experienced a reduction in income (14.9 per cent to 8.4 per cent when the "somewhat reduced" and "substantially reduced" categories are combined). Female pensioners, on the other hand, were more likely than male pensioners to have experienced unchanged household incomes since mid-March (87.8 per cent vs. 82.3 per cent). Among non-pensioners, the gender differences in income losses were smaller. For example, 64.9 per cent of women and 64.6 per cent of men not receiving a pension reported no changes in household income. In the group of non-pensioners, gender differences in reported changes in household income were only evident for the self-employed. While 26.3 per cent of self-employed men reported that their household income had decreased substantially, this was only the case for 14.5 per cent of self-employed women. Self-employed men again reported an increase in income more frequently (6.5 per cent) than self-employed women (1.3 per cent) (Fig. 2.3). However, the changes in household income between self-employed women and self-employed men were not statistically significantly different.

Household income decreased most frequently for non-retirees who already had low incomes before the Covid-19 crisis

Among recipients of old-age pensions or disability pensions, those who already had the lowest incomes before the Covid-19 crisis experienced the most frequent declines in household incomes. Thus, 9.1 per cent of lower-income pensioners

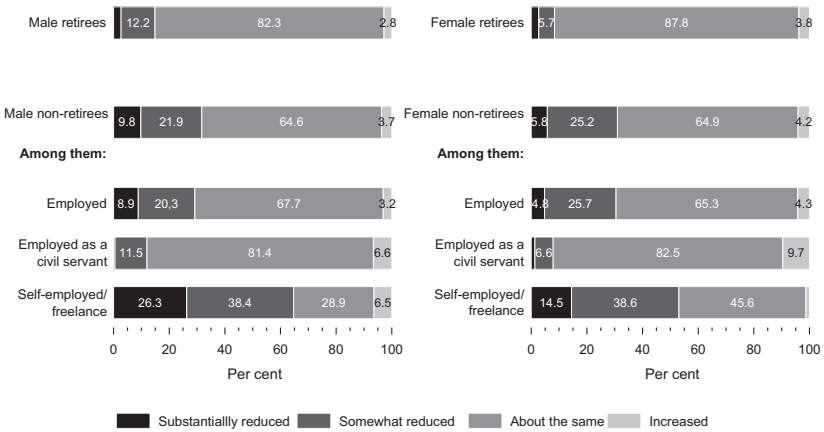

Fig. 2.3 Self-reported changes in household income of women and men by employment status from March 2020 (in per cent). *Source* DEAS 2020 (n = 4734), weighted analyses. The categories "non-employed" and "marginally employed" are not shown because the numbers of cases in these categories are too small for men. The changes in household income are significantly different between women and men with a pension

reported a slight reduction in income; 4.3 per cent even reported a substantial reduction. Pensioners in the middle- and high-income groups were less likely to report substantial reductions in household income. However, the changes in household income between the income groups of the pensioners were not statistically significantly different.

The greatest changes in household income were evident among non-pensioners in the low-income group: 20.9 per cent of these reported a slight reduction and 17.9 per cent a substantial reduction in their income during the Covid-19 pandemic. In contrast, non-retirees with high incomes were slightly more likely (24.5 per cent) to report a slight reduction in income, but much less likely (4.2 per cent) to report substantial reductions in income. Non-retirees with high incomes were also more likely to report an increase in household income than those with low incomes (5.7 per cent versus 3.7 per cent) (Fig. 2.4).

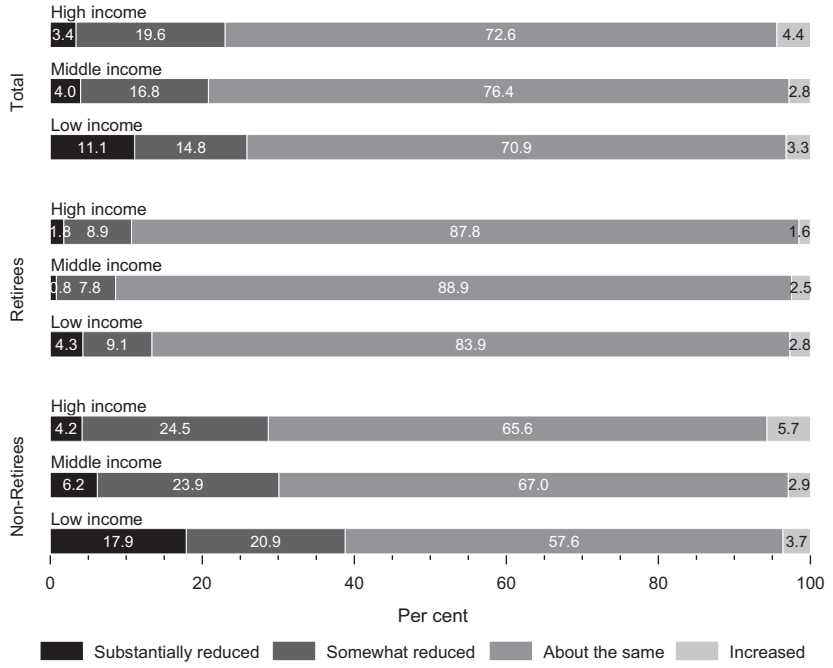

Fig. 2.4 Self-reported changes in household income by income group from March 2020 (in per cent). *Source* DEAS 2020 (n = 4021), weighted analyses. High = upper 20 per cent, Middle = middle 60 per cent, Low = lower 20 per cent in the distribution of the monthly net equivalised income of persons in the second half of life (based on DEAS 2017). The change in household income is significantly different between the income groups of persons without pension benefits

2.4 Relationship between Household Income and Standard of Living

Among retired persons, the subjective standard of living deteriorated most frequently for those who already had low incomes before the Covid-19 crisis. Among pension recipients who were in the lowest income group before the Covid-19 crisis, 14.6 per cent reported a slight deterioration and 1.0 per cent reported a serious deterioration in subjective living standards. In contrast, only 7.8 per cent of retirees in the upper income group reported a deterioration in their living standards. For this group, the standard of living remained mostly unchanged (90.7 per cent) (Fig. 2.5).

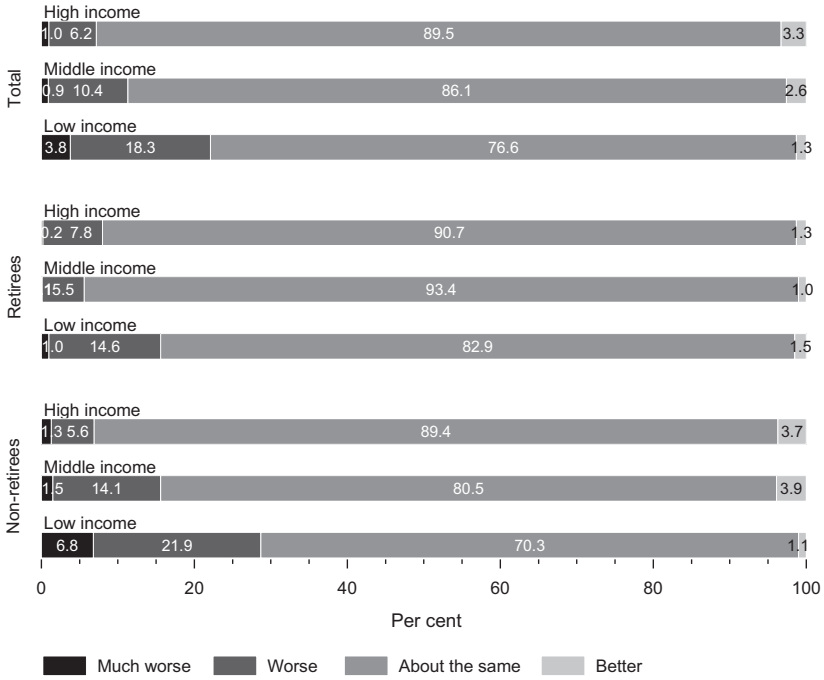

Fig. 2.5 Self-reported changes in the standard of living by income group from March 2020 (in per cent). *Source* DEAS 2020 (n = 4013), weighted analyses. High = upper 20 per cent, Middle = middle 60 per cent, Low = lower 20 per cent in the distribution of the monthly net equivalised income of persons in the second half of life (based on DEAS 2017). The change in living standards is significantly different between income groups of persons with and without pension benefits

The deterioration was even more pronounced among non-retirees: more than every fourth person in the lowest income group (28.7 per cent) experienced a deterioration in living standards ("worse": 21.9 per cent; "much worse": 6.8 per cent). For people in the upper income group, living standards more often remained unchanged (89.4 per cent). Only 6.9 per cent reported a deterioration in living standards (5.6 per cent "worse"; 1.3 per cent "much worse") and 3.7 per cent of them even reported an improvement (Fig. 2.5).

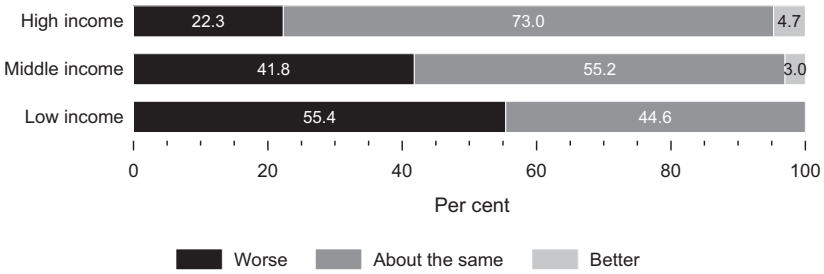

Fig. 2.6 Self-reported changes in standard of living among persons with reported decreases in household income from March 2020 by income group (in per cent). *Source* DEAS 2020 (n = 513; persons aged 46 and over reporting a reduction in household income), weighted analyses. High = upper 20 per cent, Middle = middle 60 per cent, Low = lower 20 per cent in the distribution of monthly net equivalised income of persons in the second half of life (based on DEAS 2017). The change in living standards is significantly different between income groups of persons with reported decreases in household income

For people with low incomes, a decrease in household income more often led to a decrease in living standards.

Not all people whose household income fell experienced a deterioration in living standards. Figure 2.6 looks at the correlation between reported changes in household income and changes in living standards differentiated by income group. It is clear that for people with low incomes, a reduction in household income was more often reflected in a deterioration in living standards than for people with high incomes.

Of those with low incomes (those in the bottom 20 per cent of the income distribution) who reported a reduction in household income, more than half (55.4 per cent) were unable to maintain their standard of living in the first wave of the Covid-19 pandemic. Among those with high incomes (in the top 20 per cent of the income distribution), the picture was completely different, with only 22.3 per cent of those in this income group whose income decreased reporting a deterioration in living standards after the first lockdown.

2.5 Summary and Discussion

In this paper, we examined the impact of the first wave of the Covid-19 pandemic on the perceived financial situations of people in the second half of life. In the first months of the Covid-19 pandemic (March to July 2020), a fifth of people in

the second half of life reported reductions in income. Differences among groups can be observed. For example, household income decreased in the first months of the Covid-19 pandemic, especially among non-retirees, because earned income was directly affected by many of the pandemic-containment measures—such as closures in the retail, hospitality and tourism sectors. Pensions, as state transfers, remained stable. At the same time, the state put together aid packages to compensate for income losses due to pandemic-containment measures.

Within the group of non-retirees, meaningful differences in changes in reported income were evident (see also chapter "Effects of the Covid-19 crisis on the work situations of people in middle and older working age"). The self-employed were hit the hardest financially by the first lockdown (see also Kritikos et al. 2020). Around 60 per cent of them reported losses in household income. Among the marginally employed, more than 30 per cent reported income losses. This relatively high proportion can be explained by the fact that marginally employed persons were not entitled to furlough payments and were usually employed on fixed-term contracts in sectors (such as hospitality and retail) that were strongly affected by the lockdown (Grabka et al. 2020). Although about 30 per cent of dependent workers in standard, dependent employment also reported reduced incomes after the first months of the pandemic, stronger financial consequences are to be expected in the long run for marginal employees, due to the lower protection enjoyed.

With regard to gender differences, retired men experienced deteriorations in household income more often than retired women. It is possible that, due to the age difference in couples, retired men more often lived together with a female partner who was still of working age (Federal Office of Statistics 2019). As a result, retired men's household incomes could be more frequently affected by reductions in their partners' income from employment. In contrast, female pensioners more often live with a partner who is receiving a pension, meaning that women with pension benefits more often reported relatively stable household income during the first lockdown. Furthermore, retired men are significantly more likely to be employed—and usually self-employed—than retired women (Franke and Wetzel 2017). The incomes of self-employed pensioners may thus have fallen to a similar extent as those of non-retired self-employed people as a result of the measures taken to contain the Covid-19 pandemic.

The analysis also shows that people with low incomes prior to the pandemic reported reductions in their income significantly more often than persons with higher incomes—a finding that applies to both pensioners and non-pensioners alike. Furthermore, non-retirees with incomes that were already high before the Covid-19 crisis reported that their household income had increased more fre-

quently than persons with low incomes. Thus, the Covid-19 crisis increased income inequality within the group of persons in the second half of life (see also Kohlrausch et al. 2020).

The study also shows that household income has a different impact on the subjective standard of living of people in the second half of life depending on whether they were financially better or worse off. For example, more than half of the people who already belonged to the low-income group before the Covid-19 crisis and whose income decreased during the first wave of the pandemic reported a deterioration in subjective living standards. Among people with higher pre-pandemic incomes, this applied to only one fifth. This may be related to the fact that, for low-income individuals, even small changes in income can create a greater deficiency in household finances. People with higher incomes, on the other hand, can fall back on assets, capital and interest income to compensate for short-term losses in earned income as occurred during the Covid-19 pandemic (Lejeune and Romeu Gordo 2017).

The results thus show a pandemic-related increase in social inequality in two senses: first, people in the second half of life with already low incomes were considerably more often affected by income reductions than people with higher incomes. Second, the effects of the decline in income differed. For people with low incomes, income declines had a noticeably more serious impact on the perceived standard of living than for people with higher incomes.

Due to changes in the infection dynamic and the second lockdown (partial lockdown from the beginning of November 2020, strict lockdown from mid-December 2020 until at least the end of January 2021), we might expect these developments to have intensified over the pandemic; social inequality in financial situations between retirees and non-retirees as well as between low-income and high-income households may have increased significantly in the Covid-19 crisis. Therefore, in addition to the subsidies for the self-employed and furlough allowances for standard employees, further socio-political measures that target low-income groups in particular may be important to mitigate a (further) worsening of income inequality due to the crisis.

Various measures are currently being discussed with regard to better protection for those marginally employed workers who were severely affected by income losses during the crisis. For example, some have proposed creating incentives to convert mini-jobs into regular, and thus more secure, employment relationships with social security entitlements (Grabka et al. 2020), but also to give mini-jobbers a temporary right to furlough payments (Fratzscher 2020). In addition, low-income groups, especially older people with low pension incomes, whose standard of living has deteriorated significantly as a result of the Covid-

19 crisis due, for example, to restrictions on charitable services such as the food banks, should be better supported financially with alternative services.

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3 Effects of the Covid-19 Crisis on the Work Situations of People in Middle and Older Working Age

Heribert Engstler, Laura Romeu Gordo and Julia Simonson

3.1 Key Messages

In the first phase of the Covid-19 crisis between March and June/July 2020, working people substantially reduced their working hours. One fifth of middle-aged and older employees had to avail of the German government's furlough scheme (called *Kurzarbeit*, or short-time work), 5.1 per cent were given paid leave and one fifth reduced their working time credits and overtime. Almost half of the self-employed reduced their working hours or temporarily stopped working. The total weekly working time decreased by an average of two hours until June/July.

The general reduction in working hours was accompanied by a substantial increase in working from home. More than a quarter of employed persons aged 46 and over shifted partly to remote working or increased their hours spent working from home. As a result, the average number of hours worked at home doubled from 3.9 to 8.6 h per week for all employed persons aged 46 and over.

However, not everyone experienced reductions in working hours: One sixth of employees (16.8 per cent) had to work more overtime than usual after the start of the Covid-19 crisis. Employees in the public sector and key workers in so-called system-relevant professions were above the average in this regard.

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Older workers aged 55 and over were less likely to be affected by changes in their working hours and were less likely to shift to working from home than those aged 46–54. They were slightly less likely to have been put on the short-time working scheme (18.2 per cent vs. 21.9 per cent), they were less likely to have increased their overtime (13.0 per cent vs. 21.2 per cent) and they reported lower increases in working-from-home hours. In June/July 2020, only 36.1 per cent were doing all or part of their work from home compared to 41.1 per cent of those aged 46–54.

In the months after the first lockdown began, women more frequently continued to work as before than men. They were less likely to have been put on the short-time work scheme (17.4 per cent vs. 22.4 per cent), their weekly working hours did not decline as much (by 0.6 h for women vs. 3.0 h for men) and they more often continued to work in person rather than remotely. In June/July 2020, only 30.7 per cent of women but 45.0 per cent of men regularly worked from home.

Labour force participation by retirees did not decline due to the Covid-19 crisis. At 15.5 per cent, their employment rate in June/July 2020 was higher than in 2017. Only 8.9 per cent of those still in employment before March 2020 had to stop working in the following months because of the Covid-19 crisis.

3.2 Introduction

In view of the rapidly increasing numbers of people infected with the novel coronavirus in Germany from February 2020 onwards and the worrying reports from China and European regions such as northern Italy and Catalonia, policymakers needed to take rapid action to reduce the infection rate and not overstretch the health system. From mid-March 2020, extensive pandemic-containment measures were enacted by the federal and state governments, including significant restrictions on economic activities, the education system, mobility and social contacts. Almost all educational institutions were closed, public transport in trade and services was largely stopped, cross-border passenger transport and mobility between federal states were severely restricted, and events were banned or limited to a few participants. Employers were encouraged to let their employees work from home as much as possible. Since many other countries also took measures to contain the pandemic at almost the same time, global economic activity was greatly reduced in a short time period and supply chains were interrupted.

Thus, Germany also experienced a rapid decline in the production and consumption of goods and services, which had an impact on employees' workloads and everyday working lives. In the second quarter of 2020, the number of people in employment in Germany fell, but the decline in the employment rate in this

country was much weaker than in most other EU member states (Eurostat 2020). The unemployment rate also rose comparatively moderately from 5.1 to 6.2 per cent between March and June 2020 (Westermeier 2020). The fact that there was no wave of redundancies in the companies is mainly due to labour market policy measures, especially the German government's furlough scheme (*Kurzarbeit* or short-time work). In this regard, the short-time allowance was improved and extended (Konle-Seidl 2020). In the first phase of the Covid-19 crisis, around 35 per cent of all businesses applied to avail of the short-time work scheme (Bellmann et al. 2020). Many self-employed workers were affected by decreasing numbers of orders and turnover losses, especially in sectors that could no longer open to the public. To alleviate financial hardship for self-employed people and to secure their livelihoods, state bridging assistance was granted to the self-employed and insolvency filing obligations were temporarily suspended. This, combined with the relaxation of pandemic-containment measures in summer 2020, helped to prevent a wave of bankruptcies among the self-employed during and after the first lockdown.

The effects on employment in the first months of the Covid-19 crisis were not only reflected in increases in the numbers availing of the short-time work scheme (Schröder et al. 2020) but also in a sharp decline in the volume of work—that is, the total number of hours worked (Frodermann et al. 2020). However, there are also employees whose working hours have increased—for instance, due to increased demand in the company or staff shortages, especially in the healthcare sector and in online commerce. Presumably, employees with increased working hours also included key workers who perform so-called system-relevant activities, the majority of whom are women (Koebe et al. 2020). In the Covid-19 crisis, therefore, workers likely experienced opposing changes in working hours, with different people being affected differently.

The second striking change in response to the Covid-19 pandemic was the increase in home-based work, i.e. the number of hours spent working from home (WFH). In a recent review of several empirical studies, Bonin et al. (2020) concluded that among all employees, WFH increased to about one-third by the summer of 2020 from one-fifth of employees previously. According to the study, more highly qualified and higher-income employees worked at home more often than average during the Covid-19 crisis. The findings on the gender-specific prevalence of WFH in the first months of the Covid-19 crisis are inconsistent. While Bonin et al. (2020: 101) found that more men than women used WFH, Frodermann et al. (2020) came to the opposite conclusion. According to a study by Möhring et al. (2020), men and women were roughly equally likely to work from home.

The aforementioned studies did not report any results on age differences in WFH. However, age differences are of interest, as a central motive for shifting to WFH was the hoped-for better protection against infection with the novel coronavirus. Since the risk of serious illness increases with age, companies may have particularly encouraged older workers to work more hours from home; likewise, older employees may have also wanted this more for themselves. The question of whether older self-employed workers responded to the health threat by withdrawing more to the home office should also be relevant. According to the findings of an online survey conducted by the Institute for Employment Research (IAB) (Westermeier 2020) in May 2020 among workers in standard employment with social security entitlements and those in marginal employment, older workers aged 50 and over performed less remote work than younger workers. However, the IAB study did not include civil servants, the self-employed and workers of retirement age.

For almost two decades, the proportion of people who continue to work after retirement has been increasing. Such retirees often perform part-time mini-jobs or are self-employed (Engstler et al. 2020). The Covid-19 pandemic and its economic consequences might have affected this group of employed people in two ways. On the one hand, mini-jobs can be cut more easily and quickly than core jobs in employment crises, and on the other hand, older people whose pension incomes are comparatively secure may decide more easily to forego employment in view of their increased risk of severe Covid-19. Therefore, it is appropriate to investigate whether there was a decline or even a collapse in labour force participation by pensioners after the onset of the Covid-19 crisis.

Research questions

Against this background, this paper examines the extent to which employed persons in their mid-40s and older were affected by different changes in their work situations in the first months after the start of the Covid-19 crisis in Germany between March and June/July 2020. We are particularly interested in whether older workers aged 55 and over were affected to the same extent as middle-aged workers and whether there were gender differences.

Specifically, we will explore the following research questions:

- Short-time work: What were the proportions of employees in their mid-40s and older who availed of the short-time work scheme? Were there differences according to age and gender?
- Overtime: What were the proportions of employees in their mid-40s and over who worked more overtime than usual between March and June/July 2020? Were there differences by age and gender?

- Weekly working hours (WFH): How did the average weekly working hours of employed persons in their mid-40s and older change between March and June/July 2020? Were there differences by age and gender?
- Working from home: How did the average weekly working-from-home time of employed persons in their mid-40s and older change between March and June/July 2020? Were there differences by age and gender?
- Did the beginning of the Covid-19 crisis lead to a decline in labour force participation by retirees? How often did retired workers stop working because of the Covid-19 pandemic?

The results of this chapter are based on data from a paper–pencil short survey conducted in June/July 2020 as part of the German Ageing Survey (DEAS). The analyses included data from 1232 employed persons aged 46 and over who were not in receipt of a pension, as well as 3080 persons up to the age of 90 who were in receipt of a pension and who answered the question about working while retired.

The analyses considered the following possible job-related or professional changes:

- *Changes that occurred* in a person's working activities as an employed or self-employed person from mid-March: Respondents were presented with different lists of possible changes and events for employees and self-employed persons who were not in receipt of a pension.[1] In each case, the survey asked whether the respondent had experienced these changes and events. We concentrated on changes that concerned adjustments to working hours and the scope of work: short-time work, time off, unpaid leave, reductions of overtime and working time credits, increases in overtime, reductions and expansions of self-employment.
- Comparison of the current *weekly hours of work and WFH time* at the time of the survey with the amount of hours before the start of the Covid-19 crisis in mid-March: These hourly data were collected through self-reporting by the respondents; changes in working hours and WFH time (weekly hours of gainful employment worked at home) were determined from this.
- *Labour-force participation of pensioners*: All persons who reported being in receipt of a pension were asked whether they were currently employed. If they

[1] For employed persons who indicated that they were both employees and self-employed, the changes in both activities were recorded.

answered this in the negative, the survey then asked whether they had given up previous gainful employment because of the Covid-19 crisis or whether they had not been gainfully employed before or during the crisis.

The survey investigated gender and age differences in the impact of short-time work, the need for more overtime, changes in weekly and WFH hours, and labour force participation in retirement through a descriptive comparison of women and men and of two age groups in each case (for non-retirees in employment: 46–54 years vs. 55 and over; for those in retirement: under 70 years vs. 70 and over).

To be able to determine whether existing gender and age differences could be attributed in whole or in part to differences in women's and men's occupational characteristics and age groups, we conducted multivariate analyses of the probability of short-time work, more overtime and more WFH to supplement the descriptive comparisons. The following control variables were included in the logistic regression models: educational level, sector, system relevance of the occupation and occupational status (only for analyses of WFH). Occupations were labelled as system relevant following the categorisation proposed by Koebe et al. (2020) (see Table A3.4 in the appendix).

3.3 Short-Time Work, Overtime and Weekly Working Hours in the First Months of the Covid-19 Crisis

In the June/July 2020 German Ageing Survey (DEAS), only 4.2 per cent of the labour force aged 46 and over said they were registered as unemployed. However, many workers faced significant declines in the volume of work and hours worked after the start of the Covid-19 crisis in March 2020.

High prevalence of short-time work, reduction of working time credits and overtime

One fifth of employees aged 46 and over (19.9 per cent) had to avail of the short-time work scheme (Fig. 3.1). Temporary leave from work was taken by 5.1 per cent. One fifth reduced overtime or working time credits. However, 16.8 per cent of employees worked more overtime—this particularly applied to employees in the public sector and in system-relevant occupations (cf. Table A3.2 in the appendix). Self-employed workers were substantially affected by declining earnings and changes in work. Almost half of the self-employed had to reduce their work or temporarily stop it altogether. Yet, one tenth of the self-employed even increased their working hours in the months after March.

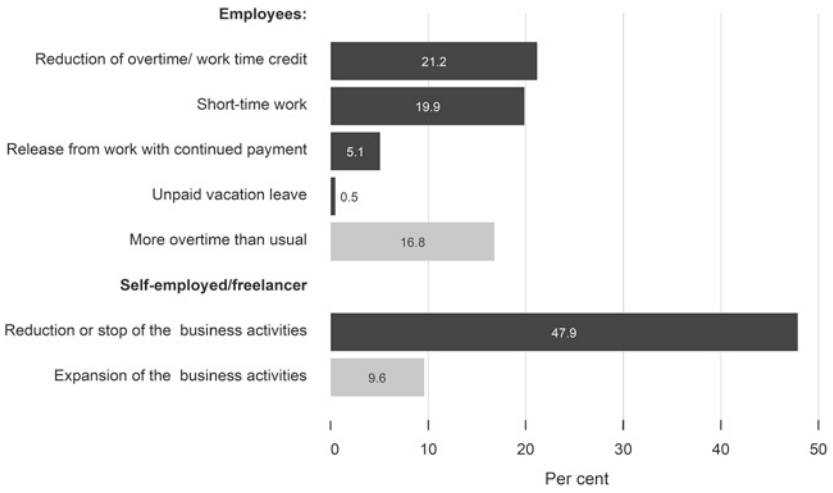

Fig. 3.1 Working time adjustment events experienced since March 2020 (in per cent). *Source* DEAS 2020 (n = 1300; persons aged 46 and over (not including pensioners)), weighted analyses

3.3.1 Age and Gender Differences in Short-Time Work

Older employees aged 55 and over were less likely to be forced into the short-time work scheme after the start of the Covid-19 crisis than employees in the middle working age range of 46 to 54. Men and women were also affected differently: women were less likely to avail of the short-time work scheme than men.

Less short-time work among older employees and women

The fact that women were less affected by short-time work was related, among other things, to the fact that they were more likely to work in the public sector than men and less likely to work in industry and skilled trades (see Table A3.1 in the Appendix), two sectors with high rates of short-time work. Women were also more likely to work in a systemically relevant job (ibid.). Taking these gender differences in occupational characteristics into account, gender had no independent significant effect on the likelihood of availing of the short-time work scheme (see Table A3.3 in the Appendix). In contrast, older employees aged 55 and over had a slightly lower risk of availing of the short-time work scheme, a difference that remains even when controlling for possible age differences in occupational characteristics (qualification, sector, system relevance) (Fig. 3.2).

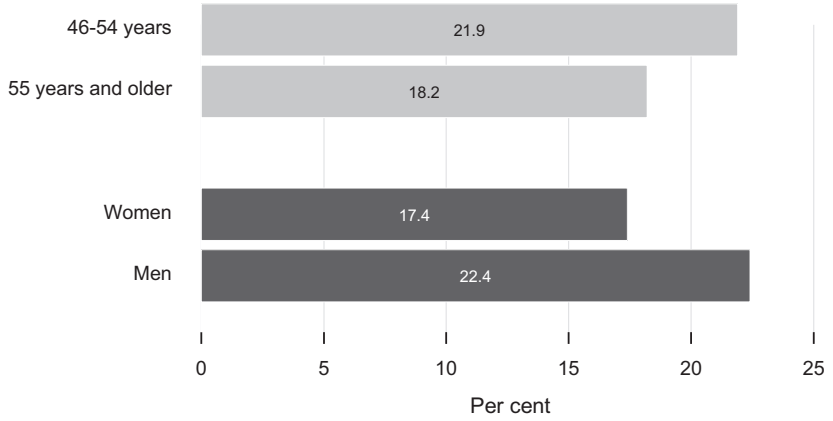

Fig. 3.2 Switch to short-time work after mid-March 2020 among employees by age and gender (in per cent). *Source* DEAS 2020 (n = 1134; employees aged 46 and over (not including pensioners)), weighted analyses. Age and gender differences are statistically significant.[2]

3.3.2 Age and Gender Differences in the Increase of Overtime Hours

As mentioned above, the Covid-19 crisis led to more work for some employees. 16.8 per cent stated that they had increased their working hours and had worked or were working more overtime than before. A comparison of two age groups showed that older workers aged 55 and over, at 13.0 per cent, were significantly less likely to have worked additional overtime than middle-aged workers, 21.2 per cent of whom reported an increase in their overtime (Fig. 3.3). In contrast, women and men reported working more overtime in equal numbers.

Less frequent increases in overtime among older workers

The fact that older employees were less likely to have increased their overtime hours after the start of the Covid-19 crisis cannot be explained by the different occupational characteristics of the two age groups. Even when controlling for the influences of qualifications, sector and system relevance, employees aged 55 and over still had a significantly lower probability of working increased overtime hours (see Table A3.3 in the appendix).

[2] Weighted group differences with a probability of error of less than 5 per cent are classified as statistically significant in this paper.

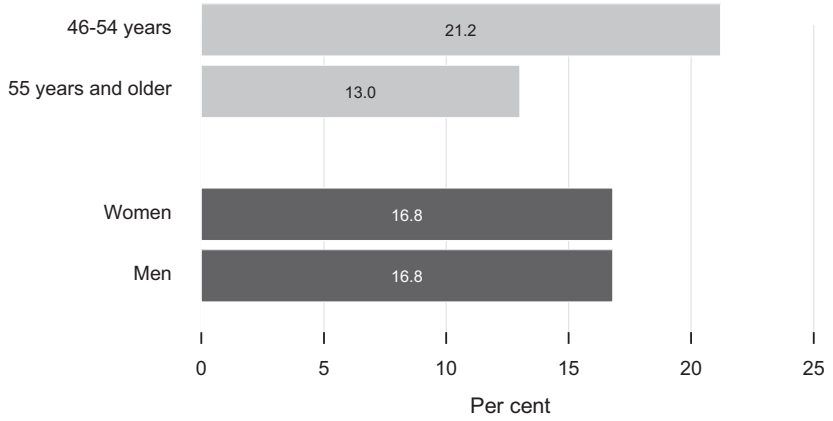

Fig. 3.3 Employees with more overtime after mid-March 2020 by age and gender (in per cent). *Source* DEAS 2020 (n = 1137; employees aged 46 and over (not including pensioners)), weighted analyses. The age difference is statistically significant

3.3.3 Sharper Declines in Average Weekly Working Hours for Men Than for Women

Overall, employed persons aged 46 and over in June/July 2020 worked 35.3 h weekly, 1.9 h less on average than before the start of the Covid-19 crisis in mid-March (Fig. 3.4). 17.6 per cent were still working shorter hours in June/July than before mid-March, and 10.5 per cent were working longer hours. However, the majority of gainfully employed people (71.9 per cent) were working the same weekly working hours in June/July as before.

Among non-retirees aged 55 and over, weekly working hours were 36 h in June/July, about an hour higher than those aged 46–54. The decline in working hours after mid-March tended to be somewhat less substantial.

Women's weekly working hours decreased less than those of men during this period. Men's working hours fell by three hours, but women's working hours only fell by 0.6 h and thus remained relatively stable in the first months after the lockdown. Nevertheless, due to the higher proportion of part-time workers, women worked fewer hours per week than men in June/July—30.1 h (women) versus 40 h (men).

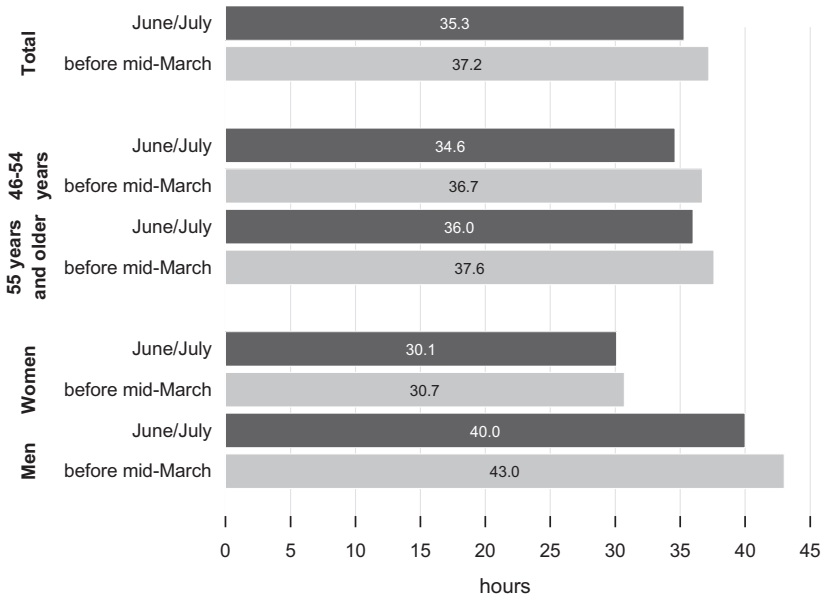

Fig. 3.4 Average weekly working time before mid-March and in June/July 2020 by age and gender (in hours). *Source* DEAS 2020 (n = 1187; employed persons aged 46 and over (not including pensioners)), weighted analyses. Decrease in hours statistically significant for all groups; significant difference in the amount of decrease in hours between women and men; significant difference in weekly working hours in June/July between age groups and between women and men

3.4 Changes in Time Spent Working From Home

Doubling of working-from-home hours

The pandemic-induced changes in working hours were accompanied by a significant increase in working-from-home (WFH) hours. 12.6 per cent of employed persons aged 46 and over started to do part of their professional work from home after mid-March, and another 14.1 per cent increased their previous WFH hours. In June/July 2020, 38.4 per cent were regularly working from home. Overall, this meant that weekly WFH hours doubled, from 3.9 h at the beginning of March to an average of 8.6 h in June/July 2020 (Fig. 3.5).

Older workers worked from home less often

Older workers were less likely to switch to working from home after the onset of the Covid-19 crisis and less likely to increase their WFH hours than middle-

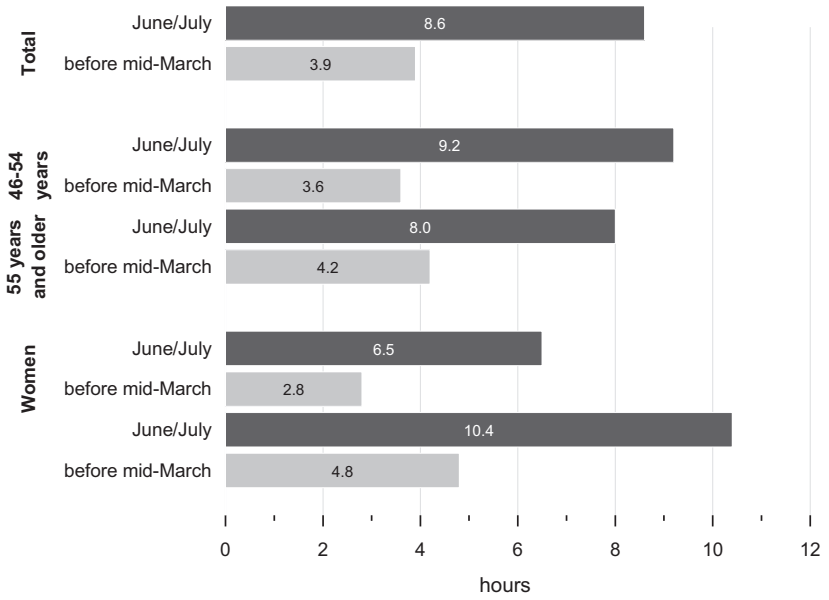

Fig. 3.5 Average weekly WFH hours before mid-March and in June/July 2020 by age and gender (in hours). *Source* DEAS 2020 (n = 1180; employed persons aged 46 years and older (not including pensioners)), weighted analyses.Increase in hours statistically significant for all groups; significant difference in the amount of increase in hours between age groups and between women and men; significant difference in home working hours in June/July between women and men

aged workers. Accordingly, older workers aged 55 and over had a lower increase in weekly working hours (from 4.2 to 8.0 h) than those aged 46–54 (from 3.6 to 9.2 h) (Fig. 3.5). In June/July 2020, 63.9 per cent of older people reported not working a single hour from home – compared to 58.9 per cent of 46–55-year-olds. This lower WFH rate and the rather small increase in this group after March compared to younger people is surprising, as one might have expected older workers in particular to switch to WFH to protect themselves against Covid-19. Age did not have a statistically significant influence on the likelihood of increasing WFH hours between March and June/July 2020, even after accounting for the occupational characteristics of the two age groups (see Table A3.3 in the Appendix).

Substantial increase in WFH among men

Even before the Covid-19 crisis, women in the age group under consideration (46 years and older) were less likely than men to work from home. Between March

and June/July, this gap increased even more. While 30.1 per cent of men started working from home or worked more hours from home, only 22.7 per cent of women did so. Between March and June/July, the WFH rate (proportion of those working from home at least one hour per week) among men increased from 32.2 to 45.0 per cent – for women, it increased from 21.7 to 30.7 per cent. WFH hour volumes also increased more on average for men than for women. For men it increased from 4.8 to 10.4 h per week; for women, it increased from 2.8 to 6.5 h (Fig. 3.5).

This difference in the increases in WFH cannot simply be attributed to differences in occupational characteristics between women and men. This is because, regardless of qualification, sector and system relevance, women were 7.4 percentage points less likely to switch to WFH and to work more hours from home after the onset of the Covid-19 crisis than before (see Table A3.3 in the Appendix).

Overall, it is evident that more women than men continued to work the same number of hours at the same place of work in the months after the first lockdown began. They less frequently reported working reduced hours; when they did, they reported lower reductions in working hours; and they continued to work in person at company sites more often than men.

3.5 Gainful Employment of Pensioners

For several years, the proportion of older people who are still working despite receiving a pension has been increasing. In 2017, according to the results of the German Ageing Survey (DEAS), 11.4 per cent of retired people over 60 were still working, more than twice as many as in 1996. They often worked part-time in mini-jobs or were self-employed. The question is whether the Covid-19 pandemic stopped this upward trend. This might have occurred if pensioners had stopped engaging in gainful employment because of their age-related higher health risk or if many of the jobs (or, for the self-employed, assignments) pensioners do had fallen victim to the crisis.

No collapse in the labour force participation of pensioners, but more frequent exit due to Covid-19 from age 70 onwards

The results of the DEAS survey in June/July show that there was no collapse in retirees' labour force participation after mid-March (Fig. 3.6). Overall, 15.5 per cent of people in receipt of a pension were in employment in June/July. The labour force participation of pensioners at that time was even higher than it was three years ago. As in the past, men were more likely than women and those under 70 were more likely than those aged 70 and over to still be working in retirement.

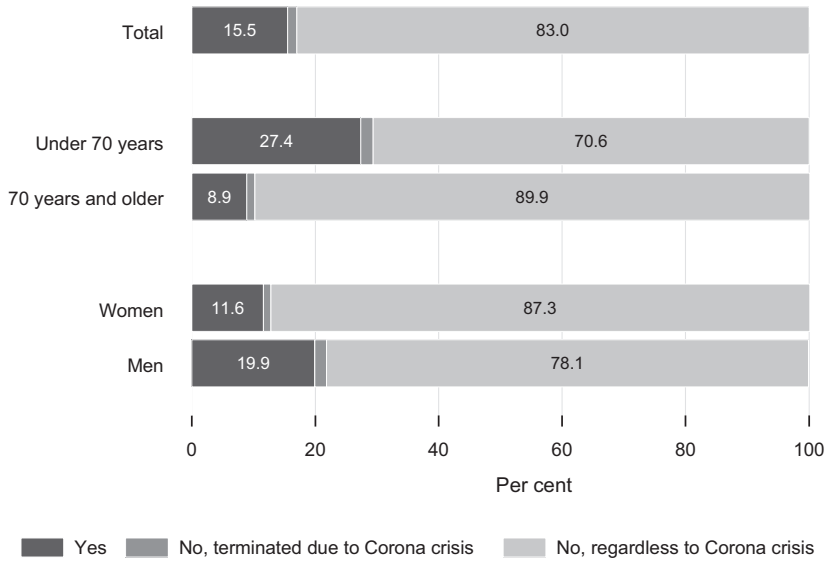

Fig. 3.6 Labour force participation of pensioners, June/July 2020 (in per cent). *Source* DEAS 2020 (n = 3080), weighted analyses. Employment rates differ significantly between women and men and between age groups

Only 1.5 per cent of all pensioners, or 8.9 per cent of pensioners who were working before the first lockdown, said they quit because of the Covid-19 crisis. However, those over 70 years of age who were previously employed were more likely to have stopped working after mid-March because of the Covid-19 crisis than those under 70.

3.6 Summary and Discussion

As the survey results show, the first months of the Covid-19 pandemic saw significant overall changes in the work situations of people in middle and older working age. Since employers did not typically respond by laying employees off but by putting them on the short-time work scheme, having them take paid time off, reducing working time credits, reducing their weekly working hours and getting them to work from home, unemployment remained relatively low in Germany. However, not all workers in their mid-40s and older were affected in the same way by the changes in work. Depending on their, age, qualification, sector and

occupation, they experienced different degrees of change in the scope and design of work.

Largely consistent with the results of other studies (see e.g. Möhring et al. 2020; Schröder et al. 2020), our study found that women availed of the short-time work scheme less often than men, their weekly working hours remained more stable and they less often switched to WFH or increased their WFH hours. After the start of the Covid-19 crisis, women continued to work the same number of hours and at the same place of work as before more often than men. This was partly due to the fact that women are more likely to work in the public sector, in trade and services, they are more likely to have a system-relevant occupation and they are less likely to be self-employed. However, even after controlling for these characteristics, women were less likely to start working from home. The observed lower WFH rates among women after the onset of the Covid-19 crisis were consistent with findings of the study by Bonin et al. (2020) but not with the findings of Frodermann et al. (2020), which indicated that more women worked from home than men. Possible age differences and other sample differences may explain the inconsistent findings across different studies to some extent. For example, Frodermann et al. did not include the self-employed, civil servants and employees in companies with fewer than 50 employees, while our study could not address the under 45s.

Older workers aged 55 and over were less likely than middle-aged workers (46–54-year-olds) to have experienced major changes in their work situation. They were less often forced to avail of the short-time work scheme, they less often had to do overtime, their weekly working time remained more stable and they less often started working from home or increased their WFH hours. The less marked increase in WFH among older workers is surprising, as one might have expected older workers in particular to increasingly switch to working from home to protect themselves from Covid-19. Those aged 55 and over were slightly more likely than those aged 46 to 54 to work in the public sector and in a system-relevant occupation, both of which have below-average WFH rates. However, even taking into account occupational characteristics, older workers did not increase WFH more than the younger age group. Results of an IAB study suggested that older workers were less likely to meet the requirements for working from home than younger workers. In the online survey conducted by the Institute for Employment Research in May 2020 among both socially insured and marginally employed workers, only 32 per cent of workers aged 60 and over said that their employer allowed them to work remotely; by contrast, 50 per cent of 30–39-year-olds had this option (Westermeier 2020). However, it is also possible that older workers did not see themselves at a higher risk of infection and illness at work

than middle-aged workers—and therefore had no stronger desire to reduce this risk by shifting to WFH. This is indicated by findings presented by Wettstein et al. (see chapter "How did individuals in the second half of life experience the Covid-19 crisis? Perceived threat of the Covid-19 crisis and subjective influence on a possible infection with Covid-19"), who found only small age differences in the perceived individual threat from the Covid-19 pandemic among people in the second half of life.

With regard to the effects of the Covid-19 crisis on labour force participation in old age, there is another finding of the German Ageing Survey, which took place in June/July 2020, that is worth highlighting: there was no decline in the labour force participation of pensioners. Few pensioners stopped working in retirement due to the Covid-19 crisis. Those older people who still wanted to be gainfully employed in retirement were thus not deterred by the pandemic and were not forced out of their jobs. However, some of them may have changed their working hours or place of work due to the Covid-19 pandemic.

Outlook

The survey results reflect the short-term effects of the first lockdown in spring until June/July 2020. The mid- and longer-term consequences of the Covid-19 pandemic and the measures taken to contain it on the employment situations of people of middle and older working age remain to be investigated. In particular, we might expect to find differences between economic sectors, as these were affected by pandemic-containment measures to different extents and for different durations. We might also expect to find differences in the long-term effects for different groups of workers. For example, there may have been a greater decline in labour force participation and work volume among the self-employed and marginally employed, especially because pandemic-containment measures in the second wave were maintained for longer and were tightened over time. During the first lockdown, around 60 per cent of all self-employed workers reported experiencing declines in turnover by the end of May 2020, losing on average two-thirds of their pre-crisis turnover (Kritikos et al. 2020). Further considerable losses in turnover, especially among the self-employed in the tourism and hospitality industry and in the cultural sector, likely occurred by the end of 2020 and should thus have impacted the labour market.

However, in the longer term, some of the observed changes may also create opportunities for the future organisation of working life. For example, the trend towards decreasing in-office hours and increasing facilitation of WFH could have a positive effect on the reconciliation of family care activities (in the case of older workers, especially involvement in caring for grandchildren and relatives), leisure time and work in non-pandemic times. Expanding WFH could also encourage older workers to stay in the labour force longer.

Appendix

The coefficients in Table A3.3 indicate for each predictor the amount by which the probability of the occurrence of short-time work, more overtime or more WFH increases (+) or decreases (−) on average if the person has the character-

Table A3.1 Characteristics of employed persons aged 46 and over (not including pensioners) by gender and age, June/July 2020 (in per cent)

Employment characteristic	Women	Men	46–54 years	55 and more years	Total
Educational level					
– Low/medium (ISCED < 5)	57.6	43.3	52.0	48.6	50.2
– High (ISCED 5–6)	42.4	56.7	48.0	51.4	49.8
Occupational status					
– Employee	93.3	86.1	90.9	88.5	89.5
– Self-employed	6.7	13.9	9.1	11.5	10.5
Sector of the company					
– Agriculture or forestry	0.3	1.0	0.3	1.2	0.7
– Industry	13.9	32.3	25.0	22.6	23.9
– Craft	3.8	10.0	7.0	7.2	7.1
– Trade or service	51.8	42.1	48.0	45.1	46.6
– Public service	30.2	14.6	19.8	23.8	21.8
Systemic relevance of the profession					
– Yes	44.4	35.0	36.6	42.4	39.3
– No	55.6	65.0	63.4	57.6	60.7
Household structure					
– With partner and child(ren)	29.7	44.7	53.9	24.2	37.6
– With partner, without child(ren)	42.9	37.8	24.9	52.7	40.2
– Without partner, with child(ren)	8.5	1.5	6.8	3.3	4.8
– Without partner, without child(ren)	18.9	16.0	14.5	19.8	17.4

Source DEAS 2020 (n = 726–1232), weighted analyses.

Table A3.2 Changes in working hours of employed persons aged 46 and over (not including pensioners) from the beginning of the Covid-19 crisis in mid-March until June/July 2020 according to selected characteristics

Employment characteristic	Short-time work[1] (per cent)	More overtime[1] (per cent)	Decrease in weekly working time (hours)	Increase in home working time (hours)
Educational level low/medium	22.4	14.9	−1.9	+2.1
Educational level high	17.2	18.9	−1.9	+7.2
Employees	19.9	16.8	−1.2	+5.0
Self-Employed	n.a	n.a	−7.9	+1.7
Industrial/craft enterprise	39.8	15.5	−2.9	+5.4
Trade/service company	19.7	19.6	−1.6	+5.6
Public service	2.8	21.0	−0.5	+2.3
Systemically relevant profession	18.5	20.4	−1.4	+3.4
With child(ren) in the household	18.4	18.7	−1.9	+5.4
With partner in household	17.1	15.1	−2.0	+4.8
Total	19.9	16.8	−1.9	+4.7

Source DEAS 2020, weighted analyses.
1) For employees; n.a. = not asked

istic mentioned. For example, in Model 3, being a woman increases the probability of working more overtime than before the Covid-19 crisis by 6.3% points. A prediction model in which only gender and age group are included as influencing variables is contrasted with a model in which the level of education, the sector of the company, the systemic relevance of the profession and—only to explain

Table A3.3 Variables influencing the switch to short-time work, the increase in overtime and WFH after March 2020 (logistic regression, average marginal effects in percentage points)

Predictor	Short-time work[1]		More overtime[1]		More WFH[2]	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Women	−4.9	+2.1	+6.3*	+5.2	−8.4*	−7.4**
Age 55 and older	−6.2°	−4.4°	−6.3°	−6.5*	−2.1	−1.9
High educational level		−1.7		+3.6		+20.1***
Systemically relevant profession		+0.4		+3.3		−12.5***
Industry + Craft		+11.1***		−6.2		−1.0
Public service		−24.0***		−2.4		−1.5
Self-employed						−14.3*
R^2 Nagelkerke	0.016	0.192	0.020	0.034	0.014	0.109
n	585	585	586	586	630	630

Source DEAS 2020, persons who have been in their job for at least three years, weighted analyses.
° = p < 0.10, * = p < .005, ** = p < .001, *** = p < 0.001
1) Model for employees aged 46 and over (working pensioners not included)
2) Model for employed persons aged 46 and over (working pensioners not included)

WFH—self-employment are also included as predictors. The system relevance of the occupation is determined based on the classification made by Koebe et al. (2020) (for details see Table A3.4).[3]

[3] The information on the sector of the business and the occupation was taken from panel respondents' previous answers, provided they had been in their current occupation for at least three or six years. The information on the educational level was taken from the panel respondents' first interview. Persons with a degree or advanced training (technical school, master craftsman's school, technical school, vocational or technical academy) were classified as having a high educational level (ISCED 5-6).

Table A3.4 System-relevant occupations (according to Koebe et al. 2020) of employed persons aged 46 and over (not including pensioners), June/July 2020

KldB code	Occupational group	Assigned ISCO-08 codes (DEAS)	Number	Per cent
343	Occupations in building services and waste disposal	9613,9611,9612,7126,2144,3132,2143,3112,2142,9612,3119,7233,3123	54	10.5
433	IT occupations	3513,2523,2519,3511,2522,2521,3514,2529,1330	18	3.6
511	Technical occupations in railway, aircraft and ship operation	8312,3115,8350,3151,3521,3122	21	4.1
513	Warehouse, logistics, postal, delivery, cargo handling occupations	9333,9321,8183,4321,9621,4412,4323,1324	60	11.7
515	Occupations in traffic surveillance and control	2164,3154,2149,3152	4	0.8
521	Drivers of vehicles in road traffic	8322,8332,8331,8321,9331	24	4.6
522	Drivers of vehicles in railway traffic	8311	1	0.1
531	Occ. in physical security, personal, fire protection, workplace safety	9629,5414,5411,5419,5153,4214	14	2.8
532	Occ. in police and criminal investigation, jurisdiction and penal institution	5412,3355,1349,3411,5413	23	4.6
533	Occ. in occupational health & safety administration, public health authority, disinfection	2263,3257,7544	10	2.0
541	Occupations in cleaning services	9112,9111,9122,8157,7133,9123,9129	15	3.0

(continued)

Table A3.4 (continued)

KldB code	Occupational group	Assigned ISCO-08 codes (DEAS)	Number	Per cent
623 + 624	Sale of food, drugstore goods, medical supplies and healthcare goods	5246,5212,5223	32	6.3
732	Occupations in public administration	3343,3354,3359,2422,3353,3344,2421,3352,2411,3351,3342,2619,3341,1112	85	16.6
811	Doctor's receptionists and assistants	3256,3251,3255,2267,3240	14	2.7
812	Laboratory occupations in medicine	3212,3211	2	0.4
813 + 821	Occ. in elderly and nursing care, health and emergency services, obstetrics	3221,2240,5329,3258,3222,2222,2221,1342,1343	44	8.6
814	Occupations in human medicine and dentistry	2211,2261	12	2.4
818	Occupations in pharmacy	2262,2131,2212,3213,2433	19	3.7
831	Occ. in education, social work, pedagogic specialists in social care work	5311,3412,2342,2635,5321,5322,2352,5152,1344,1341	59	11.6
System-relevant occupations in total			511	100.0

Source DEAS 2020, weighted analyses
KldB = German Classification of Occupations, ISCO-08 = International Standard Classification of Occupations 2008

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Part III

Subjective Health and Well-being During the Covid-19 Pandemic

4 How did Individuals in the Second Half of Life Experience the Covid-19 Crisis? Perceived Threat of the Covid-19 Crisis and Subjective Influence on a Possible Infection with Covid-19

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4.1 Key Messages

The majority of individuals in the second half of life did not perceive the Covid-19 risis as very threatening. About 9 per cent of individuals in the second half of life (46 to 90 years) felt very threatened by the Covid-19 crisis, 42 per cent indicated a medium level of threat and about 50 per cent rated the threat as low.

Self-rated health played an important role in the perceived threat of the Covid-19 crisis. Individuals who rated their health as less good felt significantly

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more threatened by the pandemic than individuals who rated their health as very good or good. In addition, individuals with a lower educational level felt more threatened than people with a higher educational level. In contrast, age, gender and Covid-19 infections in an individual's personal environment did not play a significant role in threat perception.

The majority felt that they could influence the risk of contracting Covid-19 at least to a moderate extent. 23 per cent rated their influence on a possible infection as high, 65 per cent as medium and 12 per cent as low.

Self-rated health also played an important role in subjective influence on contracting Covid-19. People who rated their health as less good reported having a lower subjective influence on contracting Covid-19 than people with good self-rated health. Education and age were also important: people between 61 and 75 and people with a high educational level perceived a greater subjective influence. Gender and the presence of people who had Covid-19 in respondents' personal environments did not play an important role for subjective influence.

Perceived threat from the Covid-19 crisis and subjective influence on contracting Covid-19 were only weakly associated with each other. The groups of those who felt a high threat and of those who believed they only had little influence the risk of contracting Covid-19 were not congruent. Among those who felt more threatened by the Covid-19 crisis, the proportion of people who were convinced that they could influence the risk of infection was greater than among people with a low threat perception. At the same time, however, a greater proportion of people in this group also believed that they had little influence ompared to people with a low threat perception.

People who perceived a high threat and those who perceived low subjective influence had lower well-being. People who felt more threatened by the Covid-19 crisis and people who perceived little influence over contracting Covid-19 were less satisfied with their lives and reported more depressive symptoms than people with lower threat perceptions and higher subjective influence.

4.2 Introduction

The Covid-19 pandemic is an ongoing global crisis that poses a considerable threat to health and quality of life across the world, to the global economy as well as to social coexistence and interaction. Although Germany has so far been less affected by Covid-19 infections and deaths than many other countries in Europe (Stafford 2020), the Covid-19 crisis has nevertheless profoundly changed the everyday lives of many individuals in Germany as well. This is not only due

to the threat posed by Covid-19 but also to the far-reaching measures taken to contain the virus (e.g., physical distancing, hygiene measures, use of everyday masks) or travel and contact restrictions and even bans on visits to care facilities and hospitals. In addition, numerous cultural events were cancelled and institutions such as schools, and day-care centres were temporarily closed.

These measures were successful in Germany: infection rates and mortality rates remained comparatively low during the first Covid-19 wave. At the same time, however, these restrictive measures had and still have a considerable impact on the organisation of everyday life. This concerns, for example, the maintenance of personal social relationships, which had to be reduced or changed from face-to-face meetings to contacts via phone or internet. Many people also had to reorganise their daily work and family life, for example, by working from home and reorganising the care of their children and grandchildren as long as childcare facilities were closed. Leisure time activities also changed for many people: for example, opportunities for playing sports were limited at times, as sports facilities remained closed. Some people were also significantly affected financially by the Covid-19 pandemic because of income loss, for example, because they were furloughed, became unemployed or even faced the bankruptcy of their own company.

For people in the second half of life, the Covid-19 pandemic has posed a particular challenge and threat: The probability of experiencing severe Covid-19 or dying from the disease when infected increases significantly with age (Robert Koch Institute 2020). What does this mean for these people's subjective perspectives on the pandemic, or, to put it another way, how did people in the second half of life experience the threat of Covid-19? And were there differences between population subgroups—for example, according to gender, education, self-rated health or Covid-19 infections in an individual's personal environment?

A similar question can be asked with regard to individuals' subjective influence on the risk of contracting Covid-19. Did people in the second half of life believe they had an influence on whether they contracted Covid-19? And were there also differences according to age, gender, education, self-rated health or Covid-19 infections in an individual's personal environment?

Of importance for prevention measures is the question of whether and how the experience of threat from the Covid-19 crisis and subjective influence on the risk of infection were connected. Was subjective influence high when the threat was perceived as high? In this case, the threat experience may have led people to exercise increased caution in everyday life to maximise their influence on a possible infection. Or was subjective influence particularly high when the threat was perceived as low? It is possible that people perceived the threat of the Covid-19 crisis as low when they thought they had a considerable influence on contracting the

disease. Conversely, high threat perception could have led to fatalism and an attitude that individuals can exert only little or no influence on the risk of contracting Covid-19. Media and political risk communication would need to be framed differently depending on how people perceived the threat of Covid-19 and their subjective influence on it and depending on the size and direction of the connection between the two types of perception (threat and influence).

Finally, the perception of the Covid-19 crisis might also have been relevant for the subjective well-being of people in the second half of life. Did people who perceived a high threat from the Covid-19 crisis and little influence over their risk of contracting it experience lower subjective well-being? People who felt highly threatened, as well as people who saw little possibility to protect themselves from Covid-19, may have been less satisfied with their lives and more depressed during the first COVID-19 wave in Germany than people with a more optimistic perspective on Covid-19.

Research questions

This chapter examines the following four questions:

- Perceived threat from the Covid-19 crisis
  To what extent did people in the second half of life feel threatened by the Covid-19 crisis? Did different population groups feel differently threatened? The characteristics of age, gender, education, self-rated health and Covid-19 cases in an individual's personal environment were considered.
- Subjective influence on the risk of contracting Covid-19
  To what extent did people in the second half of life feel they could influence a possible infection with Covid-19? Were there differences between different population groups? Again, age, gender, education, self-rated health and Covid-19 cases in an individual's personal environment were considered.
- Relationship between the perceived threat of the Covid-19 crisis and subjective influence on one's Covid-19 infection risk
  How was the perceived threat of Covid-19 related to perceptions of subjective influence on the risk of contracting Covid-19? Were people more likely to feel that they could influence the possibility of contracting Covid-19 when they experienced a low or a high threat from the pandemic? Or were perceived threat and subjective influence relatively independent of each other?
- Perception of the Covid-19 crisis and subjective well-being
  Were people less satisfied with their lives and more likely to be depressed if they felt more threatened by the Covid-19 crisis and if they believed they could hardly influence their likelihood of contracting Covid-19?

4.3 Data and Methods

The results of this chapter are based on analyses of the seventh wave of the German Ageing Survey (DEAS; Vogel et al. 2020). For the present analysis, the data of 4762 persons aged between 46 and 90 years were used.

The following measures were included for the analyses:

- The perceived threat of the Covid-19 crisis was captured by the question: "Please indicate to what extent you currently perceive the Covid-19 crisis as a threat for yourself."[1] Respondents answered this question by giving a number between 1 (no threat to me at all) and 10 (extreme threat to me).
- The subjective influence on a possible infection with Covid-19 was assessed with the question: "To what extent do you feel that you can influence an infection with the coronavirus yourself?"[2] This question was answered by the respondents on a scale from 1 (not at all) to 7 (entirely).
- In order to assess Covid-19 infections in the respondent's own environment, the following question was asked: "Have people from your personal environment been infected with the coronavirus?"[3] The possible answers to this question were "Yes", "No" or "Don't know".[4]
- The question "How would you rate your urrent state of health?" was used to assess self-rated health. The question was answered on a scale from 1 (very good) to 5 (very poor). In the following analyses, scores of 1 and 2 are interpreted as "very good/good self-rated health" and scores from 3 to 5 as "moderate to poor self-rated health".
- Subjective well-being was assessed via two indicators, life satisfaction and depressive symptoms. Life satisfaction was measured via the German version of the Satisfaction with Life Scale (Diener et al. 1985). This scale consists of five statements (e.g. "I am satisfied with my life"), which were answered on a scale from 1 (strongly agree) to 5 (strongly disagree). A mean score was

[1] This question was originally developed by the Mannheim Corona Study of the German Internet Panel (GIP; https://www.uni-mannheim.de/gip/corona-studie/), and the original wording was minimally adapted in this study.

[2] This question was also introduced by the Mannheim Corona Study of the German Internet Panel (GIP; https://www.uni-mannheim.de/gip/corona-studie/) and was used here in an adapted form.

[3] This question was also asked in a similar wording in other studies (e.g., Mannheim Corona Study; COVID-19 Snapshot Monitoring (COSMO)).

[4] The "Don't know" category was only very rarely selected (in 3.5 per cent of the cases) and was therefore not taken into account in the following evaluations.

calculated across the five statements and transformed so that higher values indicated higher life satisfaction. Values above 3.3 were interpreted as high life satisfaction (Wolff and Tesch-Römer 2017). Depressive symptoms were assessed using a short version of the CES-D Depression Scale (Radloff 1977). This short version consisted of ten statements (e.g. "During the last week I felt exhausted"), each of which was answered on a scale from 1 (rarely) to 4 (always). For each person, a sum score was calculated across all statements (for this computation, the score range of the items was transformed from 1–4 to 0–3). Values above the scale mean of 15 were interpreted as indicating pronounced depressive symptoms.

Age, gender and education were determined based on self-reporting or were already known due to previous participation in the German Ageing Survey. In order to examine the role of age, three age groups were created: 46–60-year-olds (n = 996; 20.9 per cent), 61–75-year-olds (n = 2166; 45.5 per cent) and 76–90-year-olds (n = 1600; 33.6 per cent). In addition, women (n = 2434; 51.1 per cent) and men (n = 2328; 48.9 per cent) were compared. Education was divided into three groups according to the ISCED classification: persons with a low educational level (n = 205; 4.3 per cent), a medium educational level (n = 2250; 47.3 per cent) and a high educational level (n = 2306; 48.4 per cent).

4.4 Perceived Threat from the Covid-19 Crisis

Most individuals in the second half of life did not perceive the Covid-19 crisis as a strong threat

Respondents' answers to the question of whether they experienced the Covid-19 crisis as a threat to themselves were distributed very unevenly across the ten response options (Fig. 4.1): The proportion of people who perceived the Covid-19 crisis as a rather low threat was considerably larger than the proportion of people who perceived the Covid-19 crisis as a high threat. The most frequent scores were 3 (23.5 per cent) and 5 (16.9 per cent). The values of 9 and 10, which reflect an extremely high threat experience, were selected by less than 4 per cent of the sample.

When we divided the values into three groups (Fig. 4.1), we found that less than half of the respondents (48.5 per cent) selected values between 1 and 3 (low perceived threat from the Covid-19 crisis). Values between 4 and 7, reflecting a medium threat experience, were selected by 42.3 per cent of respondents. And finally, less than one in ten (9.2 per cent) selected values above 7 and thus indicated a sense of high personal threat.

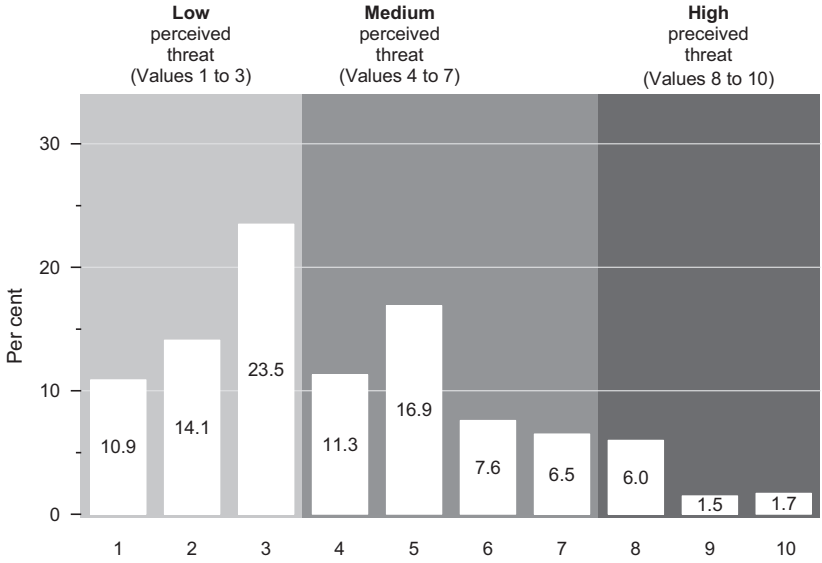

Fig. 4.1 Perceived threat from the Covid-19 pandemic, distribution across ten response categories from 1 (no threat at all to me) to 10 (extreme threat to me) (in per cent). *Source* DEAS 2020 (n = 4739), weighted analyses, rounded estimates

When we compared these three groups—which perceived the Covid-19 crisis as either not very threatening, moderately threatening or very threatening—according to various characteristics (age, gender, education, Covid-19 in the personal environment; Fig. 4.2), the following picture emerges: in the oldest group (76 years and older), the proportion of those who felt slightly threatened was a bit smaller (46.3 per cent) than among those aged 46 to 60 (49.4 per cent) and those aged 61 to 75 (48.4 per cent). However, the oldest group had a lower proportion of people who felt very threatened (8.1 per cent) than the youngest group (11.6 per cent) and a very similar proportion to the 61–75-year-old group (6.9 per cent). Overall, these age differences were small: in each age group, less than half of respondents felt slightly threatened, and between 7 and 12 per cent felt very threatened.

When comparing women and men, it is noticeable that more men (51.4 per cent) than women (45.7 per cent) felt slightly threatened. However, slightly more men (9.6 per cent) than women (8.9 per cent) also felt very threatened. This gender difference was negligible, however, so women and men apparently felt threatened by the pandemic to a very similar extent.

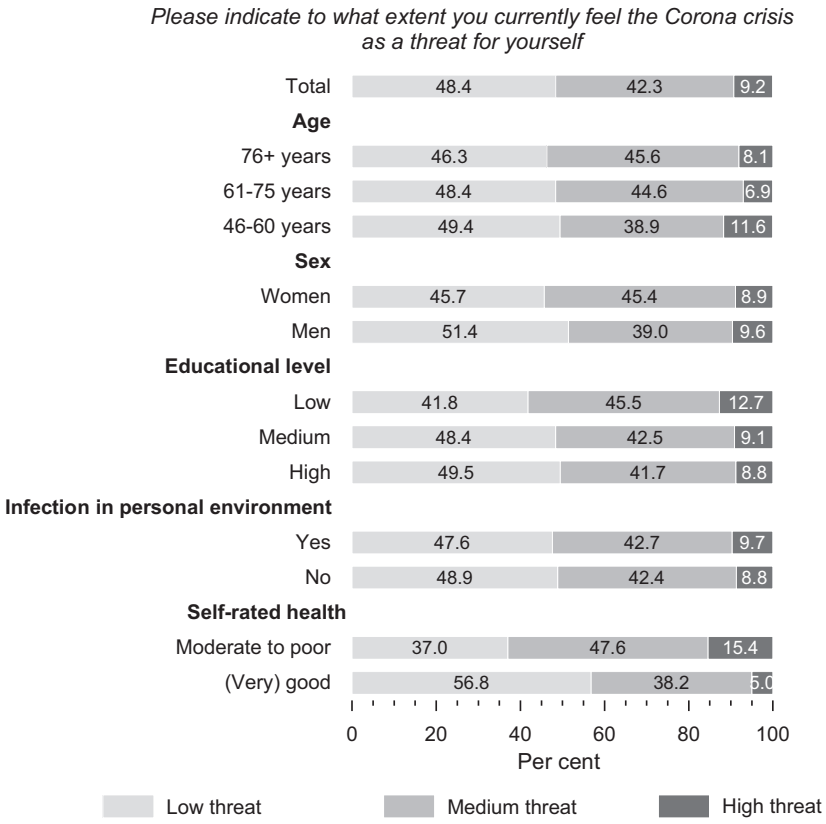

Fig. 4.2 Perceived threat from the Covid-19 pandemic according to age, gender, education, infections in the personal environment and self-rated health (in per cent). *Source* DEAS 2020 (n = 4739), weighted analyses, rounded estimates. Group differences statistically significant for age and self-rated health ($p < 0.05$)

There were also differences according to education: with increasing education, the proportion of people who experienced the pandemic as slightly threatening increased (people with low educational level: 41.8 per cent; medium educational level: 48.4 per cent; high educational level: 49.5 per cent). Moreover, among those with medium and high educational level (9.1 per cent and 8.8 per cent), there were fewer people who felt very threatened than among those with low educational level (12.7 per cent).

On the other hand, the experience of threat did not seem to have been affected by whether people had experienced Covid-19 in their immediate environment

or not: in each case, around 50 per cent (Covid-19 cases in the environment: 47.6 per cent; no Covid-19 cases in the environment: 48.9 per cent) felt little threatened, and less than 10 per cent (Covid-19 cases in the environment: 9.7 per cent; no Covid-19 cases in the environment: 8.8 per cent) felt very threatened.

4.4.1 People with Poorer Self-Rated Health Experienced the Covid-19 Pandemic As More Threatening to Them Than People Who Rated Their Health As Good or Very Good

The differences in perceived threat were most pronounced according to self-rated health: while more than half (56.8 per cent) of people with very good or good self-rated health perceived the threat as low, among people with moderate to poor self-rated health, the proportion of people who perceived a low threat was significantly smaller, at 37 per cent. In this regard, the groups were 20 per cent points apart. Conversely, 5 per cent of people in very good to good health felt greatly threatened, while the proportion of people in moderate to poor health who felt greatly threatened was about three times as high, at 15.4 per cent.

4.5 Subjective Influence on the Risk of Contracting Covid-19

The majority of people felt they can influence the risk of contracting Covid-19, at least to a moderate degree.

The answers regarding the extent to which people felt they could influence their chances of contracting Covid-19 were distributed very unevenly across the seven possible answer categories (Fig. 4.3): While more than one in ten persons (12.2 per cent) gave values of 1 or 2—i.e. they thought they had a low influence—more than one in five (22.9 per cent) gave values of 6 of 7, which indicates high influence. Almost two-thirds (64.9 per cent) gave values between 3 and 5 and thus indicated moderate perceived influence. The most frequently reported score was 5 (32 per cent), while the extreme values 1 (no influence at all: 7.3 per cent) and 7 (complete influence: 6.1 per cent) were given by less than 10 per cent of respondents each.

Comparing these three groups (low, medium or high perceived influence on contracting Covid-19) according to various characteristics (Fig. 4.4), we noticed the following pattern: As far as age was concerned, the "young old" individuals aged between 61 and 75 years tended to rate their influence highest. In this group,

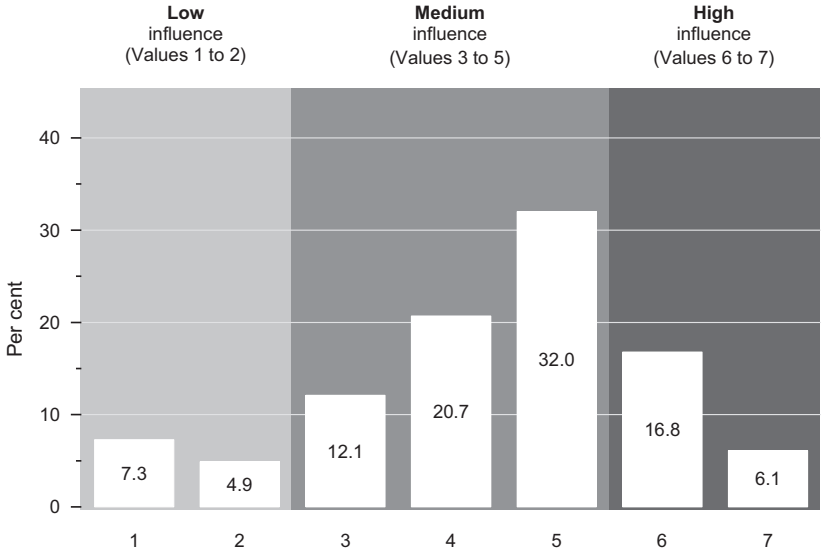

Fig. 4.3 Subjective influence on the risk of contracting Covid-19, distribution (in per cent) across seven response categories from 1 (not at all) to 7 (entirely). *Source* DEAS 2020 (n = 4604), weighted analyses, rounded estimates

a smaller proportion (9.3 per cent) perceived their influence as low than in the oldest group (16.5 per cent) and the youngest group (12.8 per cent). Among these "young olds", there were also more people who perceived moderate influence (67.2 per cent) than among those aged 76 and over (60.8 per cent) and those aged 46 to 60 (64.7 per cent). In contrast, similar proportions of individuals perceived high influence in all three groups, ranging between 22 and 24 per cent.

There were no differences in perceived influence between women and men. More than one in five women and one in five men believed they had a high influence on contracting Covid-19, while slightly more than one in ten women and one in ten men believed they had a low influence.

Education, on the other hand, did relate to perceived influence: While about 17 per cent of people with low and medium educational levels reported perceiving little influence over a possible Covid-19 infection, the corresponding proportion was 10 per cent points lower for people with a high educational level, at less than 7 per cent. On the other hand, more people with a high educational level perceived having moderate or high influence than people with low or medium educational levels.

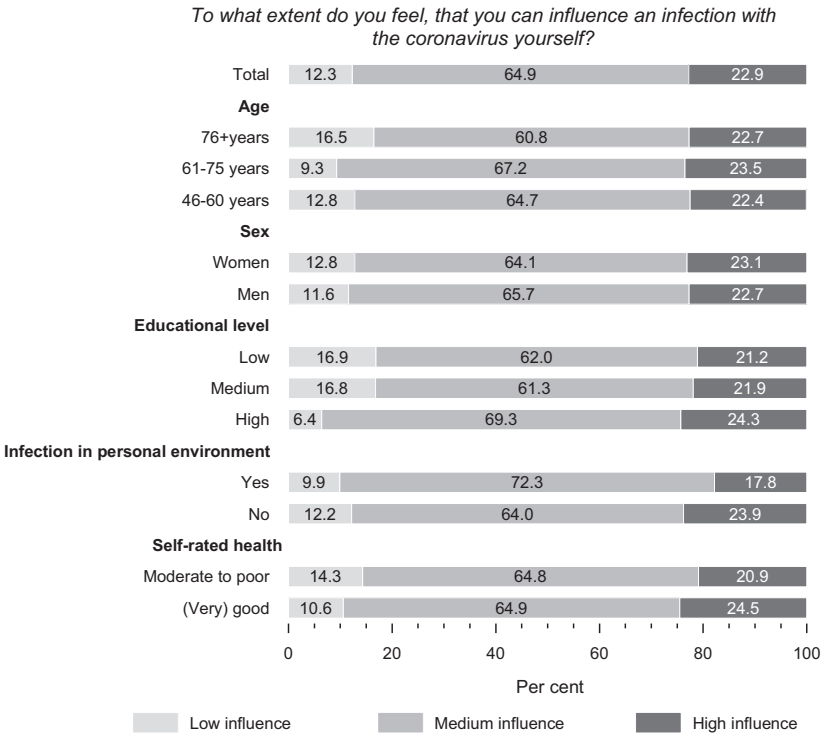

Fig. 4.4 Subjective possibilities of influencing the risk of Covid-19 infection according to age, gender, education, infections in the personal environment and self-rated health (in per cent). *Source* DEAS 2020 (n = 4604), weighted analyses, rounded estimates. Group differences statistically significant for educational level and self-rated health ($p < 0.05$)

Covid-19 cases in an individual's personal environment were apparently less relevant for perceived influence: Slightly more people without Covid-19 in their environment perceived low influence (12.2 per cent) than people with Covid-19 in their personal environment (9.9 per cent). However, this was balanced out by the fact that more people without Covid-19 in their environment also perceived having a high influence (23.9 per cent) than among those with Covid-19 in their personal environment (17.8 per cent).

Finally, there were also differences in subjective influence depending on self-rated health: more people with good self-rated health (24.5 per cent) perceived having a high influence than those with poorer self-rated health (20.9 per cent).

Likewise, more people (14.3 per cent) with moderate to poor self-rated health believed that they had a low influence on contracting Covid-19, while among people with very good or good self-rated health, the proportion was lower (10.6 per cent).

4.6 Associations between Perceived Threat and Subjective Influence on the Risk of Infection

Perceived threat and subjective influence were only weakly interrelated

How was the threat experience related to perceived influence on contracting Covid-19? There was a positive correlation (more perceived influence was associated with stronger threat experience), but the relationship was complex and not clear-cut (Fig. 4.5). More people in the moderate threat group perceived having a moderate influence (76.2 per cent) compared to those who indicated a low (58.3 per cent) or high (49.1 per cent) threat. Among the high threat group, more people perceived having a high influence (31.5 per cent) than in the other groups (low threat: 27.6 per cent; moderate threat: 15.8 per cent). At the same time, however, more people in this group experienced having a low influence (19.5 per cent) than in the other groups (low threat: 14.1 per cent; medium threat: 8 per cent).

4.7 Perceptions of the Covid-19 Crisis and Subjective Well-Being

People who felt more threatened by the Covid-19 crisis and who perceived having a lower influence on contracting Covid-19 were less satisfied with their lives and reported more severe depressive symptoms

People's sense of threat due to the Covid-19 crisis and the extent to which they thought they could influence their likelihood of contracting Covid-19 might have been related to how satisfied they were with their lives and whether they experienced clinically relevant symptoms of depression. To investigate this, we compared the proportions of people with low, medium and high levels of perceived threat, and of people with low, medium and high levels of perceived influence on contracting Covid-19, who reported high levels of satisfaction with their lives and who had high levels of depressive symptoms.

There was indeed a substantial correlation (Fig. 4.6): the lower the perceived threat from the Covid-19 crisis, the higher the proportions of respondents who reported high life satisfaction. More than 80 per cent of respondents with low

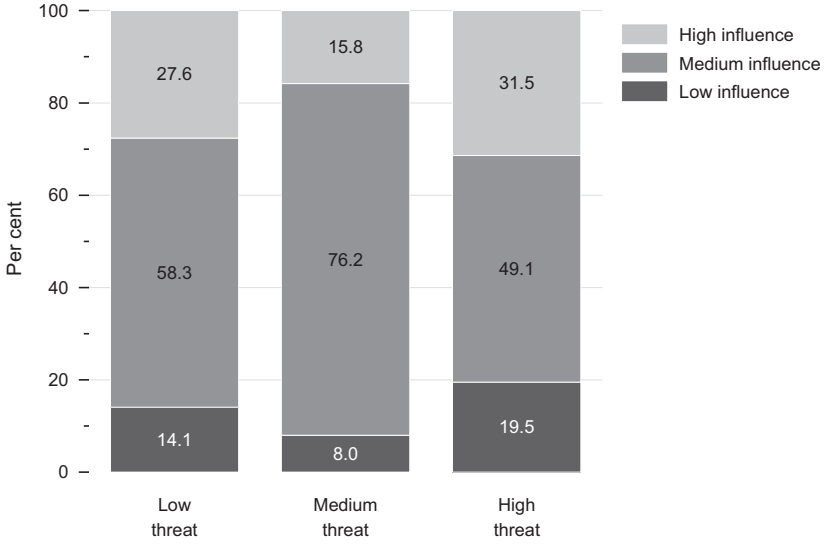

Fig. 4.5 Association between perceived threat and perceived influence on contracting Covid-19, shares in per cent. *Source* DEAS 2020 (n = 4604), weighted analyses, rounded estimates. The correlation between threat experience and subjective influence is statistically significant ($p < 0.05$)

perceived threat were very satisfied with their lives, compared to only about 50 per cent of respondents with high perceived threat—a difference of more than 30 per cent points. The differences in depressive symptoms were similarly marked: while less than 10 per cent of respondents in the low threat group reported pronounced symptoms, more than five times as many, 37.6 per cent, reported pronounced depressive symptoms in the high threat group.

Differences in well-being depending on subjective influence on contracting Covid-19 virus were not quite as large but also striking (Fig. 4.7). Significantly more people who reported a high subjective influence were very satisfied with their lives (81.3 per cent) than among those who reported low subjective influence (65.1 per cent). Similarly, among those who reported having low influence, people with pronounced symptoms of depression were almost twice as prevalent (18.2 per cent) compared to those who perceived a high subjective influence (10.7 per cent).

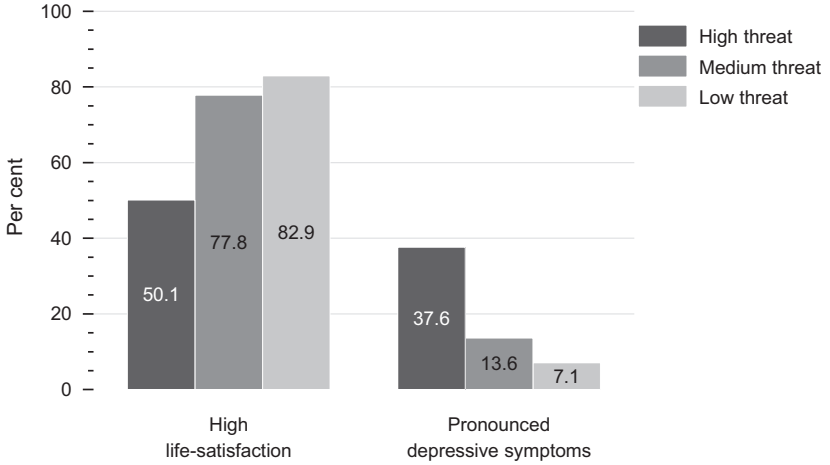

Fig. 4.6 Life satisfaction and depressive symptoms according to assessments of personal threat (in per cent). *Source* DEAS 2020 (Life satisfaction: n = 4729, depressive symptoms: n = 4720), weighted analyses, rounded estimates. Group differences statistically significant ($p < 0.05$)

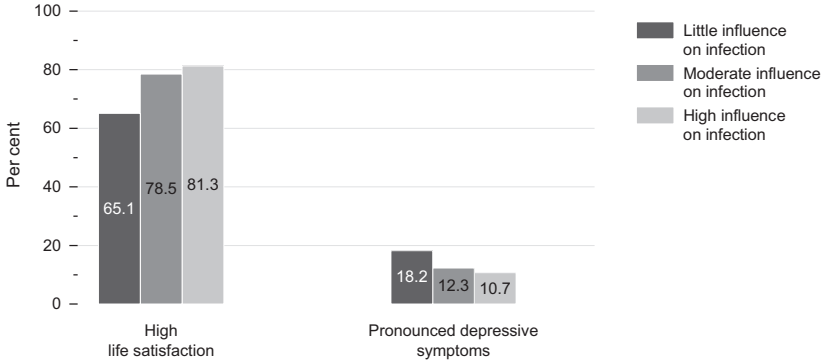

Fig. 4.7 Life satisfaction and depressive symptoms according to subjective influence on contracting Covid-19 (in per cent). *Source* DEAS 2020 (life satisfaction: n = 4593, depressive symptoms: n = 4586), weighted analyses, rounded estimates. Group differences statistically significant ($p < 0.05$)

4.8 Conclusion

The results on perceived threat and subjective influence on contracting Covid-19 show that most people, about 91 per cent, felt only a low to moderate degree of threat due to the pandemic, and most people (88 per cent) perceived themselves as having a moderate to high influence on their capacity to protect themselves from contracting Covid-19. However, the results also show that about one in ten people reported feeling a high level of threat, and likewise more than one in ten people reported having little influence over a possible infection with Covid-19.

How can we characterise those who felt highly threatened by the pandemic? People with higher levels of education felt mildly threatened by the Covid-19 crisis than people with a lower educational level. In contrast, the factors age, gender, and Covid-19 cases in the individual's own environment hardly differed for people with a higher vs. a lower threat experience. This also means that, at every age and among both men and women, there was a proportion of people of about 10 per cent or more who felt very threatened.

People in middle adulthood did not necessarily feel less threatened than older people. This may seem surprising at first glance, since older people objectively have a higher risk of severe and even fatal Covid-19. Nevertheless, for the most part, older people were seemingly able to cope with the threat without too much worry. Life experience and experiences of previous crises may have helped older people to not feel too threatened. This has also been confirmed by other studies that show that fear of Covid-19 was relatively independent of age (e.g., Pearman et al. 2020).

This also suggests that even if people face a growing risk of severe Covid-19 as they get older, it is unhelpful to adopt a paternalistic attitude towards older people and even to generally stigmatise them as a particularly vulnerable and homogeneous group. Ultimately, *all* population groups require protection from Covid-19, because other age groups—including those below the ages of 50 to 60, which is the point at which people have a higher risk of severe Covid-19 (Robert Koch Institute 2020)—may face significant risks (for instance, due to certain previous illnesses). Likewise, *all* population groups should contribute to protecting others and themselves. At the beginning of the Covid-19 pandemic, some feared an increase in ageism and intergenerational conflict (Ayalon et al. 2020; Ehni and Wahl 2020; Meisner 2021); there are now findings available that confirm these fears (Jimenez-Sotomayor et al. 2020). Ageism and pessimistic societal images of ageing negatively affect how people experience their own ageing, and this in turn has detrimental consequences on well-being, health and even life expectancy (Levy et al. 2020; Westerhof and Wurm 2015). Thus, it is important that policy-

makers and the media counteract one-sided images of ageing that overemphasise the vulnerability of older people. On the contrary, most older people were able to cope with the crisis and were not more worried than younger people.

When it comes to perceived influence on therisk of contracting Covid-19, the following age pattern emerged: apparently "young olds" (61–75 years) perceived themselves as having greater influence than "old olds" (over 75 years) but also than people in middle adulthood (46–60 years). Education also played a role in perceived influence: people with higher educational levels were more likely to believe that they had an influence on their chances of contracting Covid-19. In fact, having a higher educational level was associated with certain protective factors, such as the option to work from home (Schröder et al. 2020). More should be done to ensure that people with lower educational levels, who often work in more exposed occupations, also have a lower objective and perceived risk of contracting Covid-19. In addition to working from home, this could include protective measures for certain occupational groups—for instance, high-quality protective equipment such as masks and rapid tests in facilities that are particularly at risk.

The role of self-rated health in threat experience and subjective influence

Self-rated health was more strongly related to the experience of threat and influence than any other factor: people who felt less healthy also experienced the pandemic as more threatening and saw fewer opportunities to avoid contracting Covid-19. This is plausible, as people who feel less healthy are generally also objectively less healthy, and certain pre-existing conditions are indeed a risk factor for severe Covid-19 (Robert Koch Institute 2020). Self-reported health status and concerns about one's own health were thus found to be highly relevant for fears and threat experiences during the Covid-19 pandemic (Jungmann and Witthöft 2020; Traunmüller et al. 2020). Therefore, people with poor self-rated health should continue to receive optimal medical care and treatment for the entire duration of the Covid-19 pandemic. In everyday life, too, these people with health problems should be supported in minimising their risk of infection. Measures such as wearing masks and keeping minimum physical distance help to protect this group of people as well—if they are followed consistently and by everyone.

The connection between threat experience and subjective influence

Interestingly, threat perception and perceived influence were relatively independent of each other. In fact, slightly more people tended to perceive themselves as having a significant influence on their risk of infection when they felt more threatened. People with a high threat perception may have been particularly consistent in terms of protecting themselves by wearing masks and keeping a distance

to others, such that they perceived themselves as having a greater influence on their risk of infection. At the same time, however, the very threatened group also had the highest proportion of people who perceived themselves as having a low influence on their risk of contracting Covid-19, which shows that the relationship between both variables is complex. People who were confident that they would not contract Covid-19 might still have felt threatened, because the pandemic may not have only been a threat to health, but also to individuals' jobs, financial situations or social relationships.

What did the experiences of high or low threat mean in the pandemic? In general, people tended to overestimate their risk of contracting life-threatening Covid-19 (Hertwig et al. 2020). This may have had positive effects because these people might have been particularly careful in their everyday lives and protected themselves more consistently against possible infection. On the other hand, excessive worry could have endangered mental health. Balanced information about the threat posed by Covid-19 from both policymakers and the media is therefore crucial. Recklessness and panic within the population should be avoided. Moreover, those who felt well informed about Covid-19 and who were satisfied with the available information also tended to be less afraid of the virus (Jungmann and Witthöft 2020; Traunmüller et al. 2020).

Perception of the Covid-19 crisis and subjective well-being

Individuals with very strong threat perceptions and very low subjective influence were more psychologically distressed, as suggested by other studies conducted during the Covid-19 pandemic (Kivi et al. 2020; Losada-Baltar et al. 2020; Zacher and Rudolph 2020). Our findings also show that well-being—operationalised via life satisfaction and depressive symptoms—was lower among those who felt more threatened by the pandemic and who perceived themselves as having less influence on contracting Covid-19. Even if it is certainly appropriate to avoid trivialising threats and being careless, pandemic-induced increases in worries may have had negative consequences for quality of life. Our results show that this affected about 10 per cent of people in the second half of life who felt very threatened and who experienced little control over the possibility of contracting Covid-19 and who also reported lower life satisfaction and more severe depressive symptoms. However, depressive symptoms may have also led to an increased experience of threat, or both factors may have influenced each other.

Summary

Most people in the second half of life did *not* feel overly threatened by the pandemic, and most also perceived themselves as having a certain capacity to influence their chances of contracting Covid-19. Nevertheless, there were people in

every population group who felt more threatened and believed they had less influence over contracting Covid-19.

Differences in the experience of threat and influence were only weakly related to age. Instead, those who felt less healthy also felt more threatened by the pandemic and were more likely to believe they had little influence on contracting Covid-19. Low- and medium-educated individuals also perceived themselves as having less influence on contracting Covid-19 than highly educated ones. These individuals with poorer self-rated health and with lower educational levels might need better support to minimise their risk of contracting Covid-19. Medical help that leads to better—perceived and objective—health may be just as important as measures to promote a higher personal impact on contracting Covid-19 (e.g. working from home, support from others with grocery shopping etc.).

Note that these results are a snapshot from the summer (June and July) of 2020. During this period, many of the measures to contain the virus had already been relaxed and the number of people who had contracted Covid-19 was low. This certainly contributed to the fact that few people felt very threatened by the pandemic in June and July 2020. Experiences of threat and control are dynamic and very likely highly dependent on underlying conditions such as current case numbers and trends. Repeated measurements are therefore needed to map these dynamics and to better understand which factors predict changes in threat and control experiences as the Covid-19 crisis continues.

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How Healthy did Older People Feel During the Pandemic Who had not Experienced Covid-19 Themselves?

5

Stefan Stuth and Jenna Wünsche

5.1 Key Messages

The self-rated health of people in the second half of life did not deteriorate between 2017 and the second pandemic wave in winter 2020/21. Among people who did not report having been infected with the coronavirus, the proportion of people with (very) good and (very) poor health assessments remained unchanged; only the proportions reporting moderate health assessments decreased. This is particularly remarkable, because respondents' self-rated health deteriorated in the period from 2014 to 2017. It is possible that, for some respondents, being asked to compare their own state of health with the sometimes very poor health situations of people seriously ill with Covid-19 led them to more favourably assess their own health. This could explain why the previously observable downward trend in self-rated health assessments slowed down during the Covid-19 pandemic.

Changes in self-rated health between 2017 and the second pandemic wave depended on the age at which people experienced the Covid-19 pandemic: the most favourable developmental trend among people in the second half of life was evident in the youngest age group. Among working-age respondents, there was an improvement in self-rated health between 2017 and the winter of 2020/21 that, interestingly, was not yet evident between 2014 and 2017 and could thus be indicative of a pandemic-related trend. Among respondents who were at

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an age threshold around which people enter their retirement, self-rated health had stabilised by winter 2020/21 after an observable deterioration between 2014 and 2017. Respondents of retirement age continued to experience a persistent deterioration in their health assessments between 2014, 2017 and winter 2020/21, indicating an age-related rather than a pandemic-related trend.

Both women and men assessed their health during the second wave of the pandemic in a similar way as in 2017. While men did not experience any changes in their self-rated health between 2014 and 2017, women experienced a deterioration in their self-rated health during the same survey period. However, this development did not continue during the Covid-19 pandemic.

The development of self-rated health was similar between 2017 and the second wave of the pandemic among people with different socioeconomic status (SES). Regardless of whether people had a low, middle or high socioeconomic status, they did not experience a deterioration or an improvement in their self-rated health assessments between 2017 and the winter of 2020/21. While there were no upward or downward trends among people from the highest status group between 2014 and 2017, self-rate health deteriorated among people from the other two status groups during this survey period. For these two groups, as well as people in transition to retirement and women, there was evidence of an interruption of the downward trend in self-rated health until the second wave of the Covid-19 pandemic.

5.2 Introduction

Self-rated health describes an individual's assessment of their own state of health. This self-assessment includes information on illnesses and physical impairments but also on psychological and social well-being (Miilunpalo et al. 1997). Unlike other health indicators, however, self-rated health is difficult for external observers to assess—because people do not rely solely on objective information when assessing their health but arrive at an overall judgement of their health through complex assessment processes. For example, people compare their own health with that of other people. In addition, people can differ in the extent to which they incorporate a wide range of information about their own health into their overall health assessment (Jylhä 2009). This high degree of subjectivity is reflected in the fact that people's health assessments remain significantly more positive into late adulthood than would be expected based on age-related physical decline alone (Spuling et al. 2017). One reason for this is that older people tend to compare their health with that of other older people. Their physical limitations are thus

perceived as more "normal" and are deemed less important when they assess their own state health (Cheng et al. 2007).

Self-rated health hence exhibits a certain adaptability to a deteriorating health situation, meaning that people can feel subjectively healthy even if this does not seem plausible from the outside. The question to be answered in the following is: how effectively have people in the second half of life managed to preserve their self-rated health assessments in the face of the many challenges of the Covid-19 pandemic? To answer this question and to separate the direct health impact of a coronavirus infection from the indirect health challenges caused by pandemic-containment measures, this article focuses on people in the second half of life who had not contracted Covid-19 themselves when surveyed.

The measures taken to contain the Covid-19 pandemic may have negatively affected health and well-being in a variety of ways (Gaertner et al. 2021). Contact restrictions and physical distancing rules, switches from working in the office to working from home or to short-time work, and also fears and losses related to the coronavirus have shaped the respondents' everyday life. It is therefore hardly surprising that previous studies have revealed sometimes very unfavourable trends in a wide range of health-related areas of life due to the Covid-19 pandemic: by the summer of 2020, the risk of loneliness (see chapter "Loneliness increased significantly among people in middle and older adulthood during the Covid-19 pandemic") and psychological stress (Skoda et al. 2021) had increased and the proportion of people who were physically active had decreased. (see chapter "Physical activity during the Covid-19 pandemic. Changes in the frequency of sport and walking among people in the second half of life"). It is possible that people in the second half of life reached the limits of the adaptability of their subjective health assessments because of the impact of the Covid-19 pandemic on social inclusion, psychological well-being and a physically active lifestyle, which are important pillars of health. If this is the case, it should have manifested in a deterioration of self-rated health.

Are there population groups whose health was more robust to the challenges of the Covid-19 pandemic and are there social groups that were more vulnerable and thereby experienced greater declines in health assessments in the wake of the Covid-19 pandemic?

First, *age* should play a role in how self-rated health changed during the Covid-19 pandemic. Older people have been and continue to be a particular focus of attention these days. According to the Robert Koch-Institute (2020), the risk of severe Covid-19 increases steadily from the age of 50 to 60. While the increased risk for older adults is statistically undisputed, we can also assume that the communication of risks by politicians and the media had undesirable side effects.

The omnipresent portrayal of older people as a particularly vulnerable group, the avoidance of social contacts with older people and possible experiences of paternalism among family and friends could have particularly damaged older people's health-related self-concept and social well-being. It is therefore conceivable that older adults' self-rated health suffered more during the Covid-19 pandemic than the self-rated health of younger age groups.

We could also expect to find differences in pandemic-related changes in self-rated health with regard to *gender.* Although men and women have reported feeling similarly healthy in past DEAS surveys (Wurm et al. 2010; Spuling et al. 2017), women's self-rated health may have particularly deteriorated due to their pandemic-related increase in care and support provision. In fact, not only did women greatly increase the care they provided to relatives in the summer of 2020, but women providing care also exhibited a particularly large increase in depressive symptoms (see chapter "Covid-19 crisis = care crisis? Changes in care provision and care-givers' well-being during the Covid-19 pandemic"). The increased psychological burden of caring for relatives could have contributed to the fact that women experienced greater deteriorations in self-rated health during the Covid-19 pandemic than men.

Finally, differences between *socioeconomic status (SES) groups* might have played a role in the development of self-rated health during the Covid-19 pandemic. Previous studies have already impressively documented the health-related disadvantages experienced by people with low versus high SES. For example, people with high SES seem to be less likely to report health-related limitations in their daily lives, they are more likely to rate their overall health and mental well-being as better, and they are ultimately more likely to live longer than people from lower socioeconomic backgrounds (Lampert and Hoebel 2019 for an overview). Occupational status, income and educational background are taken into account when classifying people's SES (Ganzeboom et al. 1992). In this respect, the often poorer health of lower SES individuals can be attributed, among other things, to psychological stress due to financial hardship, unfavourable working conditions and poorer health knowledge (Kroh et al. 2012). These inequality dynamics may have been further exacerbated by the pandemic: Lower SES individuals had less material resources to compensate for pandemic-related wage losses, a greater likelihood of working in occupations with an increased risk of infection (e.g., factory jobs) and a perceived inability to control their own likelihood of infection (Rattay et al. 2021; see chapter "How did individuals in the second half of life experience the Covid-19 crisis? Perceived threat of the Covid-19 crisis and subjective influence on a possible infection with Covid-19"). These factors may have contributed to the fact that socioeconomically disadvantaged peo-

ple felt particularly threatened by and burdened with health problems during the Covid-19 pandemic.

Research questions
Against this background, this chapter examines the following questions:

- What changes in self-rated health were seen during the Covid-19 pandemic in people in the second half of life who did not themselves contracted Covid-19?
- How did changes in self-rated health differ between specific population groups (age groups, gender and socioeconomic status groups)?

The results presented in this chapter are based on the most recent survey wave of the German Ageing Survey, which was conducted during the second wave of the Covid-19 pandemic (winter 2020/21), as well as on two further survey waves conducted before the Covid-19 pandemic (2014 and 2017). All analyses are based on a longitudinal dataset that was refined to only include respondents who participated in each of the three survey waves and who had not contracted Covid-19 themselves by the time of the survey. To gain insights into how self-rated health changed in the wake of the Covid-19 pandemic, the analysis examined trends in self-rated health between 2014 and 2017 and compared them with trends between 2017 and the winter of 2020/21. This made it possible to distinguish "normal" age-related changes in the assessment of self-rated health from changes that were presumably due to the changed living situation following the Covid-19 containment measures. Of course, the Covid-19 pandemic could also have had a direct negative impact on self-rated health, i.e. via severe Covid-19. However, in winter 2020/21, only 2.29 per cent (n = 93) of DEAS participants reported having contracted the coronavirus. This group of people is too small to enable representative analyses of the health consequences of a coronavirus infection. However, to be able to separate the health consequences of a Covid-19 infection from the overall impact of the pandemic situation—such as the threat posed by the virus, worries about relatives, consequences of pandemic-containment measures—this chapter concentrates exclusively on health assessments by people who stated that they had not contracted Covid-19 themselves.

The following evaluations are thus based on the information provided by 4054 people who remained in the sample after these selection criteria were applied. These were respondents who were between 40 and 90 years of age in the 2014 DEAS survey, who also participated in the 2017 and 2020/21 DEAS surveys and who stated that they had not contracted the coronavirus up to the time of the last survey in the winter of 2020/21. The analyses will examine how these individu-

als' self-rated health changed when comparing the survey years 2014, 2017 and the winter of 2020/21. They will also examine whether there were age, gender or socioeconomic differences in a) the baseline level of self-rated health in 2014 and b) the changes in self-rated health between 2014 and 2017 or 2017 and the winter of 2020/21.

The analyses tested whether the observable changes were statistically significant by comparing proportion values, taking into account the variance and the complex sample design of the German Ageing Survey.

It should be noted that people who participated in all three survey waves might differ systematically from those who skipped at least one survey. For example, individuals who enjoyed particularly good health might have participated consistently in the DEAS surveys, while those who increasingly experienced poor health might have dropped out of the study or missed interviews. If this possibility was not taken into account, one would arrive at an overly positive evaluation of health trends during the Covid-19 pandemic. To counter this methodological problem, the evaluations used longitudinal weights. The weights were developed with the help of statistical models and assigned a higher value to population groups that more often do not participate in the survey, for example, due to poor health. This established statistical method delivers representative and unbiased results, even if not every respondent participates in every DEAS survey.

In order to answer the present questions, information on the following topics was evaluated:

Self-rated health

Respondents were asked to rate their current state of health. They had the choice between the answer alternatives very good, good, medium, poor and very poor. The answers very good and good were combined in the group "(very) good". The answers poor and very poor were combined in the group "(very) poor".

Grouping variables

Age. Three age groups were formed to examine the role of age. The year 2014 served as the reference year. In 2014, 43.3 per cent of the respondents were between 40 to 59 years old, 23.9 per cent were between 60 to 69 years old and 32.8 per cent were between 70 to 90 years old. Within the observation period, all respondents aged by about six years: for example, people in the youngest age group were between 40 to 59 years old in 2014, they were between 43 to 62 years old in 2017, and between 46 to 65 years old in 2020/21. For the sake of simplicity, we will refer to the respondents' age in 2014 when presenting the results.

Gender. Women and men were identified based on their self-reports (men: 45 per cent of all respondents; women: 55 per cent of all respondents).

Socioeconomic status. Socioeconomic status (SES) refers to the position of individuals within society. Respondents' SES is measured using the Socio-Economic Index of Occupational Status (ISEI; Ganzeboom et al. 1992) and is based on the occupation that the respondent is or was most recently engaged in. The ISEI combines information on income and education to determine the socioeconomic status of occupations and can range between a value of 12 (agricultural assistants) and 90 (judges). Respondents' ISEI values were averaged over all three survey time points, then ranked in ascending order and divided into 5 equally sized subgroups (quintiles). Following the procedure of the Robert Koch Institute (Lampert et al. 2013) respondents belonging to the first subgroup (18.9 per cent) were categorised as respondents with low SES. Respondents belonging to subgroups 2, 3 or 4 (61.1 per cent) were deemed to have a middle SES and persons belonging to the last subgroup (20 per cent) were categorized as having a high SES.

5.3 Changes in Self-Rated Health During the Covid-19 Pandemic

In 2014, more than half (55.5 per cent) of people aged 40 and older rated their health as (very) good (Fig. 5.1). A third (34.6 per cent) of respondents reported having moderate health and one in ten (9.9 per cent) rated their health as (very) poor. By 2017, respondents' self-rated health had worsened: just 51.2 per cent reported (very) good health, while the proportion of respondents reporting moderate health had increased to 37.5 per cent. The (very) poor health ratings, by contrast, remained stable. This unfavourable development did not continue into the winter of 2020/21 but rather slowed down: During the second wave of the Covid-19 pandemic, the same proportions of respondents rated their health as (very) good or (very) poor as had done in 2017. Only the group reporting moderate health declined slightly (by 2.5 per cent points).

To investigate how self-rated health developed during the Covid-19 pandemic among people from different population groups, we differentiated changes in self-rated health by age, gender and socioeconomic status.

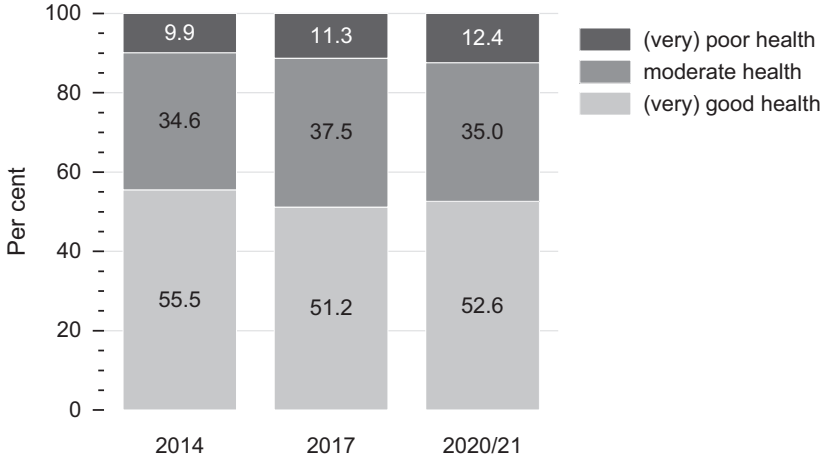

Fig. 5.1 Changes in self-rated health, total, 2014, 2017 and 2020/21 (in per cent). *Source* DEAS 2014 (n = 4054), DEAS 2017 (n = 4054), DEAS 2020/21 (n = 4054), weighted analyses, rounded estimates. Statistically significant changes between 2014 and 2017, ($p < 0.05$): Decrease in the proportion of people with (very) good self-rated health; increase in the proportion of people with moderate self-rated health. Statistically significant changes between 2017 and 2020/21 ($p < 0.05$): Decrease in the proportion of people with moderate self-rated health

5.4 Age Differences in Changes in Self-Rated Health

For people from different age groups, different trends in self-rated health were evident in the study period (2014, 2017 and 2020/21, Fig. 5.2).

In the initial survey year, the level of self-rated health already differed between the youngest and oldest age groups: In 2014, people of working age (40–59-year-olds) more often reported (very) good health (58.2 per cent) and less frequently reported moderate health (31.5 per cent) than people of retirement age (70–90-year-olds), of whom 50.7 per cent rated their health as (very) good and 39.5 per cent reported their health as moderate.

Respondents from the youngest age group assessed their self-rated health as similar in 2014 (then aged 40 to 59) and 2017 (when they were aged 43 to 62). In the winter of 2020/21 (when they were aged 46 to 65), by contrast, they more frequently rated their health as (very) good (increase of 5.8 per cent points) and less frequently as moderate (decrease of 4 per cent points) than in 2017. Since self-

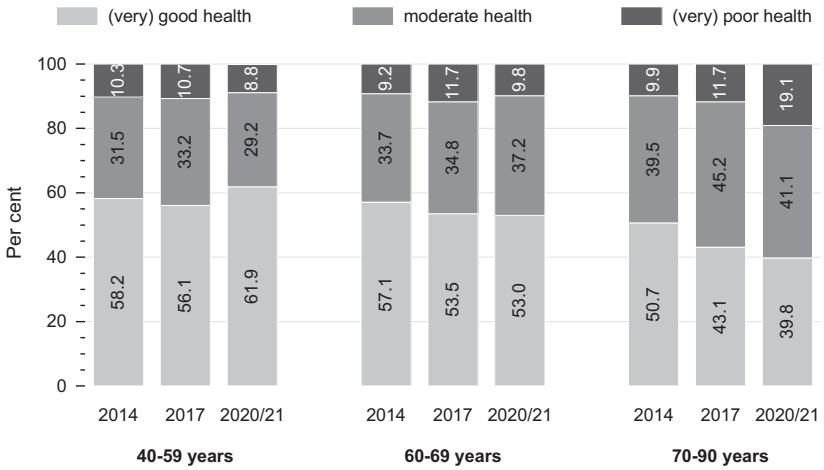

Fig. 5.2 Changes in self-rated health, by age group, 2014, 2017 and 2020/21 (in per cent). *Source* DEAS 2014 (n = 4054), DEAS 2017 (n = 4054), DEAS 2020/21 (n = 4054), weighted analyses, rounded estimates.Statistically significant changes between 2014 and 2017, ($p < 0.05$): Decrease in the proportion of people with (very) good self-rated health among 60–69-year-olds and 70–90-year-olds. Statistically significant changes between 2017 and 2020/21, ($p < 0.05$): Increase in the proportion of people with (very) good self-rated health and decrease in the proportion of people with moderate self-rated health among 40–59-year-olds; increase in the proportion of people with (very) poor self-rated health among 70–90-year-olds. Age groups differ statistically significantly ($p < 0.05$) in the baseline level in 2014 between 40–59-year-olds and 70–90-year-olds in terms of (very) good and medium health

rated health remained stable between 2014 and 2017, and the favourable developmental trend only emerged between 2017 and 2020/21, this suggests a connection with the Covid-19 pandemic.

For people who belonged to the middle age group in 2014 (60- to 69-year-olds in 2014), trends in self-rated health were less positive in the same observation period. In 2017 (when they were aged 63 to 72 years old), fewer respondents reported (very) good health than in 2014 (decrease of 3.6 per cent points). However, this trend did not continue into the second pandemic wave. Instead, people who were around the age related threshold to retirement in 2014 assessed their health in the survey year 2020/21 (when they were aged 66 to 75) as similar to their health in 2017. Hence, the previously observable deterioration in self-rated health stopped.

However, the most unfavourable developmental trend in self-rated health was in the oldest age group (70 to 90-year-olds in 2014). Like the middle age group, they also rated their health as worse in 2017 (when they were aged 73 to 93) than in 2014. The deterioration was due to a decline in (very) good health ratings by 7.6 per cent points. Unlike in the middle age group, however, in the older age group, this deterioration continued into the second wave of the Covid-19 pandemic in the winter of 2020/21 (when they were aged 76 to 96) and manifested in an increase of 7.4 per cent points in (very) poor health ratings. This continuing deterioration suggests that the unfavourable change in self-rated health in the oldest age group was due more to age-related and less to pandemic-related deteriorations in health.

Thus, when we look separately at changes in self-rated health for people from different age groups, we find indications that existing age group differences evident in 2014 had widened by the second wave of the Covid-19 pandemic. The growing divergence in subjective health ratings was the result of improvements in self-rated health among the youngest age group on the one hand and deteriorations in self-rated health in the middle and oldest age groups on the other. However, it should be emphasised once again that the deterioration in self-rated health among the oldest age group points to an age-related rather than a pandemic-related development.

5.5 Gender Differences in Changes in Self-Rated Health

Looking at gender differences in trends in self-rated health between 2014, 2017 and 2020/21 (Fig. 5.3), it is clear that women and men did not differ significantly in their baseline levels of self-rated health. That is, women and men in the second half of life felt similarly healthy in 2014. However, gender differences in changes in self-rated health can be observed: Women, but not men, were less likely to report (very) good health in 2017 (a decrease of 5.9 per cent points) and more likely to report moderate health (an increase of 4.8 per cent points) than in 2014, but this deteriorating trend among women did not continue into winter 2020/21. Instead, both women's and men's health ratings remained stable between 2017 and the second wave of the Covid-19 pandemic.

Gender differences in self-rated health thus increased during the observation period, to the disadvantage of women. However, this increasing disparity does not seem to be attributable to the Covid-19 pandemic, as the gender differences in changes in self-rated health were evident between the years 2014 and 2017 but not between 2017 and 2020/21.

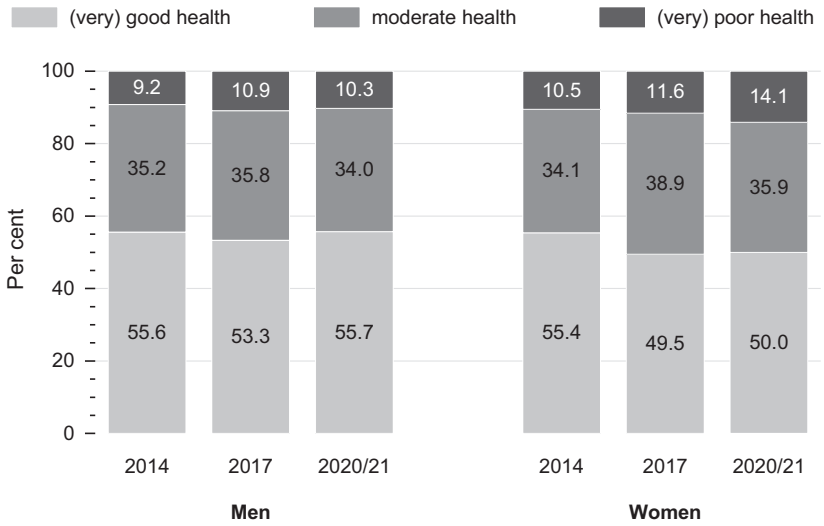

Fig. 5.3 Change in self-rated health, by gender, 2014, 2017 and 2020/21 (in per cent). *Source* DEAS 2014 (n = 4054), DEAS 2017 (n = 4054), DEAS 2020/21 (n = 4054), weighted analyses, rounded estimates. Statistically significant changes between 2014 and 2017, ($p < 0.05$): Decrease in the proportion of women with (very) good self-rated health; increase in the proportion of women with moderate self-rated health. No statistically significant changes between 2017 and 2020/21, ($p < 0.05$). Gender differences in baseline levels in 2014 are not statistically significant ($p < 0.05$)

5.6 Socioeconomic Differences in the Change of Self-Rated Health

Differences in socioeconomic status (SES) play a clear role in subjective health assessments (Fig. 5.4). Compared to people with low or middle SES, people with high SES more often reported (very) good health in 2014. Among people from the highest status group, the proportion of respondents with (very) good health ratings was 67.1 per cent, while only 55.4 per cent of respondents from the middle status group and 43.4 per cent of respondents from the low status group had (very) good health ratings. At the same time, (very) poor health ratings were less commonly reported by people with high SES (7.3 per cent) than among people with low SES (16.4 per cent). But how did the socioeconomic differences develop up to the second wave of the Covid-19 pandemic?

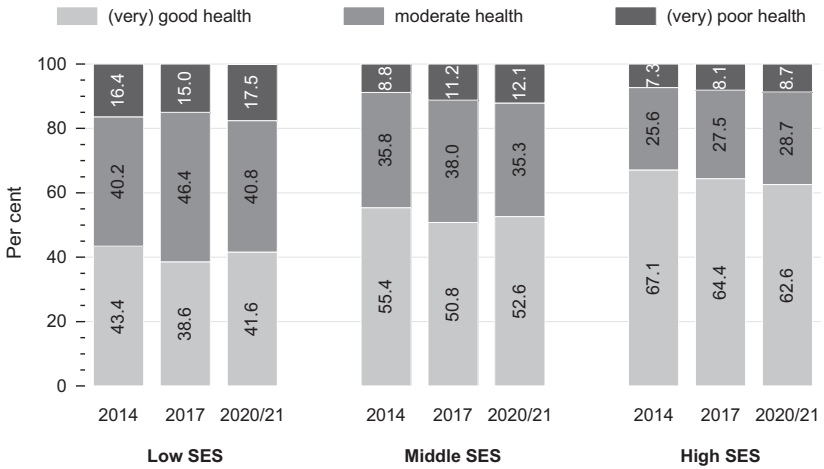

Fig. 5.4 Changes in self-rated health, by socioeconomic status (SES), 2014, 2017 and 2020/21 (in per cent). *Source* DEAS 2014 (n = 4054), DEAS 2017 (n = 4054), DEAS 2020/21 (n = 4054), weighted analyses, rounded estimates. Statistically significant changes between 2014 and 2017, ($p < 0.05$): Decrease in the proportion of people with (very) good self-rated health among people with low and middle socioeconomic status; increase in the proportion of people with moderate self-rated health among people with low socioeconomic status; increase in the proportion of people with (very) poor self-rated health among people with middle socioeconomic status. Statistically significant changes between 2017 and 2020/21, ($p < 0.05$): Decrease in the proportion of people with moderate self-rated health among people with low socioeconomic status. Socioeconomic differences in baseline levels in 2014 are statistically significant ($p < 0.05$) with the following exceptions: Differences between people with low and middle socioeconomic status are not significant regarding moderate health. Differences between persons with medium and high socioeconomic status are not significant regarding (very) poor health

While people with high SES reported stable self-rated health across the survey waves, people with low and middle SES showed a deterioration in their self-rated health between 2014 and 2017. This trend is due to a decrease in (very) good health assessments in both groups (by 4.8 per cent points in the low SES group and by 4.6 per cent points in the middle SES group, respectively). At the same time, there was an increase in moderate health assessments among people with low SES (by 6.2 per cent points) and an increase in (very) poor health assessments among people from the middle SES group (by 2.4 per cent points). This deterioration, however, did not continue into the winter of 2020/2021. This means that during the second wave of the Covid-19 pandemic, similar proportions of

people from the lower and middle SES groups regarded their health as (very) good and (very) poor as in 2017. However, among the low SES group, there was a decrease in the proportion of people with moderate health assessments by 5.6 per cent points.

The findings thus suggest that socioeconomic differences have widened since 2014. However, the growing inequality is due to the socially stratified deterioration in health between 2014 and 2017. In contrast, socioeconomic disparities did not widen in the wake of the Covid-19 pandemic.

5.7 Summary and Conclusion

Contrary to existing concerns about the possible indirect health consequences of the general pandemic situation (Gaertner et al. 2021), such as the threat of the virus, worries about relatives, or the stress of pandemic-containment measures, people in the second half of life have continued to report relatively stable health status data. On the whole, most people did not report feeling less healthy in the winter of 2020/21—that is, in the midst of the second wave of the Covid-19 pandemic—than they did in 2017.

This trend is particularly noteworthy when it is compared with trends between 2014 and 2017, which showed a deterioration in subjective health assessments. Thus, the downward health-status trend halted in the midst of the Covid-19 pandemic in many social groups: among women, among people who were around the retirement-age threshold in 2014, and also among people with low or middle SES. Men and people with high SES, on the other hand, showed no changes in their health assessments across all survey waves. In the youngest age group, there was even a positive trend in the wake of the Covid-19 pandemic. There was only one group of respondents who reported increasingly negative health status data from 2014, through 2017 to 2020/21—the group of oldest respondents, who were between 70 to 90 years old in 2014. However, since this downward trend was observed over all three observation points, it is more likely to be a "normal" ageing trend. And it would likely have emerged in a similar form even without the influence of the Covid-19 pandemic.

Overall, and contrary to previous assumptions, the results indicated that during the Covid-19 pandemic, there was no deterioration in most people's health (Gaertner et al. 2021)—but rather a stabilisation or even improvement in self-rated health. This is striking in view of the unfavourable developmental trends documented up to the summer of 2020 in other health-relevant areas of life, such as social integration, physical activity and mental health, (see chapters "Loneli-

ness increased significantly among people in middle and older adulthood during the Covid-19 pandemic" and "Physical activity during the Covid-19 pandemic. Changes in the frequency of sport and walking among people in the second half of life"; Skoda et al. 2021). The observable resilience in health assessments offers renewed evidence of the astonishing adaptability of personal health assessments.

It is possible that social comparison processes (Cheng et al. 2007) played an important role in self-rated health assessments during the pandemic. The frequent reporting about patients in intensive care units who were severely ill with Covid-19 and portrayals of older people as a frail risk group may have contributed to many people's awareness of how well they were doing—at least in comparison to others—during the Covid-19 pandemic. In the current literature, this dynamic is described as the "Eye of the Hurricane" paradox (Recchi et al. 2020). The core idea is that people who were themselves little affected by the Covid-19 pandemic found themselves in the calm centre of a pandemic hurricane that apparently had the power to endanger everyday life and social interaction. Consequently, people in the "eye of the hurricane" probably perceived their current life situation as better than normal—or at least they did not perceive it as any worse than before.

At the same time, it can be assumed that unfavourable developments in the social, sporting and psychological spheres were of little importance for individuals' evaluations of their own health during the Covid-19 pandemic, because these developments were part of a shared, almost "normal" experience of stress. Studies have also shown, for example, that feelings of loneliness increased in the second half of life across a wide range of social groups—irrespective of age, gender and educational background. (see chapter "Loneliness increased significantly among people in middle and older adulthood during the Covid-19 pandemic").

Together, social comparison and reweighting processes could explain why self-rated health assessments stabilised and why there was a positive trend in the youngest age group. It should be emphasised, however, that this optimistic self-rated health trend may not translate into an equally favourable development in other, more objective health indicators. Instead, this trend most likely reflects the adaptability of self-rated health to the changed living conditions during the pandemic.

But one question remains: why was the favourable self-rated health trend not evident in the group of the oldest respondents? The answer could be that the oldest population group lacked a comparison group that would help to cast their situation in a better light. The epidemiological reality is that old age is one of the biggest empirical risk factors for developing severe Covid-19. And this very fact has been brought to the attention of older adults through all available media and

political channels. So, unlike other social groups, it may have been difficult for the oldest people in the population to maintain a positive health-related self-concept in light of a one-sided portrayal of their group as a particularly vulnerable and frail. It is known that the media dissemination of an overly negative image of older people can promote unfavourable self-perceptions among those concerned (Kessler 2015). In this respect, the often one-sidedly negative portrayals of older people in the Covid-19 pandemic may have contributed to the deterioration of older adults' self-rated health over the entire study period.

Fortunately, however, the present findings allow for a cautious all-clear regarding a possible worsening of socioeconomic inequality in self-rated health, as the gap between the health ratings of people from different status groups did not widen further, at least between 2017 and the second wave of the Covid-19 pandemic. Nevertheless, clear health disadvantages continued to emerge among socioeconomically disadvantaged people.

Conclusion

Overall, the current findings on the development of self-rated health during the Covid-19 pandemic paint a rather optimistic picture: in most population groups, health ratings stabilised, and there was even a trend towards improved self-reported health ratings among people of working age. Socioeconomic differences in health also did not worsen during the Covid-19 pandemic. These findings reflect the considerable adaptability of self-rated health assessments, although social comparison processes may have played a decisive role.

Only among the oldest adults do we see a persistent trend towards deteriorating health ratings. However, this seems to be due to age-related health developments rather than being a side effect of the Covid-19 pandemic.

Despite the rather positive message regarding self-rated health in most populations, it should be emphasised again that the present findings refer to people in the second half of life who had not themselves experienced a coronavirus infection. Significantly worse trends in objective and self-rated health have been reported for people who were directly affected by a coronavirus infection—and especially for those who experienced severe Covid-19 disease (Gamberini et al. 2021). In addition, the current findings cannot represent the health situation of people in care facilities. However, the particularly strict protection measures in nursing homes probably placed a particular burden on this group's health. Hence, the rather optimistic picture of self-rated health should also be interpreted in view of this limited data situation. Finally, note that the findings presented here pertain

to the changes in subjective health assessments that were evident up to the second wave of the Covid-19 pandemic. Further surveys are necessary to uncover the medium- and long-term health consequences of the Covid-19 pandemic for different population groups.

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Covid-19 Crisis = Care Crisis? Changes in Care Provision and Care-Givers' Well-Being During the Covid-19 Pandemic

6

Ulrike Ehrlich and Daniela Klaus

6.1 Key Messages

The proportion of care-givers increased. In 2017, 16 per cent of all 46–90-year-olds provided care for family members, friends, or neighbours in need of support and care. This compared to 19 per cent during the first wave of the Covid-19 pandemic. This increase was mainly due to women, whose care-giver rate increased from 18 per cent to 22 per cent.

Care provision for neighbours increased significantly. The proportion of those providing care for neighbours increased from seven per cent (2017) to 17 per cent (2020). But the proportion of friend care-givers also increased from seven per cent (2017) to eleven per cent (2020). The most common care recipients in 2020 were still parents-(in-law) (55 per cent).

Care-givers' self-rated health declined slightly during the Covid-19 pandemic. Among care-givers, the proportion who rated their health as (very) good declined from 59 per cent to 56 per cent. However, this change was statistically non-significant. In contrast, non-care-givers rated their health as significantly better during the Covid-19 pandemic than before.

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Care-givers' mental well-being declined during the Covid-19 pandemic. The proportion of care-givers with depressive symptoms increased between 2017 (six per cent) and 2020 (15 per cent). The same was true for the proportion of care-givers who felt lonely: Eight per cent felt lonely in 2017 and 13 per cent in 2020. Women were more affected by these negative trends than men.

Care-givers reported a lack of informal and professional help. A quarter of the people who supported or cared for others during the first wave of the Covid-19 pandemic would have liked more help and relief in this regard, especially from family members.

6.2 Introduction

The Covid-19 pandemic and the governmental regulations to slow down the spread of the Covid-19 virus presented everyone with diverse and lasting challenges. The measures taken to protect the population had to be carefully weighed in their effects and – if necessary – supplemented. For example, studies have shown that the contact and mobility restrictions introduced in March 2020 certainly helped protect people against contracting Covid-19, especially of people in poor health and in need of care. At the same time, however, these restrictions abruptly made it much more difficult to provide help, support, or care for these vulnerable persons. For example, multi-week bans on visits to care homes, social isolation or postponed medical appointments or visits to the hospital were suggested to have negative consequences for the health and well-being of those in need of care (Damerow et al. 2020; Halek et al. 2020).

With the onset of the pandemic, there was a significant additional burden and workload especially for professional care workers, whose great importance was proven once again: Their work was described as "essential" and the debate that has been going on for years about care professionals' poor working conditions gained fresh impetus. However, individuals providing help, support and care without pay for family members, friends or neighbours are also central to maintaining the health and well-being of individuals in need of care, albeit these supportive individuals are often invisible to the public (e.g. German National Association of Senior Citizens' Organisations 2020). Their unpaid care activities constitute the backbone of the German care system (Ehrlich and Kelle 2019) and are the focus of this chapter. The unpaid family-and-friend care may encompass at least one of these activities: personal care (e.g. toileting, dressing or feeding), household tasks (e.g. shopping, cleaning or cooking), supervising or looking after

the person in need of care, performing medical-related or nursing tasks or providing emotional and psychological support (Ehrlich et al. 2020). Throughout this chapter, we use the terms "care" and "care-giver" to refer to the various support and care tasks unpaid family and friend care-givers can perform.

The employment and earnings reductions that arise in response to caregiving have long been known (e.g. Ehrlich et al. 2020; Kelle 2020). In addition, care-givers face threats to their mental and physical health (e.g. Kaschowitz and Brandt 2017; Nowossadeck et al. 2016; Zwar et al. 2018). Moreover, support and care activities are unequally distributed between women and men: Not only do women take on these tasks more often and invest more time than men; they are also more often exposed to the double burden of paid work and caring activities, with negative consequences for their well-being (e.g. Ehrlich 2019; Klaus and Tesch-Römer 2017; Klaus and Vogel 2019; Wetzstein et al. 2015). And while men more often organise care, women more often provide personal care or help with household labour (Dosch 2016).

With the Covid-19 pandemic, these pressures increased and new challenges were added. For example, many care-givers were forced to reorganise their care arrangements, as day-care facilities were closed, and outpatient care services were temporarily overwhelmed due to staff shortages or a lack of protective materials (Wolf-Ostermann et al. 2020). Paid 24-h migrant home care workers (so-called "live-ins") left and were unable or unwilling to re-enter Germany. The pandemic-containment measures made it difficult to move around the country and led to breakdowns in the informal support network of family-and-friend care-givers. Above all, caring for family members who did not live in the same household or lived further away became more difficult. Bans on visits to nursing homes made it impossible to maintain in-person contact with family members residing there. In addition, special caution was required regarding hygiene measures to protect care recipients who were at risk of infection. Due to their pre-existing illnesses and their often-advanced age, these people were at a very high risk of contracting a serious disease, not to forget that many of those providing support and care were in the risk group themselves. As a result, many care-givers faced the dilemma of maintaining the care of their family members and thus bearing the risk of infecting them or themselves or of limiting contact and thus also care. In view of these dramatically changed circumstances, many care-givers reported a worsening of their care setting and a significantly increased additional workload in the early summer of 2020 (Eggert et al. 2020; Geyer et al. 2020; Horn and Schweppe 2020).

Based on these changed circumstances for persons providing unpaid care to family members, friends or neighbours suffering from poor health, disability or

age-related frailty in the first phase of the Covid-19 crisis, we will explore the following questions in this chapter:

1) Proportion of care-givers in the adult population: Were more people involved in care during the first Covid-19 wave than before the Covid-19 crisis, or was there a decline? Were there signs of a convergence of gender differences in taking on these tasks or were more women than men also involved during the first Covid-19 wave?
2) Care recipients: Did the recipient structures change? Could people continue to provide the widespread care of parents(-in-law-), even if it is typically provided outside the care-giver's own home environment? Did people stop providing support and care to non-relatives as a precaution or did they increase the care they provided so that care recipients did not have to leave the house? Were there gender differences here?
3) Care-givers' well-being: Was there a change in the well-being of those providing care? Were women and men affected differently by possible changes? We considered self-rated health, depressive symptoms and loneliness here.
4) Care-givers' support needs: How many care-givers wanted more help during the first Covid-19 wave but did not receive it? Whom did they direct these expectations for help to and were there any gender differences?

6.3 Data and Methods

To answer the research questions, we used the data of the German Ageing Survey (DEAS) from the in-person survey in 2017 and the written short survey in 2020 (Vogel et al. 2020). We looked at the changes in the care situation between these two survey years, that is, at a time before the Covid-19 pandemic (2017) and during the first wave of its spread (June/July 2020). Through this approach, we hope to obtain indications of Covid-19-related changes, although no clear attribution of causes is possible. Observed changes may have also been the result of general social changes or other historical events between 2017 and 2020. This should be considered when interpreting the findings.

In this chapter, we report weighted percentages. This means we can draw conclusions about the population living in private households in the year and thus describe the changes between the two observation points. In addition, we examined whether trends found between 2017 and 2020 or differences between women and men were statistically significant. For both survey years, we considered people aged between 46 and 90: 6468 (2017) and 4763 (2020).

The data reported here were collected with the following questions or scales:

Care-givers: In the German Ageing Survey, care-givers were identified via the following question: "In the last 12 months (2017)/in the last 3 months (2020), were there people you looked after or cared for regularly due to their poor state of health, either on a private or voluntary basis? Respondents who answered "yes" to this question were described as care-givers.[1]

Recipients: Respondents were then asked what their relationship is to the person or persons they cared for. In this chapter, we distinguished between (1) (marital) partner, (2) parents(-in-law) and (3) other persons with whom there was no family relationship (neighbours, friends, other non-relatives). Several persons could be mentioned.

Care-givers' well-being was captured via three measures.

Self-rated health: Self-rated health is understood as a global health measure that includes many factors such as physical and mental health but also health behaviour (Spuling et al. 2019). Respondents were asked to rate their current health status on a five-point scale. The gradations range from (1) "very good" to (5) "very poor". People with scores of 1 and 2 were grouped and interpreted as having good and very good health.

Depressive symptoms: On the basis of nine statements (e.g. "During the last week I felt exhausted") of an established survey instrument, the survey records depressive symptoms (CES-D depression scale according to Radloff 1977). The respondents could indicate how often they had experienced each symptom in the last week, ranging from (0) "rarely" to (3) "always". These nine statements were summed up (range 0–27). Persons with a value above the cumulative mean of 13.5 were deemed to have depressive symptoms (based on chapter "How did individuals in the second half of life experience the Covid-19 crisis? Perceived threat of the Covid-19 crisis and subjective influence on a possible infection with Covid-19").

[1] Due to the significantly shorter reference period of three months in 2020 (compared to twelve months in 2017), it can be assumed that the proportion of care-givers in 2020 is underestimated compared to the 2017 survey. In addition, it must be taken into account that the German Ageing Survey covers a comparatively broad range of care-givers. Thus, it considers a broad spectrum of care tasks, ranging from household tasks to personal care and medical-related or nursing tasks. Moreover, the temporal scope of these activities is not predefined, and in addition to services provided privately, those provided in the context of voluntary work are also taken into account. Accordingly, the proportions determined here are higher than the care-giver proportions, which are predicated on a narrower definitions of care.

Loneliness: This was measured using the short version of an established scale for surveying loneliness (de Jong Gierveld and van Tilburg 2006). Respondents could rate six statements (e.g. "I often feel rejected.") from (1) "strongly disagree" to (4) "strongly agree", from which an individual mean value (range 1–4) was calculated. People with a score of 2.5 or over were considered lonely (Huxhold and Engstler 2019).

Need for support: In the 2020 survey, all care-givers were asked whether they would have liked more assistance from others with this task but did not receive it. If this was the case, they were also asked from whom they would have liked more help: (1) family or relatives, (2) neighbours or friends or (3) professional service providers (such as nursing services or paid household staff). Multiple answers were possible here.

6.4 Findings

The share of people providing care increased

The results show that the proportion of people who provided care increased significantly from 16 per cent in 2017 to 19 per cent in 2020 (Fig. 6.1). This means that more people were involved in providing care during the first wave of the Covid-19 pandemic.

Women were more likely to provide care than men

This increase, however, primarily occurred because a higher proportion of women provided care: there was a significant increase in the rate of care provision in this group by four percentage points from 18 per cent in 2017 to 22 per cent in 2020. In contrast, the increase of about one percentage point for men was not only smaller but also statistically non-significant: While 14 per cent of men provided care in 2017, 15 per cent did so in 2020. This development widened the pre-existing gender gap in care provision, which increased from five percentage points to seven percentage points.

Slight decrease in partner care

During the first wave of the Covid-19 pandemic, there was a slight but statistically non-significant decline in care for (marital) partners (Fig. 6.2): in 2017, 17 per cent of all care-givers were providing care for their partners. Three years later, the figure was 15 per cent. This decline was more pronounced among men (Fig. 6.3): in the first months of the pandemic, they were four percentage points less likely to provide partner care (15 per cent) than in 2017 (19 per cent), while there was a decline of only one percentage point among women. However, these changes were statistically non-significant.

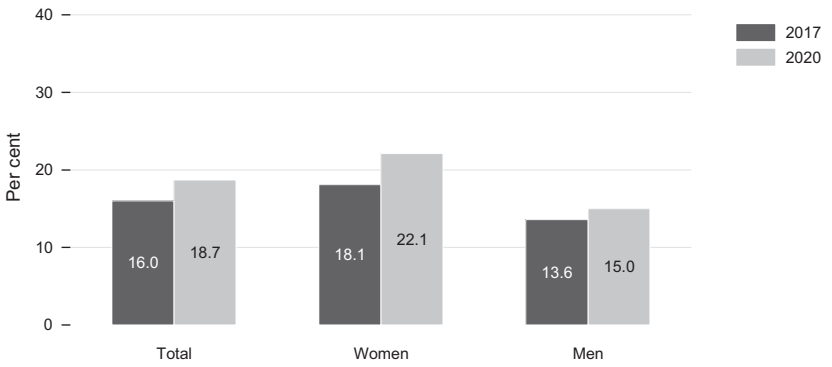

Fig. 6.1 Share of people providing care to people with health impairments, in total and by gender, in 2017 and 2020 (in per cent). *Source* DEAS 2017 (n = 6424), DEAS 2020 (n = 4374), weighted analyses, rounded estimates. Statistically significant ($p < 0.05$): Increase between 2017 and 2020 total and for women

No decline in parent(-in-law) care

There were no signs of a decline in intergenerational solidarity: parent(-in-law) care remained at a high level. It even increased slightly from 49 per cent (2017) to 55 per cent (2020) (Fig. 6.2). However, these changes were statistically non-significant.

Daughters(-in-law) were involved in care provision more often than sons(-in-law) (Fig. 6.3). Their share of parent(-in-law) care increased by eight percentage points between 2017 and 2020, from 49 per cent to 57 per cent. Among sons(-in-law), the increase was just two percentage points, from 49 per cent to 51 per cent. Again, these changes were statistically non-significant.

Care for non-family members increased significantly

Finally, there was an increase in the share of care-givers who took care of people whom they were not legally related to. Figure 6.2 shows an increase from 21 per cent (2017) to 25 per cent (2020). Neighbours provided care and support to other neighbours significantly more often during the first wave of the pandemic than three years earlier. Here, the share more than doubled, from seven per cent (2017) to 17 per cent (2020). Support and care from friends also became significantly more important, with an increase from seven per cent (2017) to eleven per cent (2020).

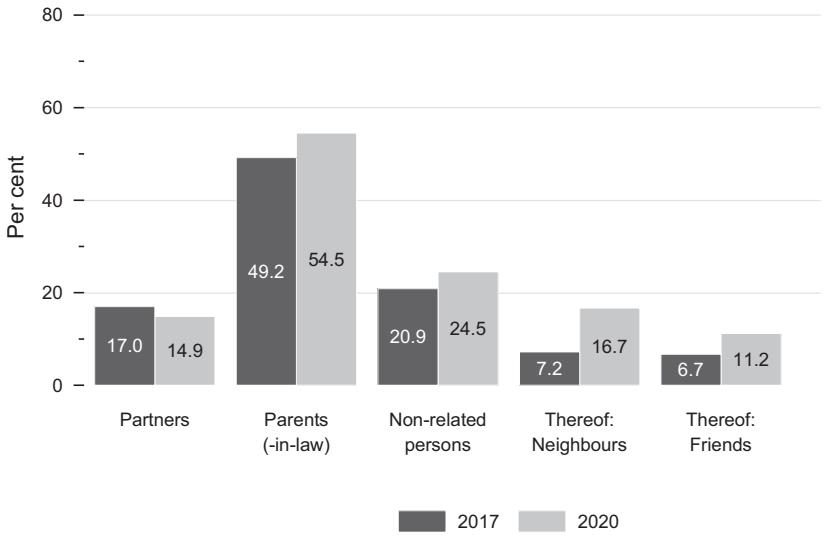

Fig. 6.2 Care recipients, in the years 2017 and 2020 (in per cent). *Source* DEAS 2017 (n = 1100), DEAS 2020 (n = 699), weighted analyses, rounded estimates. Statistically significant ($p < 0.05$): Increase between 2017 and 2020 for neighbours and friends

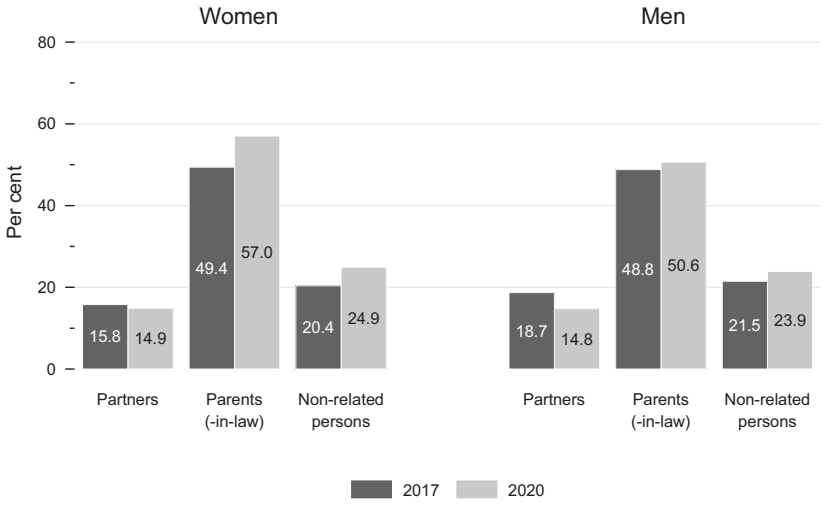

Fig. 6.3 Care-givers' care recipients, by gender, in 2017 and 2020 (in per cent). *Source* DEAS 2017 (n = 1100), DEAS 2020 (n = 699), weighted analyses, rounded estimates. Changes between 2017 and 2020 are statistically non-significant ($p < 0.05$)

During the first Covid-19 wave, women and men provided care to persons with whom they were not legally related at the same rate (Fig. 6.3).[2] There was a more substantial increase for women (by five percentage points) than for men (by two percentage points) between the observation points. However, again, these changes were statistically non-significant.

Findings differed for care-givers' physical and mental well-being

Findings differed for the dimensions of well-being considered here. Below, we present the results comparatively for care-givers and non-care-givers. This approach is useful for identifying possible trends between 2017 and 2020: were potential changes in well-being also observed among those who did not provide care or were they only evident among care-givers?

The share of care-givers reporting (very) good health slightly declined

Figure 6.4 (left part) shows that the share of care-givers in (very) good health decreased by three percentage points between 2017 and 2020. However, this decrease was statistically non-significant and did not suggest a general deterioration in health. In contrast, there was a clear (statistically significant) increase among non-care-givers reporting (very) good health, from 54 per cent to 61 per cent (Fig. 6.4, right part).

Furthermore, differences to the disadvantage of men are evident. First, the share of male care-givers reporting (very) good health fell more sharply (six percentage points) than among female care-givers (two percentage points) (Fig. 6.4, left part). However, these changes were statistically non-significant. Second, there was a smaller increase in the proportion of respondents reporting (very) good health among non-caregiving men (six percentage points) than among non-caregiving women (eight percentage points) (Fig. 6.4, right part). Non-caregiving men thus benefitted somewhat less from the upward trend in health than non-caregiving women.

The share of persons suffering from depressive symptoms increased significantly among care-givers

During the first Covid-19 wave, significantly more people exhibited depressive symptoms than three years earlier (Fig. 6.5). However, the increase was

[2] It was not possible to differentiate between neighbours and friends any more due to the small number of cases.

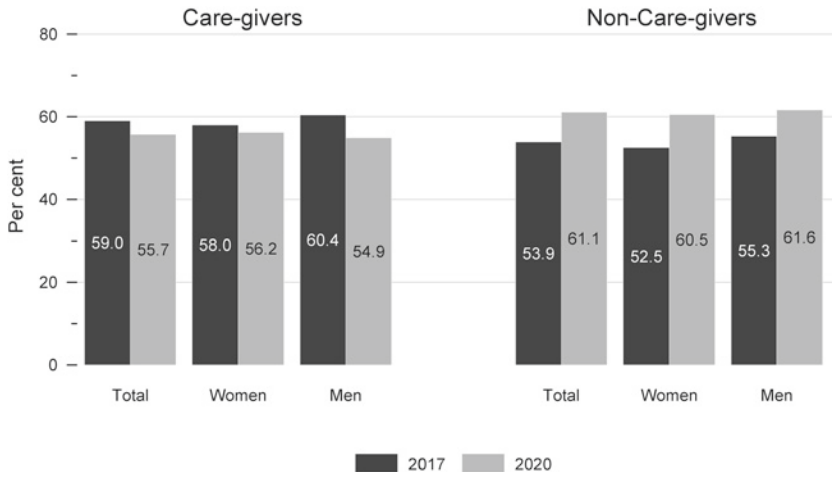

Fig. 6.4 Share of care-givers/non-care-givers reporting (very) good health, in total and by gender, in 2017 and 2020 (in per cent). *Source* DEAS 2017 (n = 6421), DEAS 2020 (n = 4319), weighted analyses, rounded estimates. Statistically significant ($p < 0.05$): non-care-givers: Increase between 2017 and 2020 for total, women, men

somewhat higher among those with care responsibilities. Among this group, the share doubled from six per cent to 15 per cent (Fig. 6.5, left part). By contrast, the increase among non-care-givers was less pronounced, from seven per cent to eleven per cent (Fig. 6.5, right part). This indicates that care-givers faced quite a high mental burden during the first Covid-19 wave. This trend was more pronounced among caregiving women (Fig. 6.5, left part): In the first months of the pandemic, 16 per cent of them exhibited pronounced depressive symptoms. This was an increase of nine percentage points compared to 2017. Depressive symptoms also increased among caregiving men, albeit to a slightly lower level, from five per cent (2017) to 13 per cent (2020). However, this change was statistically non-significant. There was a slight but statistically non-significant increase in the gender gap, from two percentage points (2017) to three percentage points (2020).

Increasing loneliness – especially among caregiving women

A greater proportion of people felt lonely during the first Covid-19 wave than three years earlier (Fig. 6.6). Here, too, there was a slightly greater increase among care-givers, from eight per cent to 13 per cent (left part), than among non-care-givers, who experienced an increase from nine to 13 per cent (right part).

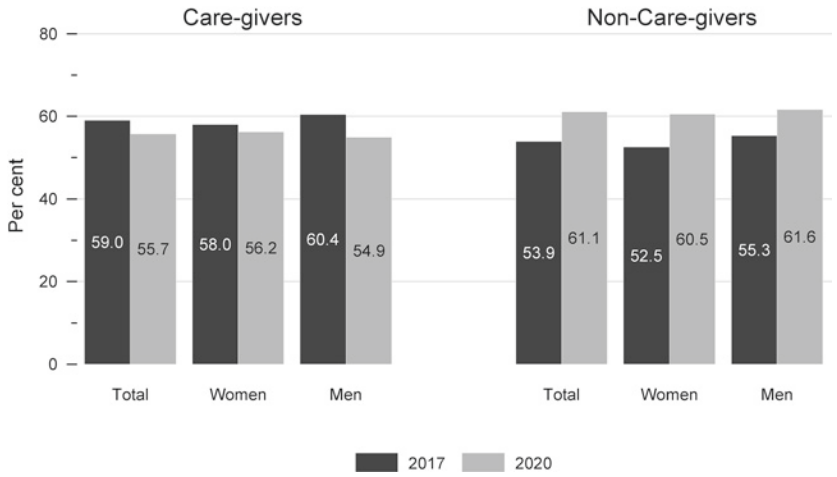

Fig. 6.5 Share of care-givers/non-care-givers with depressive symptoms, in total and by gender, in 2017 and 2020 (in per cent). *Source* DEAS 2017 (n = 6420), DEAS 2020 (n = 4354), weighted analyses, rounded estimates. Statistically significant ($p < 0.05$): for care-givers: Increase between 2017 and 2020 for total and women. For non-care-givers: Increase between 2017 and 2020 for total and men, gender difference 2017

While caregiving men and women diverged in their experience of depressive symptoms, the same did not apply to their feelings of loneliness, which converged (Fig. 6.6, left part). This was because, on the one hand, more male care-givers felt lonely before the pandemic (ten per cent) than female care-givers (seven per cent). On the other hand, loneliness increased significantly among caregiving women (by six percentage points), while among caregiving men the increase was smaller and non-significant (three percentage points). Overall, caregiving women experienced the largest increase in feelings of loneliness.

A quarter of those providing care would have liked more informal or professional help

The more extensive and demanding people's caregiving responsibilities are, the more important it is for them to have access to a well-functioning network of complementary support. This may not have been possible after the onset of the Covid-19 pandemic. And so, about a quarter of all care-givers in the first months of the pandemic reported a lack of help. Women (28 per cent) reported wanting help slightly more often than men (25 per cent) (not shown).

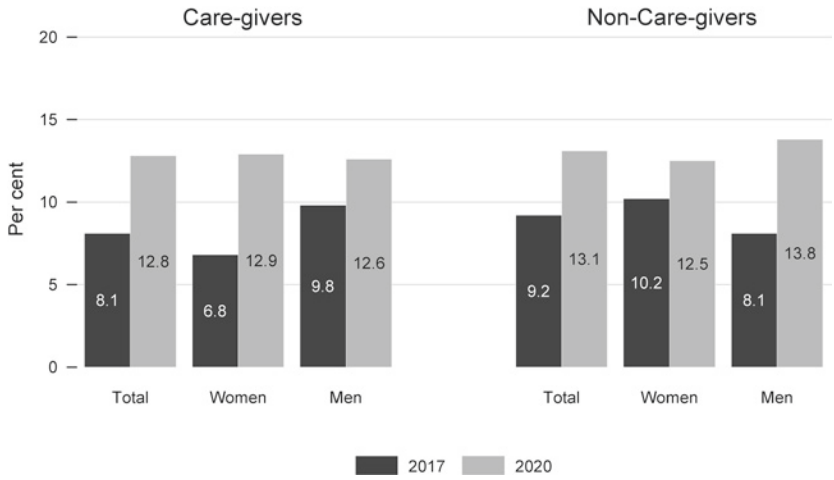

Fig. 6.6 Share of care-givers/non-care-givers feeling lonely, in total and by gender, in 2017 and 2020 (in per cent). *Source* DEAS 2017 (n = 5421), DEAS 2020 (n = 4346), weighted analyses, rounded estimates. Statistically significant ($p < 0.05$): care-givers: Increase between 2017 and 2020 for total and women. For non-care-givers: Increase between 2017 and 2020 for total and men

Care-givers mainly expected to receive help with caregiving tasks from family

Furthermore, Fig. 6.7 shows that women had hoped to receive more help from family members (53 per cent) and the wider private/neighbourhood environment (20 per cent) than men. For them, the respective shares were 45 per cent and nine per cent. Men, on the other hand, indicated wanting support from professional services more often than women: 34 per cent of men expressed this need compared to 32 per cent of women. However, the observed gender differences were statistically non-significant.

6.5 Conclusion

Care provision remained high

At the beginning of the Covid-19 pandemic, many care-givers reported an increased care burden and a deterioration of the care situation due to restrictions on contacts outside the home and the limited availability of professional

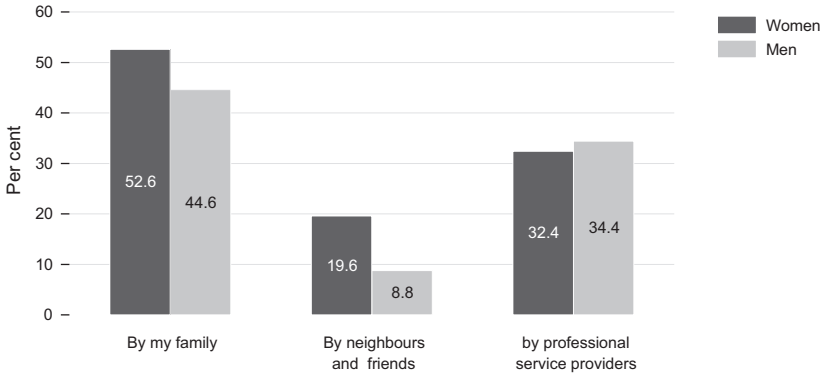

Fig. 6.7 Desire for more supportive help, by gender, 2020 (in per cent). *Source* DEAS 2020 (n = 155), weighted analyses, rounded estimates. No statistically significant gender differences ($p < 0.05$)

care and support services (e.g. Eggert et al. 2020; Geyer et al. 2020; Horn and Schweppe 2020). Our findings confirmed that despite these extremely difficult circumstances, people continued to provide high levels of private care for family members, friends and neighbours during the first Covid-19 wave: 19 per cent of 46–90-year-olds reported providing care. Furthermore, we showed that more people were thus involved in supporting and caring for others at the beginning of the Covid-19 pandemic than in 2017. This even applied despite the fact that the 2020 survey asked people to report on care provided in a shorter period of time of only three months than was the case in 2017. However, this was not the only reason why we regard the increase as substantial. At three percentage points, the increase was similar to, and in some cases even higher than, changes in the caregiver rate found for earlier survey years in the six-year period (Klaus and Tesch-Römer 2017). Social trends, such as an increasing number of people in need of care, cannot be ruled out as alternative causes of this increase. Nevertheless, it can also be understood as a reaction to the increased demand for help in the family and private environment related to the Covid-19 pandemic, a time of abrupt changes and diverse concerns and challenges.

Care for neighbours and friends increased

The increase in care activities for neighbours and friends was particularly strong: here, the shares rose from seven per cent to 17 per cent and from seven per cent to eleven per cent. How sustainable this trend is will only become clear upon further

observation. A recent study suggested that this may indicate a temporary increase in sporadic help with household tasks – above all due to geographical proximity – and may not represent new long-lasting care relationships (Rodrigues et al. 2020). However, this already reveals the potential of these relationships to be activated in emergency situations for the provision of care tasks – at least in the short term – to people in need of care in the neighbourhood and among friends.

The relatively stable share of parent(-in-law) care-givers also indicates a large support potential given that parent(-in-law) care often does not take place in the adult children's own household (Ehrlich and Kelle 2019) and adult children faced social distancing measures. Moreover, quite a few of them also have employment or other family responsibilities such as caring for children living in the household. Hence, adult children made an enormous effort to compensate for Covid-19-related care shortages faced by their parents.

Care-givers' well-being decreased

According to our results, there was no substantial deterioration in self-rated health among care-givers in the first months of the Covid-19 pandemic. The share of people in (very) good health decreased by only three percentage points and was statistically non-significant. However, this slight negative trend contrasted sharply with the significant increase of seven percentage points in the share of non-care-givers. This surprising finding is in line with other studies that indicated a general increase in satisfaction with health in the pandemic compared to previous years (Entringer et al. 2020). It is likely that these positive assessments of individuals' own health were predicated on comparisons with the health of Covid-19 sufferers. This trend may have been less optimistic if individuals had compared their specific illnesses or symptoms. However, this mechanism apparently did not apply to care-givers or may have been outweighed by an opposite effect – an actual deterioration, for example. Moreover, we cannot rule out that physical health consequences only become apparent in the medium or long term, especially when stressors persist for a longer period of time or become excessive. For example, in a survey conducted later, more than half of working-age family care-givers stated that their health had deteriorated during the pandemic (Rothgang and Wolf-Ostermann 2020). These initial findings on health status might reflect the additional burdens and concerns of care-givers that various studies have found (Eggert et al. 2020; Horn and Schweppe 2020; Rothgang and Wolf-Ostermann 2020).

Also, in line with other studies (Entringer et al. 2020; Rodrigues et al. 2020; Rothgang and Wolf-Ostermann 2020), our study showed a deterioration in mental well-being. The findings indicated a greater increase in depressive symptoms

and loneliness among care-givers compared to non-care-givers. Moreover, such increases were more pronounced among female care-givers. Indeed, caregiving women were the most negatively affected group: in 2017, seven per cent exhibited pronounced depressive symptoms and seven per cent felt lonely. Three years later, about twice as many caregiving women did so: 16 per cent and 13 per cent respectively. These results are a cause for concern. They point to an urgent need for action, with a special focus on caregiving women. Information provision, psychological counselling services (such as telephone hotlines or online services) and therapeutic support for care-givers must be further expanded, promoted and made easily accessible. Here, quick solutions and offers are important because persistent stress not only directly affects the well-being and health of sufferers but can also have a negative impact on the care-giver-care recipient relationship. Already at the beginning of the pandemic, the vast majority of care-givers reported that their relationship to the care recipient had deteriorated (Horn and Schweppe 2020), which could also have led to conflicts up to and including violence (Nägele et al. 2010, among others).

Care-givers needed more informal and professional support

Overall, our results underlined the enormous importance of family and friend care, even in times of crisis such as the Covid-19 pandemic. At the same time, they point to existing support deficits. A quarter of care-givers stated that they would have liked more involvement from others and more relief from professional care services. Another study showed that one third of care-givers reported having no one to talk to or ask for help (Horn and Schweppe 2020). About two thirds felt that politicians had left them alone or not noticed them during the first Covid-19 wave (Horn and Schweppe 2020; Rothgang and Wolf-Ostermann 2020).

The German government did quickly launch a support package for care-givers in May 2020 that offered financial relief, easier access to respite care (*Verhinderungspflege*), more flexible use of relief allowances (*Entlastungsbetrag*) and extensions in short-term absence from work (*kurzzeitige Arbeitsverhinderung*) for employed care-givers as well as options to more flexibly use (family) care leave (*Familienpflegezeit* und *Pflegezeit*). However, these offers were expected to be rarely used (Eggert et al. 2020; Horn and Schweppe 2020), possibly because only a few eligible recipients know about these offers or because they do not meet care-givers' needs. The Covid-19 crisis thus pointed to a problem that had already existed for a long time: information and counselling about existing policy packages for care-givers is insufficient (e.g. Döhler and Köhler 2012) and urgently needs to be expanded. At the same time, different actors still need to be brought together to maintain care provision for persons in need of care. The distribution

of these tasks on as many shoulders as possible does not just help to ensure quality but also helps avoid the overburdening of caregiving individuals. Care-givers must be enabled to call in external help quickly and reliably when needed. This explicitly includes a rapid strengthening and stabilisation of professional care and support structures. The partial failure of these structures at the beginning of the pandemic meant that family-and-friend care-givers had to cope with more tasks and responsibilities.

So, did the findings presented here reveal indications of a crisis in care as a result of the Covid-19 pandemic? On the one hand, our results demonstrated the great potential of care provided by family, friends and neighbours – especially in times of crisis. At the same time, however, they also documented a deterioration in care-givers' well-being as well as deficits in care-givers' support network. Basically, the Covid-19 pandemic made pre-existing problem situations more evident. The risks faced by those providing care in the private sphere intensified and gender inequalities widened. Quick solutions are needed, not least because of the still-high infection rates. The well-being of both sides has to be protected: those who need care and those who provide it.

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7 Physical Activity during the Covid-19 Pandemic. Changes in the Frequency of Sports and Walking among People in the Second Half of Life

Sonja Nowossadeck, Markus Wettstein and Anja Cengia

7.1 Key Messages

A quarter of people in the second half of life reported having reduced their physical activity. According to their self-reports, roughly a quarter (27.8 per cent) had reduced their sporting activities, while 7.7 per cent had done more sport than before the start of the pandemic. Compared to before the pandemic, 15.1 per cent of respondents reported walking more while 10.2 per cent reported walking less. Two-thirds of those aged 46–90 reported that they had maintained the same frequency of sports, and three-quarters stated that they had maintained the same frequency of walks since the start of the pandemic.

46–60-year-olds were the most likely to say that their sporting activity had changed during the pandemic. 11.4 per cent in this age group said they had done more sports—that was about 5 to 10 percentage points more than in the older groups. However, almost a third (30.9 per cent) of this age group had done less sports, which is also more than in the older groups (about 4 to 9 percentage

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points). In contrast, proportionately more people in the oldest group limited their walking than in the other age groups (76–90 years: 15.0 per cent, 46–60 years: 8.8 per cent).

Women more often reported a reduction in their sporting activity during the pandemic than men. One third of women aged 46–90 (32.8 per cent) and only 22.4 per cent of men of this age reported having done less sports than before the pandemic.

People with a high educational level were particularly likely to have reported changes in their sporting behaviour during the pandemic. On the one hand, a greater proportion of this group reported doing more sports than before the pandemic (11.1 per cent) than any other group. On the other hand, people in the group with a high educational level also cut back on sports more often than people with a lower educational level (28.0 per cent vs. 20.8 per cent). Almost one in five (19.0 per cent) of people with a high educational level said they went for walks more often, compared to only one in twenty (5.2 per cent) with a low educational level.

People living in cities and people from Western Germany were more likely to report changes in their sporting activity than people from Eastern Germany and rural counties. One third (32.2 per cent) of respondents living in large cities reported a reduction in their sporting activities during the pandemic; this was only true for 25.1 per cent of the population in sparsely populated rural districts. However, those living in large cities also reported that they had increased their sporting activities (10.4 per cent) more frequently than those living in sparsely populated rural counties (7.3 per cent). Since March 2020, 10.7 per cent of Western Germans said they had done more sports since March 2020 and almost a third (30.4 per cent) reported having done less sports. Both proportions were lower for Eastern Germans (2.8 per cent more sports, 21.0 per cent less sports).

Individuals with functional limitations more often reported reduced activity in sports and walking. Those with functional limitations self-reported reduced sporting activities more often than those who did not have such limitations (32.2 vs. 26.9 per cent) and tended to reduce walking more often (11.9 versus 7.4 per cent).

Those who were already regularly active in sports before the pandemic particularly often reported changes in sporting activities during the pandemic. Regular sporting activity before the pandemic influenced reported change in physical activity during the pandemic. 38.7 per cent of those who were regularly active in sports in 2017 (versus 14.7 per cent of those who were inactive) self-reported having reduced their sporting activities, but 11.0 per cent (vs. 6.5 per cent) also did more sports than before.

Only a quarter of the people who did less sports during the pandemic made up for this deficit by taking more frequent walks. More frequent walking could at least partially have made up for the reduction in sporting activity. However, this rarely took place: only a quarter (24.6 per cent) of the people who had reduced their sporting activity said that they had gone for a walk more often after mid-March than before. By contrast, more than half of those who had been more active in sports since March (52.0 per cent) said they had also gone for a walk more often since then. So those who did more sports during the pandemic often also got more exercise through more walks.

7.2 Introduction

Regular physical activity, such as walking, swimming, or cycling, has positive effects on health, also for older people (Rütten et al. 2005). For example, physically active people over the age of 65 have a lower mortality rate compared to inactive peers, especially from cardiovascular diseases, as well as a generally stronger immune system (WHO 2020; Jordan et al. 2020; Weyh et al. 2020). They are better protected against certain diseases and health risks such as high blood pressure, obesity, type 2 diabetes and certain cancers (WHO 2020). There is also evidence that physical activity has a positive impact on mental abilities (Colcombe and Kramer 2003) and positively influences mood and well-being (Hogan et al. 2013). Therefore, the World Health Organization recommends regular physical activity for all adults aged 65 and older. This should include at least 150–300 min of moderate-intensity aerobic (i.e. more endurance-oriented) physical activity, such as jogging or brisk walking, and other exercise, such as muscle strengthening and balance training, per week. Similar recommendations apply for adults under 65 years of age (WHO 2020).

Due to social distancing and hygiene rules during the Covid-19 pandemic, the conditions for physical activity changed fundamentally within a short period of time after March 2020. This might have affected the frequency of sport and walking among people in the second half of life and may have had different implications for different population groups. There are already some initial indications that the pandemic had a negative impact on the general frequency of physical activity (e.g. Ammar et al. 2020). However, we still lack more differentiated findings that show which population groups were particularly at risk of being less physically active because of the pandemic, with corresponding effects on their health and general well-being.

This chapter compares self-reported changes in physical activity between different groups. Older people might have reduced their physical activity or at least their out-of-home sports more than younger people to minimize their risk of infection due to their higher risk of severe Covid-19 (Robert Koch Institute 2020). On the other hand, people in middle adulthood might have needed to look after their children themselves when childcare facilities and schools were closed and may therefore have lacked time for leisure activities such as sports. This in turn might have applied more to women than to men, as women perform more childcare than men. Education could have played a role, as people with a higher educational level are generally more active in sports than people with a lower educational level (Lippke and Vögele 2006; Finger et al. 2017) and they may also have been more likely to remain active in sports during the pandemic. Regarding place of residence, both urban-rural differences and the differences between Eastern and Western Germany may also have been relevant for the change in physical activity. Previous studies showed that sporting participation is lower in rural areas than in cities (Röding 2016). At the time of reunification, sporting activity was lower in Eastern Germany than in Western Germany and since then, the differences have become smaller (Röding 2016). Nevertheless, data from earlier DEAS surveys also showed higher proportions of regular sporting activity in Western Germany (Mahne et al. 2017, table appendix). If people in the cities and in Western Germany engaged in regular sport in larger proportions, we can assume that more people in these areas were also affected by the restrictive effects of the pandemic on recreational sport.

Functional health could also have been important for self-reported changes in physical activity: functional health limitations likely resulted in a limited capacity to be physically active. As such individuals may also have been more at risk of becoming severely ill from Covid-19 (Robert Koch Institute 2020), they may have reduced their physical activity even more than people with good functional health during the pandemic.

Finally, previous physical activity may have played an important role. The extent to which individuals are physically active is generally quite stable over several years (Friedman et al. 2008; Hirvensalo et al. 2000). People who reported regular physical activity before the pandemic were therefore more likely to remain physically active during the pandemic, while physically inactive people were rather unlikely to become more physically active.

During the Covid-19 crisis, people could no longer do sports in clubs or gyms but they could still compensate with other types of exercise, such as walking. A larger proportion of respondents who did less sports than before the pandemic likely engaged in such compensatory behaviours to reap the health benefits of

exercise even in this situation. On the other hand, many respondents who reduced their physical activity for fear of contracting Covid-19 may also have walked less than before the pandemic for the same reason.

This chapter investigates reported changes in physical activity in the second half of life as a result of the Covid-19 pandemic. The following research questions were asked:

- What changes did people in the second half of life report in sports and walking after the start of the Covid-19 pandemic?
- Did these reported changes differ by age, gender and education?
- Is there a correlation between place of residence (Western or Eastern Germany, urban or rural) and reported changes in physical activity?
- How was functional health related to reported changes in physical activity?
- What was the difference in reported changes in exercise and walking between those who were regularly physically active before the pandemic (here: in 2017) and those who were not?
- Did people who did less sport during the pandemic compensate for this deficit by walking more often?

The results of this chapter were based on analyses of the seventh wave of the German Ageing Survey (DEAS; Vogel et al. 2020). For the present evaluations, the data of 4762 persons aged between 46 and 90 were considered. For some measures (previous physical activity, functional limitations), we had access to information collected in the DEAS survey in 2017—accordingly, these measures were based on information from people who participated in DEAS in both 2017 and 2020. The following measures were used for the analyses:

The survey asked about **self-reported changes in physical activity** during the Covid-19 pandemic separately for sport and walking during the period between March and June/July 2020. For sport, the question was: "Have your sporting activities changed since mid-March?" with the response options "Yes, I do more sports"/"Yes, I do less sports"/"No, my activity has remained the same". For walking, the question was: "Has this [walking] changed since mid-March?" with the answer options "Yes, I go for walks more often"/"Yes, I go for walks less often"/"No, this has remained the same".

Age, gender and educational level To examine the role of age, three age groups were formed: 46–60-year-olds (n = 996; 20.9 per cent), 61–75-year-olds (n = 2166; 45.5 per cent) and people between 76 and 90 years of age (n = 1600; 33.6 per cent). In addition, women (n = 2434; 51.1 per cent) and men (n = 2328;

48.9 per cent) were compared. Education was categorized in three groups (according to the ISCED definition): Individuals with a low (n = 205; 4.3 per cent), medium (n = 2250; 47.2 per cent) and high educational level (n = 2306; 48.4 per cent).

In addition to differentiating respondents' place of residence according to **Eastern and Western Germany,** the analysis also differentiated according to the **district type** (as of DEAS 2017). People were grouped according to which category of district they live in—large cities, urban districts, rural districts, and sparsely populated rural districts (see Federal Institute for Research on Building, Urban Affairs and Spatial Development 2020).

Functional health was measured in the 2017 DEAS survey with the GALI indicator (Global Activity Limitation Indicator) and adopted for the 2020 analyses as a proxy for functional health 2020. For GALI (see Robine and Jagger 2003), respondents were asked: "Have you been limited in doing normal activities during the past 6 months due to health problems?" Respondents could answer with: "Yes, very limited"/"Yes, slightly limited"/"No, not limited". For the analyses, the answers were summarised as "functionally restricted" ("severely restricted" and "restricted") and "functionally not restricted".

The data in the DEAS 2017 on sports and walking were used as indicators of **previous physical activity before March 2020.** Specifically, in 2017, people were asked how often they did sport or went for a walk. The answer "daily"/"several times a week"/"once a week"/"1 to 3 times a month"/"less often" or "never" could be selected. For the analyses, these answer categories were combined into two groups, one for sports and one for walking: regular sports or walking (daily, several times a week or once a week) and non-regular sports or walking (1 to 3 times a month, less often or never).

7.3 Findings

A quarter of people in the second half of life said they had reduced their sporting activities

During the Covid-19 pandemic, respondents reported both continuity and change in physical activity in middle and older adulthood. About two-thirds of individuals (64.5 per cent) reported being active or inactive in *sports as* frequently as before the pandemic. Those who reported a change in the frequency of sporting activity were much more likely to have reduced it than to have increased it: Roughly a quarter (27.8 per cent) said they had reduced their sporting activities, and only 7.7 per cent had done more sports than before the start of the Covid-19

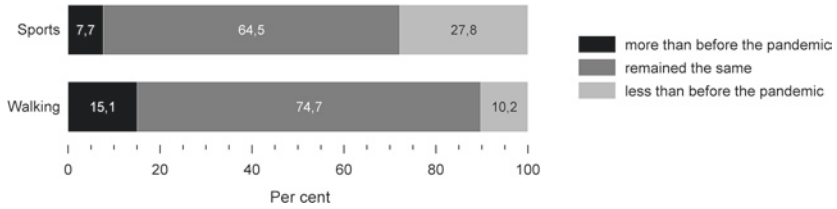

Fig. 7.1 Self-reported change in physical activity (sports and walking) (in per cent). *Source* DEAS 2020 (n = 4679 (sports), n = 4718 (walking)), weighted analyses, rounded estimates

pandemic (Fig. 7.1). 61.5 per cent of all 46–90-year-olds stated that they did sports regularly, meaning at least once a week.

The frequency of *walking* changed even less overall (Fig. 7.1). About three quarters of people (74.7 per cent) said they went for a walk as often as before the pandemic, 10.2 per cent went less often and 15.1 per cent went more often. So, when it comes to walking, unlike sports, more people had increased their activity than decreased it. Overall, 71.1 per cent of all 46–90-year-olds were going for a walk regularly at the time of the survey, meaning at least once a week.

7.3.1 Differences According to Age, Gender and Education

46- to 60-year-olds reported the greatest changes in sporting frequency

The greatest change in the frequency of sport was among people aged 46–60 (Fig. 7.2). They reported increases but also decreases in sporting activity more often than other age groups: 11.4 per cent in this age group reported doing more sports than before the pandemic. This share is larger than in the older groups (61–75 years: 6.1 per cent, 76–90 years: 1.9 per cent). 30.9 per cent of this age group of 46–60-year-olds reported doing less sports, which was also more than in the other age groups (at 27.0 and 22.2 per cent respectively). The frequency of sport remained most stable among the oldest group of 76–90-year-olds, where three quarters (75.9 per cent) reported no changes. However, the oldest group continued to have the lowest proportion of regular sports participants (76–90 years: 50.7 per cent versus 46–60 years: 62.4 per cent).

In the oldest group, more people than in the other age groups said they had limited their walking (76–90 years: 15.0 per cent, compared to 46–60 years: 8.8

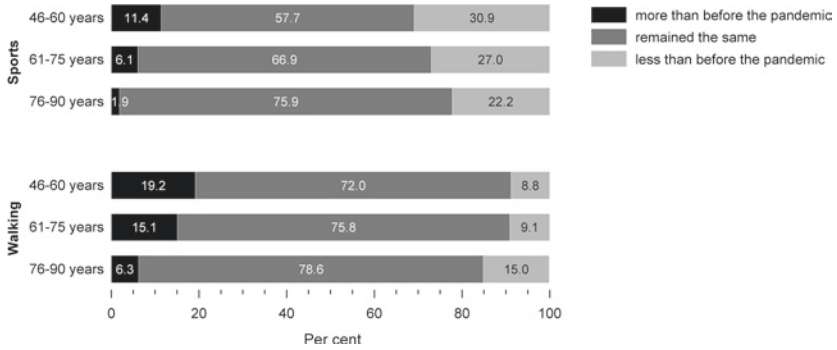

Fig. 7.2 Self-reported changes in physical activity (sports and walking) by age group (in per cent). *Source* DEAS 2020 (n = 4679 (sports), n = 4718 (walking)), weighted analyses, rounded estimates. Group differences statistically significant ($p < 0.05$)

per cent) (Fig. 7.2). In contrast, a particularly large number of those aged 46 to 60 (19.2 per cent) said they had walked more often than before the pandemic. Just under 70 per cent of both the youngest (46–60 years) and the oldest group (76–90 years) regularly went for a walk.

More women reported reduced physical activity during the pandemic than men

One third of women aged 46 to 90 (32.8 per cent) and only 22.4 per cent of men of this age reported having done less sports than before the pandemic. About the same proportion of both genders, about 8 per cent, reported that they had increased their sporting activity (Fig. 7.3). Roughly one in ten went for a walk less often than before the pandemic, just under one in seven went more often and about three quarters reported no change in the frequency of walking. The differences between women and men in walking were only slight and not statistically significant.

People with high educational levels more often reported changes in their sporting behaviour during the pandemic

The data showed a correlation between educational level and changes in the frequency of *sports* in the pandemic: people with a high educational level most frequently increased their sporting activities (11.1 per cent), but, on the other hand, they also frequently restricted them (28.0 per cent) (Fig. 7.4). Of those with a low educational level, on the other hand, only 2.6 per cent said they did more sport and 20.8 per cent did less.

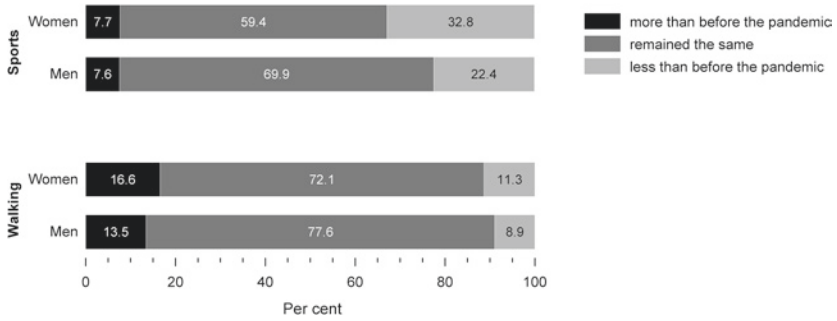

Fig. 7.3 Self-reported change in physical activity (sports and walking) by gender (in per cent). *Source* DEAS 2020 (n = 4680 (sports), n = 4719 (walking)), weighted analyses, rounded estimates. Group differences statistically significant ($p < 0.05$) only for sport

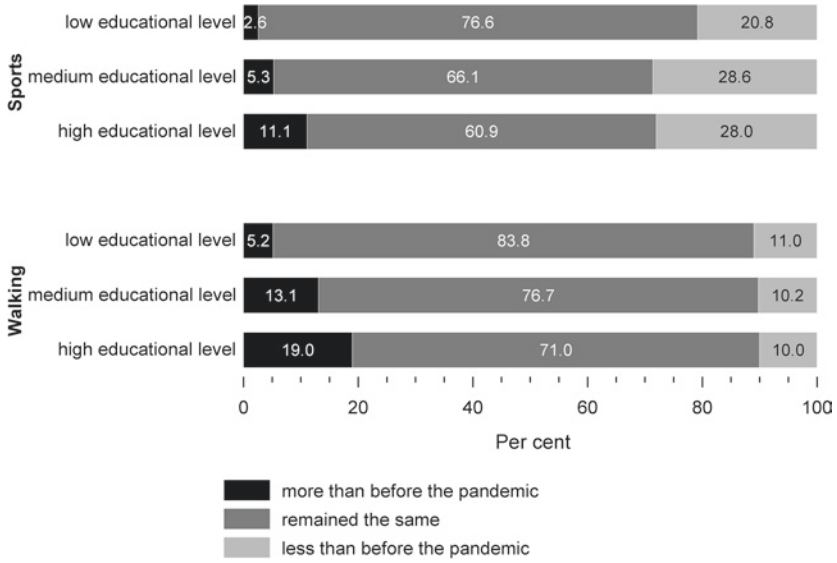

Fig. 7.4 Self-reported changes in physical activities (sports and walking) by educational level (in per cent). *Source* DEAS 2020 (n = 4679 (sports), n = 4718 (walking)), weighted analyses, rounded estimates. Group differences statistically significant ($p < 0.05$)

When it comes to *walking,* the education groups differed starkly in terms of those who reported walking more: almost one in five (19.0 per cent) of those with a high educational level walked more, but only one in twenty (5.2 per cent) with a low level of education did so. On the other hand, the proportion of those who less frequently went for a walk was very similar in all educational groups and amounted to between 10 and 11 per cent.

7.3.2 Differences According to Place of Residence

People who lived in cities more often reported that their frequency of sport had changed than those from rural areas

During the pandemic, sporting activity appeared to have changed more in cities than in rural areas (Fig. 7.5): only 57.4 per cent of people between 46 and

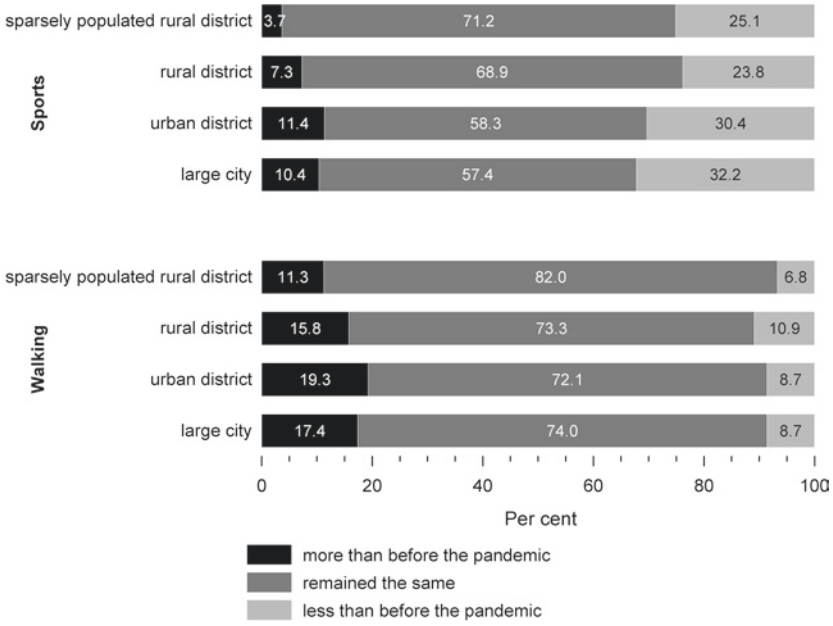

Fig. 7.5 Self-reported change in physical activity (sports and walking) by district type (in per cent). *Source* DEAS 2020 (n = 4111 (sports), n = 4138 (walking)), weighted analyses, rounded estimates. Group differences statistically significant ($p < 0.05$) only for sports

90 years of age living in large cities, but 71.2 per cent of people in sparsely populated rural counties, reported having done as much sports as before the pandemic. While almost a third (32.2 per cent) of people living in large cities had reduced their sporting activities, only 25.1 per cent of people in sparsely populated rural counties have done so. However, according to their own statements, city dwellers had also increased their sports activities more frequently (10.4 per cent) than those living in sparsely populated rural districts (7.3 per cent).

For walks, too, more changes tended to be reported by people from urban regions (Fig. 7.5). However, the differences between the district types were small and not statistically significant.

People from Western Germany more often reported changes in sporting activity

The pandemic had a greater impact on the frequency of *sports* in Western Germany than in Eastern Germany. A significantly higher proportion of Eastern Germans (76.3 per cent) than Western Germans (58.9 per cent) said they had not changed their sporting activity during the pandemic. 10.7 per cent of the Western Germans said they had done more sports since March 2020 and almost a third (30.4 per cent) reported having done less sports. For Eastern Germans, both proportions were lower (2.8 per cent more sports, 21.0 per cent less sports; Fig. 7.6).

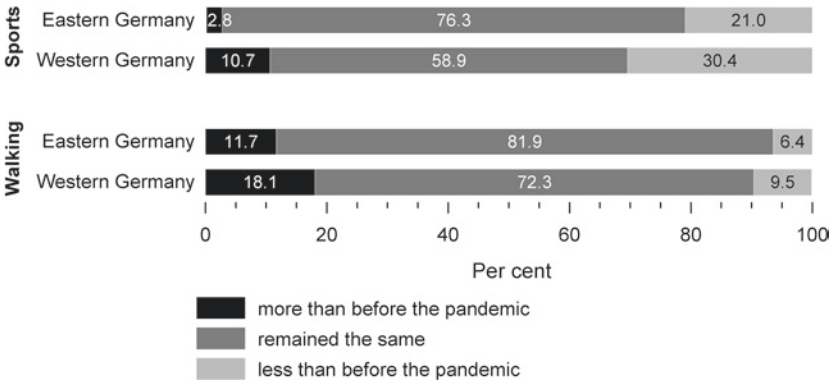

Fig. 7.6 Self-reported change in physical activities (sports and walking) by place of residence in Western or Eastern Germany (in per cent). *Source* DEAS 2020 (n = 4111 (sports), n = 4138 (walking)), weighted analyses, rounded estimates. Group differences statistically significant ($p < 0.05$)

The changes in *walking* during the pandemic were also greater in Western Germany than in Eastern Germany: of all Western Germans, 18.1 per cent said they went for a walk more often than before and 9.5 per cent reported doing so less often (Fig. 7.6). For Eastern Germans, these proportions were only 11.7 per cent (more frequent walking) and 6.4 per cent (less frequent walking).

7.3.3 Difference According to Functional Health

One third of people with functional limitations reported having done less sport during the pandemic

One third of the people in the DEAS survey 2020 had reported functional limitations in 2017, i.e. health limitations in everyday activities—two thirds were not functionally limited. More people without functional limitations estimated that they had done more sport since March 2020 than people with functional limitations (10.4 vs. 6.0 per cent, Fig. 7.7). Functionally impaired persons, on the other hand, reduced their sporting activities more often than functionally non-impaired persons (32.2 vs. 26.9 per cent).

In terms of self-reported changes in walking there were fewer clear differences according to health characteristics than were evident for changes in sport. However, people with limited functional health more often reported having reduced

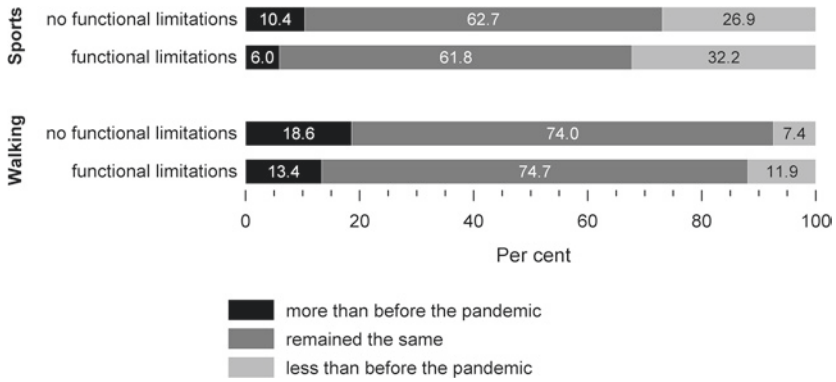

Fig. 7.7 Self-reported change in physical activities (sports and walking) according to presence of functional limitations (in per cent). *Source* DEAS 2020 (n = 4085 (sports), n = 4112 (walking)), weighted analyses, rounded estimates. Group differences statistically significant ($p < 0.05$)

walking than people with good functional health (11.9 vs. 7.4 per cent, Fig. 7.7). Individuals with good functional health were also more likely to take more walks than those with functional limitations (18.6 vs. 13.4 per cent).

Almost 40 per cent of those who regularly exercised in 2017 reported exercising less often after March 2020

A big difference for the reported changes in sports during the pandemic concerned the frequency of sports during the past: 38.7 per cent of all people who engaged in sports regularly in 2017 (which is just under 60 per cent of all 2020 respondents) reported having reduced their sporting activities because of the pandemic. Among those who did not regularly participate in sports in 2017 (which is over 40 per cent of the 2020 respondents), only 14.7 per cent were doing even less sports. However, people who were regularly active in sports in 2017 were also more likely to have done more sports during the pandemic than people who were inactive in 2017 (11.0 vs. 6.5 per cent, Fig. 7.8).

The differences in walking, on the other hand, were not as large. Regardless of whether they went for a walk regularly in 2017 or not, about three quarters of people in the second half of life reported that they continued to do so after March 2020 (Fig. 7.8). Those who were already not walking regularly in 2017 were a bit more likely to cut back on this activity during the pandemic than those who were walking regularly in 2017 (10.2 vs. 8.1 per cent, Fig. 7.9). 18.7 per cent of those who were taking regular walks in 2017 went for a walk more often during the

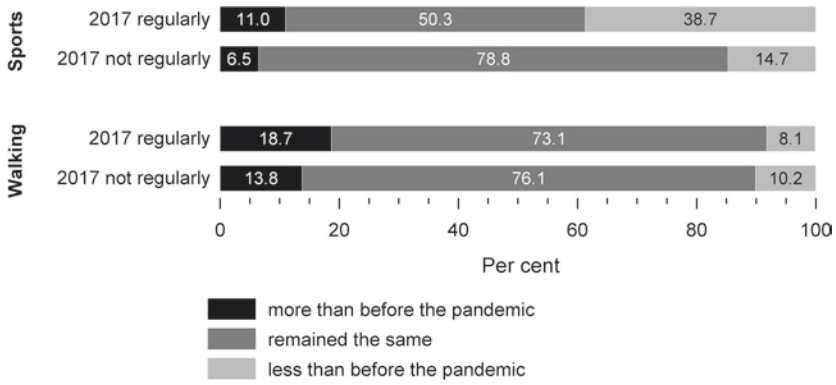

Fig. 7.8 Self-reported change in physical activity 2020 (sports and walking) by physical activity in 2017 (in per cent). *Source* DEAS 2020 (n = 4109 (sports), n = 4136 (walking)), weighted analyses, rounded estimates. Group differences statistically significant ($p < 0.05$)

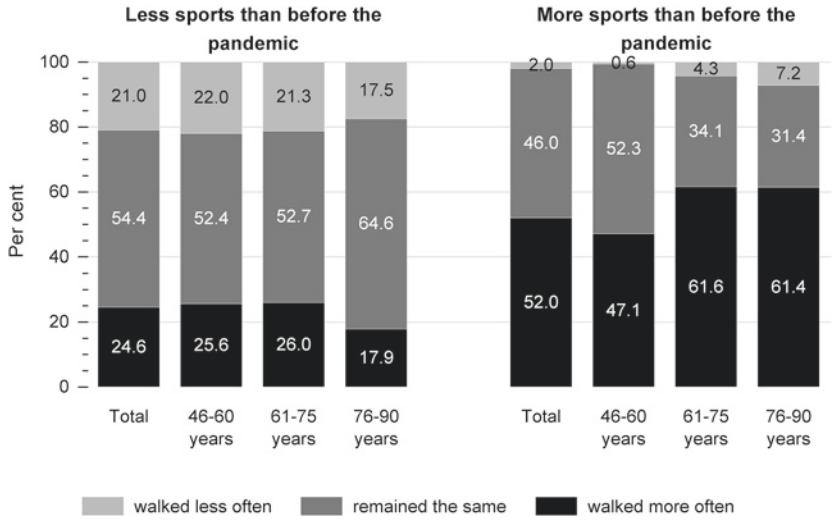

Fig. 7.9 Self-reported change in frequency of walking among people doing less or more exercise than before the pandemic, total and by age group (in per cent). *Source* DEAS 2020 (n = 4642 (sports)), weighted analyses, rounded estimates. Group differences statistically significant ($p < 0.05$)

pandemic. Of those who did not go for regular walks in 2017, 13.8 per cent took a walk more frequently in 2020.

7.3.4 Compensation Effects—Doing Less Sports and Walking More?

Only a quarter of those who exercised less during the pandemic compensated for this deficit by walking more often

Nearly 28 per cent of 46–90-year-olds said they had done less sports since the beginning of the pandemic than before. Did these people compensate for their decreased sporting activity by going for a walk more often? About half of this group (54.4 per cent, Fig. 7.9) said they went for a walk just as often as before the pandemic. About one in five of this group (21.0 per cent) said that they not only exercised less but had also reduced the frequency of their walks. Only a quarter (24.6 per cent) of those who exercised less often because of the pandemic went for a walk more often. The oldest group of 76–90-year-olds also less commonly

replaced one form of physical activity with another. In this group, only 17.9 per cent reported having reduced their sporting activity but going for a walk more often. However, there were also fewer people (17.5 per cent) in this group who did not only do sports less often, but also went for a walk less often than in the other age groups (46–60-year-olds: 22 per cent; 61–75-year-olds: 21.3 per cent).

Those who exercised more during the pandemic often also went for a walk more often

On the other hand, just under 8 per cent of those aged 46 to 90 did more sports during the pandemic than before. More than half of these people (52.0 per cent, Fig. 7.9) supplemented this with more frequent walks. Those who did more sports during the pandemic thus often also went for more walks. This increased physical activity was particularly evident among those over 60 years of age—almost two-thirds of those in this group who exercised more also went for a walk more often. However, the proportion of those who did more sports but went for a walk less also increased with age (46–60 years: 0.6 per cent; 61–75 years: 4.3 per cent; 76–90 years: 7.2 per cent).

7.4 Discussion

This chapter investigated how people between 46 and 90 years of age changed their physical activity in terms of sports and walking after the onset of the Covid-19 pandemic, according to their self-reports. The study participants made these statements in June and July 2020.

Most people in middle and older adulthood said that they had not changed their physical activity. According to their own statements, two thirds of the respondents did as much (or little) sports as before, and even three quarters of the respondents went for a walk as often as before the pandemic. These results are in line with the findings of other studies. For example, the COSMO surveys of 18–74-year-olds from April and June 2020 did not show any severe changes in physical (leisure) activity (Betsch et al. 2020).

But even though stable levels of physical activity could be observed in large parts of the population in the second half of life, for one third of people, physical activity had changed in one direction or another. There were likely different reasons for these changes. Some of these people probably had to change their sporting behaviour because the conditions or even the infrastructure for exercise changed, for example, due to temporary closures of sports facilities. Others may have wanted to adapt their behaviour, for example, by using sports to compensate

for other leisure activities that were not feasible or difficult to do during the pandemic and to make up for a lack of exercise when working from home.

7.4.1 Differences in Reported Physical Activity by Age, Gender, and Education

Less frequent sporting activity and walks were most frequently reported by groups that had anchored physical activity in their lifestyle more often than others. Within the second half of life, these were mainly middle-aged adults, that is, those aged 46 to 60. Almost every third of them estimated that they had reduced the frequency of sports during the first wave of the pandemic; in the oldest age group of 76–90-year-olds, this was only every fifth person. It can be assumed that some of the respondents in this younger age group, who were still of working age, were particularly stressed by the Covid-19 crisis due to changes in job demands and additional family responsibilities and were therefore less able to engage in leisure activities such as sports. However, it is also possible that in view of the high proportion of physically inactive people in the oldest group, many of these very old people had not been able to reduce their activity even further, that is, they simply remained physically inactive.

It was also women rather than men who reported having done less sports during the pandemic—one third of women limited sports activities and only one quarter of men. There were findings that women were under greater stress than men during the Covid-19 period (Möhring et al. 2020; Czymara et al. 2020), for example, due to the organisation of everyday family life, home schooling and caring for family members (see chapter "Covid-19 crisis = care crisis? Changes in care provision and care-givers' well-being during the Covid-19 pandemic"). Even though there were also findings that gender differences in the family division of labour had narrowed during this period (Bujard 2020), women still bore the main burden of family work. However, contrary findings on the reduction of sporting activities in a gender comparison showed that women reduced their activities less frequently than men and intensified them more frequently (Mutz and Gerke 2020; Sport England 2020). One of the reasons given for this is that women were more likely to avail of online and home sporting opportunities, while men were more likely to take part in sports in clubs or commercial facilities that were closed during the pandemic.

7.4.2 Differences in Reported Physical Activity by Place of Residence

Just under a third of those living in cities reported having reduced sporting activities—this was a greater proportion than in rural counties, where this applied to only about a quarter of respondents. Physical activity was possible in different ways. In the German Ageing Survey, leisure-time sporting behaviour was recorded, but physical activities due to occupational activity, work in the house and garden or transport routes were not. The profiles of physical activity may well have differed in urban and rural areas due to different occupational structures, infrastructures, and opportunities to exercise in the residential environment. More people from the upper classes may also have lived in big cities and their lifestyles may have included recreational sports more often. If physical activity in cities often took the form of (institutional and organised) recreational sports, and the opportunities for this were limited in the Covid-19 crisis, then sports activities in cities would logically have declined more than in rural areas.

A similar pattern can be seen in frequency changes of sports in Eastern and Western Germany: While three quarters of the Eastern German population in the second half of life reported no changes in the frequency of sports and only about one fifth reported reductions, in Western Germany, reported sporting behaviour remained unchanged for just under 60 per cent of respondents, and just under one third reported having done less sports than before the pandemic. One reason for this could be that there were fewer people in Eastern Germany who lived in large cities, where sporting activities were more strongly affected by the Covid-19 crisis. On the other hand, Eastern Germans were also less likely to be organised in sports clubs than Western Germans (Lampert et al. 2019). Therefore, the restrictions on the activity of sports clubs had fewer consequences for them than in Western Germany.

7.4.3 Differences in Reported Physical Activity by Functional Health

Functional limitations, that is, health restrictions in carrying out everyday activities such as climbing stairs or carrying shopping bags, led those affected to state more frequently than other people that they had limited their physical activity during the pandemic. A third of them said they did less sports than before (about a quarter in the case of functionally non-impaired people) and almost 12 per cent

said they went for a walk less often (functionally non-impaired people: 7 per cent). In addition, people with functional limitations increased sports and walks less often than others during the pandemic.

Conditions during the pandemic apparently led to physical activity deficits among those for whom targeted physical activity and even lighter physical exertion such as walking were particularly important for maintaining and improving their functional health. In the group of people with impaired functional health, many belonged to the high-risk group for whom there were particularly strict recommendations for keeping distance during the pandemic because of the risk of infection and the risk of severe disease. People with health problems also felt more threatened by the Covid-19 pandemic than people in better health, presumably because of their greater vulnerability (see chapter "How did individuals in the second half of life experience the Covid-19 crisis? Perceived threat of the Covid-19 crisis and subjective influence on a possible infection with Covid-19"). This could also have led to a decrease in motivation for these people to exercise and stay active outside their homes at all. In addition, institutionalised sports facilities were and are still not available a lot of times.

7.4.4 Differences in Reported Physical Activity According to Previous Physical Activity

Almost 40 per cent of people who reported doing regular sporting activity in 2017 said they had reduced their sporting activity after March 2020. In addition to the individual changes in everyday life, the restrictions due to the closure of sports facilities and gyms as well as the limitations in the activities of sports clubs may have contributed to this. These long-term limitations not only had individual consequences; the infrastructure of sports was also put at risk. Sports clubs have an important role to play, for example, in health-targeted sports and other specialised sports, especially for older people. But many clubs were already struggling with financial problems and difficulties such as a lack of exercise instructors and a decline in membership that had already existed before the Covid-19 pandemic (Breuer and Feiler 2019).

However, there was also a group who were active in sports before the pandemic and who seemed to have come to terms with the changed conditions for sports activities. 11 per cent of those who did sports regularly in 2017 said they did even more sports during the pandemic than before. Of the respondents who did not exercise regularly in 2017, only 6.5 per cent said this. It was likely that sporting activity or inactivity was shaped by long-term attitudes and habits (Hir-

vensalo et al. 2000; Friedman et al. 2008). Hopefully, events such as the Covid-19 pandemic will not permanently affect motivation to be physically active. Presumably, those who were active in sports were limited by the pandemic in the short term but they will likely not become inactive in sports in the long term. On the other hand, the Covid-19 pandemic did not turn inactive people into active athletes. The long-term consequences of the pandemic for sports motivation and sports behaviour are not yet foreseeable and should be the subject of longitudinal studies in the coming years. In addition, politics, media, and science have the important task of repeatedly pointing out the manifold positive effects of physical activity. The appeal to stay at home in times of a pandemic should not be misunderstood as a call for inactivity.

7.4.5 Declines in Sporting Activity only Marginally Compensated by Walks During the Pandemic

For the vast majority of respondents, their frequency of sports and going for a walk did not change during the pandemic. However, the pandemic seemed to produce "losers" and "winners" in terms of physical activity. Those who usually did less sports did not compensate for this by going for a walk more often. On the contrary, about one fifth of this group did not only do less sports, but also went for a walk less often than before the pandemic. About half of them went for a walk just as often as before and only a quarter compensated for their decline in sporting activity by taking more frequent walks. However, those who did more sports than before the pandemic often supplemented this with more walks. This is true for more than half of those who did more sports than before the pandemic.

It can be assumed that important conditions for physical activity were unequally distributed, and that this inequality was exacerbated by the pandemic. These included individual occupational and family pressures that limited time and energy for physical activity. Some people in the second half of life might have found more time for sports and walking, for example, due to working from home or the elimination of other leisure activities. Others, however, were unable to do sports or go for a walk due to increased workloads or additional family responsibilities. These people need support and relief in order to benefit from the positive effects of leisure and especially sports activities on health and well-being, especially in such challenging and stressful times of crisis.

7.4.6 Conclusion

How can people in middle and older adulthood be supported with physical activities in the ongoing Covid-19 crisis?

Sports clubs play an important role in sports programmes for older people. Almost every third sports club (that is around 28000 in Germany) offers health-related programmes (general health sports, rehabilitation courses, offers for people with disabilities and chronic diseases; Breuer and Feiler 2019). This potential should be supported reliably in the long term. Physical activity prevention takes place locally, so municipal institutions should be involved in order to promote low threshold offers. Locally emerging long-term structures that also function in crisis situations are important. Older people did less sports than younger people, although it has been proven that they would benefit in many ways from regular physical activity. More offers need to be developed especially for this age group and individually adapted to their individual physical condition and personal needs.

The Covid-19 pandemic showed that sporting offers based on indoor sports facilities may not be available for extended periods under pandemic conditions. Therefore, flexibility in services for older people that include outdoor exercise or sports that can be done alone at home would be beneficial. An important way to remain active in sports under pandemic conditions is through online sports offers, which, adapted to different age groups and fitness levels, could play an important role. However, this also requires policymakers to counteract the existing trend of the "digital exclusion" of older people (German Bundestag 2020; Seifert et al. 2020, see also chapter "Internet use by people in the second half of life during the Covid-19 pandemic: social inequalities persist"). This, too, is an urgent but long-term and ongoing task that extends beyond the pandemic period.

Finally, the challenge to offer physical activity programmes of different kinds to people who have not used such offers yet remains beyond the Covid-19 period. This is a long-term task independent of Covid-19. However, if new and more flexible forms of access to sport and other forms of physical activity develop and become permanently established during the pandemic, this could be an opportunity for a continued broader acceptance and performance of physical leisure activity.

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Part IV

Social Support and Loneliness During the Covid-19 Pandemic

Caregiving and Being Employed—What Changed for Women and Men in the Covid-19 Pandemic?

8

Ulrike Ehrlich, Nadiya Kelle and Mareike Bünning

8.1 Key messages

At the beginning of the pandemic, more people, especially women, temporarily provided care. Thus, during the first wave of the pandemic, more people from the working-age population were engaged in caregiving. In the second pandemic wave, participation in care tasks was as high as it had been before the pandemic.

Even during the pandemic, women spent more time on care tasks than men. The amount of time spent on care did not change significantly during the pandemic. Non-employed women spent the greatest amount of time providing care; this could be due to their greater time availability or could also be an indication of the incompatibility of highly time-intensive care and employment.

The employment rate of care-givers remained stable during the pandemic. This applied both to care-givers who provided low-intensity care and to those who provided high-intensity care. In general, high-intensity care-givers had the highest reconciliation conflicts. This was expressed in a significantly lower employment rate. During the pandemic, the employment rate of high-intensity care-givers was particularly low.

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Policy packages to better reconcile care and work were hardly used. Only one per cent each of care-givers used the option to take short-term absence from work (*Kurzzeitige Arbeitsverhinderung*) or care leave (*Pflegezeit*) to care for family members.

On average, care-givers were more burdened during the pandemic. Both before and during the pandemic, high-intensity care-givers felt more burdened than low-intensity care-givers. In the winter of 2020/21, non-employed women who provided high-intensity care felt the greatest care-giver burden, followed by women who combined employment with high-intensity care.

8.2 Introduction

The exponential spread of the Covid-19 virus during the first pandemic wave at the beginning of 2020 and the associated political measures to contain the virus forced many individuals who provided support and care for their family members, neighbours or friends to reorganise their activities. For example, family members may have had to stop providing support with household tasks such as cleaning, cooking, or washing up for vulnerable groups at short notice for reasons of pandemic containment, or they may have had to take on new tasks because professional care services were no longer available (Eggert et al. 2020). Family-and-friend care-givers may also have experienced supply bottlenecks due to temporary closures of outpatient care services or pandemic-related leave of paid 24-h migrant home care workers (so-called foreign "live-ins") (Eggert et al. 2020; Wolf-Ostermann et al. 2020).[1] In addition, many care homes paused new admissions to protect residents and staff from infections, which is why caregiving family members could not turn to inpatient facilities when their relatives' care needs increased (Eggert and Teubner 2021; Rothgang et al. 2020).[2] After the summer of 2020, when there were relatively low infection numbers, many measures from the first pandemic wave such as contact restrictions, were reimposed with the December lockdown in winter 2020. In addition, the soaring infection figures in December 2020 may have again meant that family-and-friend care-givers did not include

[1] In 2020, the use of day care, night care and short-term care decreased by 21 and 12 per cent respectively compared to 2019 (Federal Ministry of Health 2021a, b), which may be associated with a higher care burden among family care-givers.

[2] In 2020, the previous trend of steady increases in the number of persons in need of full-time inpatient care was interrupted (Federal Ministry of Health 2021b).

further informal and formal care-givers in care provision because they were considered too risky (Brandt et al. 2021).

Against the background of the Covid-19 pandemic and the associated measures, the question is how the situation of caregiving individuals working age developed. Specifically, the study examined how working-age care-givers' care and employment situations developed over the course of the pandemic. Previous results from the first wave of the pandemic showed that the proportion of care-givers, especially among women, increased (see chapter "Covid-19 crisis = care crisis? Changes in care provision and care-givers' well-being during the Covid-19 pandemic"). This pattern was likely also evident for people of working age (up to 64 years), as a large proportion of care is provided by people of working age (Ehrlich 2019). Furthermore, the amount of time spent on care tasks likely increased during the pandemic. However, employed persons may not have increased their time commitment to care tasks to the same extent as non-employed people due to the time restrictions imposed by their working lives. The difficulties that already existed in pre-pandemic times in reconciling family care and gainful employment (Kelle 2020; Ehrlich et al. 2020) may also have been exacerbated by supply bottlenecks during the pandemic and may have led to family care-givers giving up or reducing their gainful employment. On the other hand, reduced working hours or work-from-home arrangements among employed persons may have led to them having more time or being able to use time more flexibly to take up or expand necessary care activities than before the pandemic.

To help people avoid work-family reconciliation conflicts during the pandemic, the German federal government simplified access to statutory measures such as (family) care leave (*Familienpflegezeit* and *Pflegezeit*), which legally allows employees to reduce or to interrupt their paid work to perform caregiving activities with the "Second Law for the Protection of the Population in the Event of an Epidemic of National Significance" (Federal Ministry for Family Affairs, Senior Citizens, Women and Youth 2020). These options may therefore have been particularly attractive during the pandemic, since a quarter of care-givers reported a need for informal and formal support (see chapter "Covid-19 crisis = care crisis? Changes in care provision and care-givers' well-being during the Covid-19 pandemic").

Regardless of whether care-givers availed of such measures, the Covid-19 pandemic was a stressful situation for family care-givers (see Brandt et al. 2021; Budnick et al. 2021; chapter "Covid-19 crisis = care crisis? Changes in care provision and care-givers' well-being during the Covid-19 pandemic"). Since persons in need of assistance or care were considered particularly at risk of infection, family care-givers had to protect themselves from infection to a much greater extent to avoid passing on the virus to their care recipients and jeopardising

their role as care-givers. Protection against infection was best achieved through strict social isolation. For the most part, employed care-givers could not implement social distancing measures, but non-employed care-givers may have been able to isolate themselves better. Therefore, employed care-givers may have been exposed to higher stress and impairment than non-employed care-givers. Furthermore, employed care-givers faced a "double burden" of work and family, which did not exist for non-employed care-givers. On the other hand, gainful employment may have been perceived as a relief from the burden of caring, which non-working care-givers did not have (Glauber and Day 2018; Moen et al. 1995). The analyses presented here mainly focus on the situation of working-age care-givers during the Covid-19 pandemic. Throughout this chapter, the terms "care" and "care-giver" are used to refer to the various tasks that persons provide to family members, friends or neighbours suffering from poor health, disability or old-age related frailty—often without pay. Unpaid family-and-friend care may encompass at least one of the various activities: personal care (e.g. toileting, dressing or feeding), household tasks (e.g. shopping, cleaning or cooking), supervising or looking after the person in need of care, medical-related or nursing tasks or emotional support (Ehrlich et al. 2020).

The literature indicates that there were pre-pandemic gender differences in assuming a care-giver role, in the time spent on caregiving (Ehrlich 2019; Klaus and Vogel 2019), in reconciliation strategies (Auth et al. 2016; Carr et al. 2018; Ehrlich 2019) and in mental and physical health consequences in response to caregiving (Pinquart and Sörensen 2006). It is therefore important to ask whether these gender differences remained constant during the pandemic or whether they converged. These gender differences may even have increased, and there may have been a corresponding retraditionalisation of gender roles in the area of support and care provided to family members, friends or neighbours, as has already been observed in the area of childcare and household labour (e.g. Möhring et al. 2020; Kohlrausch and Zucco 2020; Huebener et al. 2021; Hipp and Bünning 2021).

The chapter seeks to address the following questions:

1) Were more or fewer employed and non-employed people involved in caregiving tasks during the Covid-19 pandemic than before the Covid-19 pandemic? Were there differences between women and men?
2) How did the amount of time spent on care by employed and non-employed care-givers develop during the pandemic compared to before the pandemic? Were there any gender differences?

3) How did care-givers' involvement in paid work develop during the Covid-19 pandemic compared to before the pandemic, and were there different trends for women and men?
4) How high was the share of employed care-givers who made use of statutory leave options to better reconcile care and employment during the pandemic?
5) How did the care-giver burden of employed and non-employed care-givers change during the Covid-19 pandemic? Were there any differences between women and men?

8.3 Data and Methods

To answer the research questions, we used the data of the German Ageing Survey (DEAS) from the in-person survey in 2017, the written short survey in summer 2020 and the telephone survey in winter 2020/21. We examined the changes in the situation of working-age care-givers between the survey dates. Through this approach, we hoped to obtain indications of how the situation of family-and-friend care-givers of working age developed during the Covid-19 pandemic compared to before the pandemic. However, observed changes may also be a consequence of general societal changes or other historical events between 2017 and 2021. This must be considered when interpreting the findings.

For all the time points surveyed, we narrowed the sample down to respondents aged between 46 and 65 at the time of the interview, meaning they were of working age: 2900 (2017), 1649 (2020) and 2240 (2020/21). Our analyses were therefore based on information from respondents who were interviewed either at all three survey time points (62 per cent), at two survey time points (27 per cent) or at only one survey time point (eleven per cent).

The information reported here was collected by means of the following questions:

Care-givers: In the German Ageing Survey, care-givers were identified via the following question: "In the last 12 months (2017, 2020/21)/in the last 3 months (2020), were there people you looked after or cared for regularly due to their poor state of health, either on a private or voluntary basis?". Respondents who answered "yes" to this question were described as care-givers.[3]

[3] A reference period of three months was given in the written short survey in summer 2020 (compared to twelve months in 2017 and winter 2020/21). Therefore, it can be assumed that the share of care-givers in summer 2020 was underestimated compared to the cover-

Time devoted to care: Following the care question, care-givers were asked: "How much time do you spend per week helping the person(s) you support? Please indicate the average number of hours per week." This question was asked in 2017 and winter 2020/21 but not in the summer 2020 written short survey. All information on weekly time spent on support and caregiving that exceeded the upper limit of more than 80 h per week was set to the value of 80.

Gainful employment: Respondents who were either in part-time, full-time, marginal ("Minijob") or irregular employment at the time of the interview were included in the analyses as "gainfully employed". Respondents who were in retirement, in a form of early retirement (pension for reduced earnings capacity, occupational disability pension, early pension), in the release phase of partial retirement, in retraining, on maternity leave or parental leave, in unemployment, or in a homemaker role or who were not employed for any other reason at the time of the interview were categorised as "not employed".

Use of statutory leave options to better reconcile care and work: Employed care-givers were asked the following question for the first time in the DEAS survey 2020/21: "There are various statutory offers for better reconciliation of care and work. Do you currently take advantage of any of these offers?" The following answer options were available: short-term absence from work (*Kurzzeitige Arbeitsverhinderung*), care leave (*Pflegezeit*), family care leave (*Familienpflegezeit*), care leave for accompanying someone in her/his last phase of life (*Begleitung von nahen Angehörigen in der letzten Lebensphase*), none of these statutory offers.

Care-giver burden: Respondents who provided care to people suffering from poor health answered the following question in 2017 and in the winter of 2020/21: "If you look at this support or care overall, how much of a burden does it place on you?" Respondents had the following response options: (1) "none at all", (2) "fairly little", (3) "fairly heavy" or (4) "very heavy".

age in 2017 and winter 2020/21. In addition, it must be taken into account that the German Ageing Survey covers a comparatively broad range of care-givers. Thus, a broad spectrum of care activities was covered, ranging from sporadic support with household tasks to regular personal care and medical-related and nursing care. Moreover, care commitment in terms of time devoted to care is not predefined, and in addition to care activities based on a pre-existing relationship, those persons providing care in the context of voluntary work are also considered. Accordingly, the proportions determined here are higher than reported care-giver shares, which are predicated on a narrower definition of care.

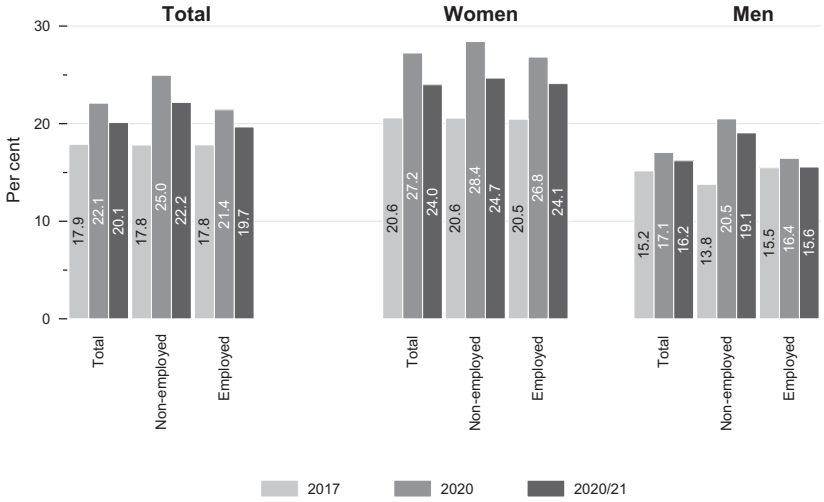

Fig. 8.1 Share of people aged 46–65 providing care to people with health impairments, total, by employment status and by gender, in 2017, 2020 and 2020/21 (in per cent). *Source* DEAS 2017 (n = 2900), DEAS 2020 (n = 1649), DEAS 2020/21 (n = 2240), weighted analyses, rounded estimates. Statistically significant ($p < 0.05$): Total: increase between 2017 and 2020 for total and non-employed persons. Women: Increase between 2017 and 2020 for total and employed persons. Difference between women/total and men/total 2017, 2020, 2020/21

8.4 Findings

At the beginning of the pandemic, more people temporarily provided care

The share of people in the working-age population providing care increased significantly from 18 per cent to 22 per cent between 2017 and summer 2020 (Fig. 8.1). During the second pandemic wave, the care-giver share declined again (2020/21: 20.1 per cent) and was no longer statistically significantly different from the care-giver rate in 2017. Thus, during the first pandemic wave, more people from the working-age population provided support and care. In the second pandemic wave, support and care provision were again at a similarly high level as before the pandemic.

If we look at employed and non-employed care-givers before and during the first wave of the pandemic, we see that non-employed persons provided care more frequently during the first wave of the pandemic than before the pandemic.

The share of care-givers in the non-employed group increased between 2017 (17.8 per cent) and summer 2020 (25.0 per cent). By contrast, the increase was less pronounced and was statistically non-significant for the employed group (2017: 17.8 per cent; 2020: 21.4 per cent). During the second pandemic wave, the share of care-givers in both groups did not differ statistically significantly from the pre-pandemic care-giver rates. Thus, during the second pandemic wave, non-employed people provided care at a similarly high level as before the pandemic. The share of employed care-givers remained at a similar level as before the pandemic during both the first and second pandemic waves.

When we differentiated according to gender, at all times of measurement, we found that women provided care more often than men. In particular women provided care more often in the summer of 2020 than in 2017. During the second wave of the pandemic, they again provided care at a similar rate as before the pandemic. When we considered the shares of female and male care-givers separately according to whether they were employed or not, we found an increase for both non-employed women and non-employed men. However, these tendencies were statistically non-significant, which could be due to the relatively small number of cases in these subgroups.[4] However, the increase in the care-giver rate among employed women between 2017 and the first pandemic wave was statistically significant (2017: 20.5 per cent; 2020: 26.8 per cent). In the second pandemic wave, employed women provided care again with a similar rate as before the pandemic.

Overall, as expected, the pandemic was accompanied by a higher demand for care provided by family members, friends or neighbours. This additional need was reflected in the increase in support and care rates, especially during the first wave of the pandemic and was shouldered in particular by (employed) women from the working-age population.

Also during the pandemic: non-employed women spent the greatest amount of time providing care

Since no information on weekly time use for care tasks was collected in the written short survey in June/July 2020, we can only report information on the amount of time spent on care activities for 2017 and for 2020/21. For the working-age population, the amount of time spent on care shows an increase between 2017

[4] Non-employed female care-givers 2017 (n = 96), 2020 (n = 69) and 2020/21 (n = 102); non-employed male care-givers 2017 (n = 49), 2020 (n = 31) and 2020/21 (n = 48).

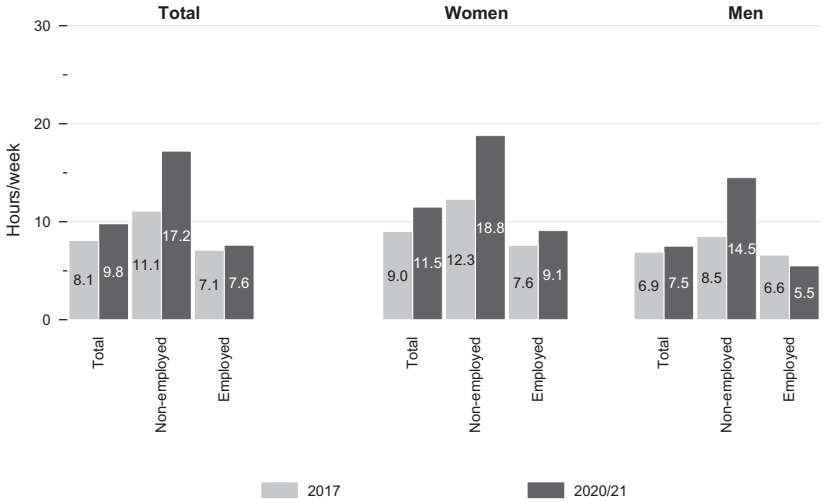

Fig. 8.2 Time devoted to care in hours per week among employed and non-employed care-givers aged 46 to 65, total and by gender, in 2017 and 2020/21 (arithmetic means). *Source* DEAS 2017 (n = 550), DEAS 2020/21 (n = 459), weighted analyses, rounded estimates. Statistically significant ($p < 0.05$): Difference between employed women and men 2020/21; Difference between non-employed women and men 2017; Total: Differences between non-employed and employed persons 2017 and 2020/21; Women: Differences between non-employed and employed persons 2017 and 2020/21

and 2020/21 (2017: 8.1 h per week; 2020/21: 9.8 h per week), although this increase was statistically non-significant (Fig. 8.2). The trends broken down by employment status were also statistically non-significant.

No statistically significant trend differences (2017 to 2020/21) can be identified for women and men in terms of weekly time spent on care.[5] However, during the second wave of the Covid-19 pandemic, employed women spent more time on care activities than employed men (women: 9.1 h per week; men: 5.5 h per week). Before the pandemic, this gender difference was smaller (women: 7.6 h per week; men: 6.6 h per week) and statistically non-significant.

[5] The large, but non-significant, trend differences in time spent on support and care tasks among non-working women (2017: n = 96; 2020/21: n = 102) and men (2017: n = 49; 2020/21: n = 48) between 2017 and 2020/21 were most likely due to the small numbers of cases.

Both in 2017 and 2020/21, non-employed people devoted more time to care tasks than employed people (difference in 2017: 4.0 h per week; difference in 2020/21: 9.6 h per week). These differences were mainly due to women: non-employed women devoted far more time to care activities than employed women at every time point in the survey. Between non-employed and employed men in both 2017 and 2020/21, differences in time spent on care activities were statistically non-significant.

In summary, changes in the amount of care provided during the pandemic were statistically non-significant. However, the gender differences in the amount of time spent on care grew during the second pandemic wave compared to pre-pandemic times. A large amount of care was provided by non-employed women. This result may be related to the greater time available to non-employed persons. However, it may also indicate general difficulties in reconciling high-intensity care tasks with paid work (especially for women), as has already been documented in numerous studies (e.g. Kelle 2020; Ehrlich et al. 2020). In the next step, we therefore examine the extent to which an association between providing care and employment rates was evident in the pandemic.

Irrespective of the pandemic: high-intensity care is associated with lower employment

When looking at care-givers' employment behaviour, it is important to differentiate according to the temporal extent of care, because temporally intensive care in particular is difficult to reconcile with gainful employment (Kelle 2020; Ehrlich et al. 2020; Ehrlich 2023). Accordingly, we distinguished between people with low-intensity (up to 10 h/week) and high-intensity (more than 10 h/week) care duties. As no information on time used for support and care tasks was collected in the written short survey in summer 2020, we can only provide information on the extent of support and care for the surveys in 2017 and winter 2020/21. Regardless of care intensity, there were no statistically significant changes in care-givers' employment between the two survey time points (low-intensity care 2017: 81.6 per cent, 2020/21: 81.5 per cent; high-intensity care 2017: 63.0 per cent; 2020/21: 59.4 per cent; Fig. 8.3). Non-care-givers' labour-market integration also remained unchanged. Moreover, no gender-specific trend differences were observed.

However, regardless of the pandemic, it was evident that high-intensity care-givers were significantly less often employed than non-care-givers. Their employment rate was significantly lower than the employment rate of non-care-givers in 2017 (−15 percentage points) and in winter 2020/21 (−20 percentage points). When we differentiated by gender, we found a statistically significant difference in the employment rate that only existed between female high-intensity

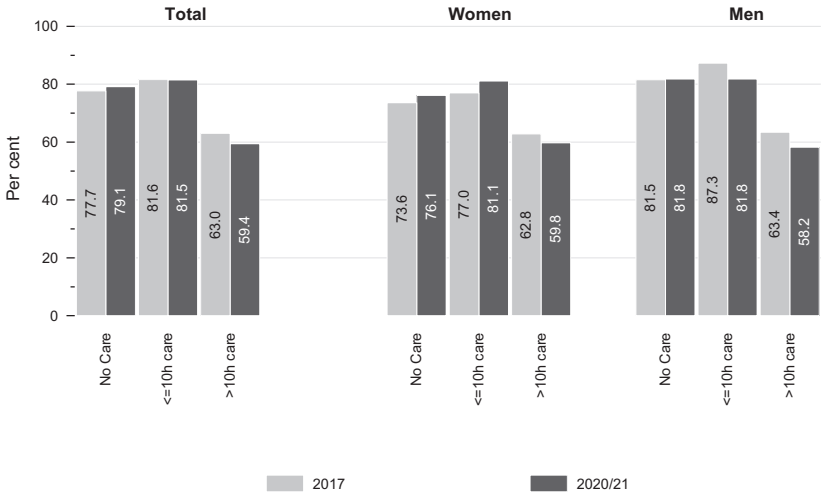

Fig. 8.3 Employment rate of low-/high-intensity care-givers/non-care-givers aged 46–65, total and by gender, in 2017 and 2020/21 (in per cent). *Source* DEAS 2017 (n = 2874), DEAS 2020/21 (n = 2209), weighted analyses, rounded estimates. Statistically significant ($p < 0.05$): Difference between low-intensity care provided by women and men 2017. Difference between women and men without support and caring responsibilities 2017; Total: Differences between high-intensity care-givers and non-care-givers 2017 and 2020/21; Differences between low-intensity and high-intensity care-givers. 2017 and 2020/21; Women: Difference between high-intensity care-givers and non-care-givers 2020/21; Difference between low-intensity and high-intensity care-givers 2020/21; Men: Difference between low-intensity care-givers and non-care-givers 2017; Difference between low-intensity and high-intensity care-givers 2017

care-givers and female non-care-givers in winter 2020/21 (−16 percentage points). Differences between the low-intensity care-givers' and non-care-givers' employment rates were statistically non-significant.

In summary, the pandemic did not negatively impact care-givers' employment, despite restrictions on professional care services and in private support networks. The results may point to the fact that a large share of (employed) care-givers mostly had to provide everyday caregiving before and during the pandemic without the support of an informal and/or a formal network. Together with the results on time devoted to care, however, the result may also indicate that professional care service closures may have led to employed family care-givers being supported more by non-employed people from their informal support network during the pandemic.

Irrespective of the pandemic, people with high-intensity care responsibilities were significantly less often employed than non-care-givers. This result confirms previous research findings that indicated that support and /or care responsibilities of more than 10 h a week lead to severe reconciliation problems (e.g. Kelle 2020; Ehrlich 2023).

Policies aiming at improving the reconciliation of care and paid work were hardly used

During the pandemic, attempts were made to facilitate access to policies for employed care-givers and to make them more flexible so that work-care reconciliation could be improved. For example, the possibility to be absent from work in acute care situations (short-term absence from work) and the period of entitlement to a wage compensation benefit were extended from 10 to 20 days. Employees could announce their intention to take care leave and family care leave at shorter notice than before, and they could reduce the previously applicable minimum working hours of 15 h per week for family care leave.

However, it turned out that 98 per cent of employed care-givers did not make use of any care policies during the Covid-19 pandemic. Of the employed care-givers, one per cent made use of short-term absence from work and another one per cent availed of care leave. Family care leave and care leave for accompanying someone in the last phase of life were not used at all. This showed that the statutory measures helped very few people to reconcile care and paid work but were not used by most employed care-givers.[6]

The non-use of policies aiming at improving the reconciliation of care and paid work during the Covid-19 pandemic went hand in hand with the observation that even before the Covid-19 pandemic, leave policies were rarely used (e.g. Hielscher et al. 2017). The reasons given for not making use of the leave policies were not knowing these measures, financial reasons, the difficulty in planning the course of care or the fear of negative consequences at work (Hielscher et al. 2017; Suhr and Naumann 2016). In addition, eligibility requirements (e.g. care recipient's state-approved care dependency, employment relationship, company size) could also have made access to these statutory measures more difficult (Hielscher et al. 2017).

[6] The use of statutory measures referred to the time at the interview. The period for which support and care activities could be indicated at the time of the interview is the past twelve months. Therefore, the proportion of support and care workers who had made use of statutory measures, such as short-term care leave, may have been underestimated.

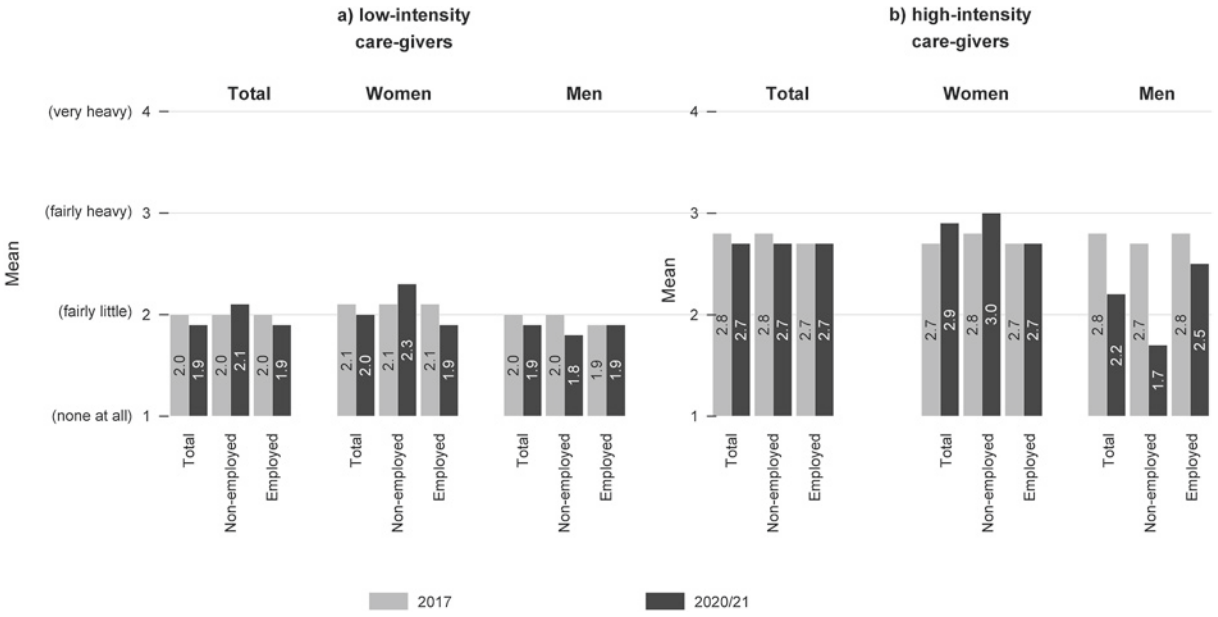

Fig. 8.4 Care-giver burden among care-givers aged 46 to 65 years, by employment status, gender, and care intensity in 2017 and 2020/21 (arithmetic mean values). *Source* DEAS 2017 (n = 545), DEAS 2020/21 (n = 456) weighted analyses, rounded estimates. Statistically significant ($p<0.05$): Men: decrease between 2017 and 2020/21 for time-intensive caring non-employed. Difference between low-intensity caring non-working women and men 2020/21; difference between high-intensity caring non-working women and men 2020/21

No increased care-giver burden during the pandemic

Overall, the average level of care-giver burden during the pandemic was similar to that before the pandemic (2017: 2.2; 2020/21: 2.1) (not shown). This meant that on average, those affected felt "not very burdened" by the care situation both before and during the pandemic. Even when we broke the analysis down by support/care intensity, employment status and gender, we found no statistically significant increase in care-giver burden. However, it was striking that for high-intensity care-givers who are non-employed men, their mean level of care-giver burden during the pandemic was even significantly lower than before the pandemic (2017: 2.7; 2020/21: 1.7; Fig. 8.4b). Overall, at both survey times, people who provided care for more than ten hours a week felt more burdened on average than people who provided low-intensity care—regardless of employment status (Fig. 8.4). However, during the winter 2020/21, non-employed women providing high-intensity care felt most burdened (2020/21: 3.0), followed by employed women providing high-intensity care (2020/21: 2.7) (Fig. 8.4b).

8.5 Conclusion

Even before the pandemic, it was often difficult to reconcile caregiving and gainful employment, especially for women. Women who are heavily involved in caring for family members, friends or neighbours have much higher probabilities of giving up gainful employment compared to women who do not do so (Kelle 2020). Those who spend lower amounts of time providing care increasingly switch to part-time work—at least if they can afford it financially (Kelle 2020; Ehrlich 2023).

However, we found little evidence that the support, care, and employment situation in the working-age population changed during the pandemic. Overall, we found that more people took on support and care tasks during the first pandemic wave than before the pandemic, probably in response to the pandemic-related restrictions. During the second wave, the level of support was then again at a similar level as before the pandemic. The average amount of time spent on support and caregiving tasks did not increase during the pandemic. Overall, women continued to provide support and/or care more often and in a more time-intensive way than men during the pandemic. In particular, non-employed women invested significant amounts of time in support and care tasks during the Covid-19 pandemic. However, the descriptive findings presented in this chapter did not allow us to draw any conclusions as to whether the differences in the amount of time spent on care between non-employed and employed women were due to the fact

that non-employed women have greater time availability or whether they were the result of the fact that high-intensity care is hardly compatible with employment. However, other studies suggest that high-intensity care increases the probability of giving up gainful employment (Kelle 2020; Ehrlich 2023).

Against the background of the temporary increase in the proportion of working-age care-givers, while the amount of time spent caring remained stable, the question of possible changes in care-givers' employment during the pandemic was of further interest. Care-givers' employment rates remained stable—both among low-intensity and high-intensity care-givers. However, at each survey time point, providers of high-intensity care were significantly less likely to be employed than persons who did not perform care tasks. The lower employment rate of high-intensity care-givers compared to non-care-givers underpins the conflict of reconciliation between (high-intensity) care and gainful employment. The association between high-intensity care and lower labour market integration applies to both women and men. However, women are more affected by this, as they more often provide care for family members, friends or neighbours than men.

In line with the stable amount of time spent providing support and care as well as the stable employment behaviour, care-givers' average levels of care-giver burden did not increase in the pre-pandemic/pandemic comparison—regardless of the amount of time devoted to care. However, at each point in time of the survey, we found evidence of clear differences in care-giver burden between persons who provided low-intensity care and those who provided high-intensity care—independent of labour market integration. People with high-intensity care tasks felt more burdened than people with low-intensity care tasks. In addition, women with high-intensity care tasks felt more burdened than male care-givers who provided high-intensity care.

Another focus of this chapter was the possible exacerbation of gender differences in the field of support and/or care and accordingly a possible Covid-19-related retraditionalisation of gender roles. A retraditionalisation of gender roles during the Covid-19 pandemic has so far been discussed mainly for parents with minor children. Here, various studies have shown that mothers bore the main burden of care work during the pandemic and accordingly also reported greater stress and impairments in well-being (Kreyenfeld and Zinn 2021; Hank and Steinbach 2020; Möhring et al. 2020; Kohlrausch and Zucco 2020; Huebener et al. 2021; Hipp and Bünning 2021; Li et al. 2021). While a Dutch study concluded that gender inequalities in caregiving for family members, neighbours or friends were equalised during the pandemic (Raiber and Verbakel 2021), our findings, as well as those of other German studies (e.g., see chapter "Covid-19 crisis = care

crisis? Changes in care provision and care-givers' well-being during the Covid-19 pandemic"), suggest that women took on support and caregiving tasks more often than men during the pandemic. Furthermore, they show that employed women supported and/or cared for others to a greater extent than employed men. Thus, our findings suggest that a retraditionalisation tendency also existed in the area of support and care.

The existing statutory measures to better reconcile care and paid work were only used by a few employed care-givers. Possible reasons for this could be that the measures are not sufficiently known or are too complicated to apply for. Another reason could be that so far, only an interest-free loan but no wage compensation benefit is paid during (family) care leave and not all care-givers could afford to lose wages. As a recent study (Ehrlich 2023) shows, care-givers with low household incomes were less likely to switch from full-time to part-time work than those with higher household incomes. The introduction of a wage compensation benefit as planned in the coalition agreement between the SPD, the Greens and the FDP (Social Democratic Party of Germany et al. 2021) could help to ensure that more care-givers benefit from statutory measures than before.

However, the planned reforms can do little to change the fact that high-intensity care is hardly compatible with gainful employment (even part-time work) (Kelle 2020; Ehrlich et al. 2020; Ehrlich 2023). Thus, an additional expansion of the outpatient care infrastructure would be helpful to relieve family care-givers and improve the reconciliation of care for family members, friends or neighbours and paid work.

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Grandchild Care during the Covid-19 Pandemic

9

Mareike Bünning, Ulrike Ehrlich, Felix Behaghel and Oliver Huxhold

9.1 Key Messages

The amount of grandchild care remained largely stable. In 2017, 39 per cent of grandparents regularly looked after their grandchildren. In the winter of 2020/21, the figure was 34 per cent. However, the decline in the care rate was not statistically significant. The amount of time grandparents spent caring for their grandchildren also remained stable during the pandemic.

Grandparents who were transitioning to retirement were less likely to care for their grandchildren during the Covid-19 pandemic than in 2017. Grandparents aged 60 to 69 were significantly less likely to care for their grandchildren during the pandemic (37 per cent) than in 2017 (47 per cent). By contrast, there were no significant changes among older grandparents aged 70 to 90 and younger grandparents aged 46 to 59.

Grandmothers and grandfathers took care of their grandchildren in similar proportions during the pandemic. Whereas in 2017, significantly more women (43 per cent) than men (35 per cent) were looking after their grandchildren,

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the gender gap narrowed during the Covid-19 pandemic (women: 36 per cent; men: 31 per cent) and was no longer statistically significant.

Health risk factors were hardly associated with reduced grandchild care. Five out of six risk factors for severe Covid-19 (hypertension, cardiac insufficiency, cancer, chronic pulmonary disease, and diabetes) were unrelated to grandchild care: similar proportions of grandparents with these risk factors cared for their grandchildren in 2020/21 as in 2017. Only grandparents with severe overweight cared for their grandchildren significantly less often during the pandemic (33 per cent) than in 2017 (42 per cent).

Grandparents living further away were less likely to care for their grandchildren during the pandemic than before. Whether the grandchildren lived nearby was the most important factor for grandchild care overall. The care rate of grandparents living in the same locality as their grandchildren hardly changed during the pandemic (2017: 57 per cent; 2020/21: 54 per cent). Grandparents who lived further away from their grandchildren were less likely to engage in caregiving during the 2020/21 pandemic (21 per cent) than in 2017 (28 per cent).

The economic value of grandchild care amounted to 16 to 18 billion euros or about 0.5 per cent of the gross domestic product. When we extrapolated the amount of grandchild care in 2020/21 in hours per year to the total population, we found a volume of about 1.75 to 1.95 billion hours. If grandparents received the minimum wage for this, this would have corresponded to a value of 16 to 18 billion euros or 0.5 per cent of the gross domestic product in 2020.

9.2 Introduction

Many grandparents regularly take care of their grandchildren. This gives them the opportunity to build a close relationship with their grandchildren (Brown 2003) and at the same time help their adult children to stay in employment, especially if they cannot access day-care centres and schools with opening hours that align with their working hours (Bünning 2017).

How has the Covid-19 pandemic affected grandchild care? Here, developments in two different directions seemed plausible. On the one hand, the need for privately provided childcare increased abruptly. Day-care centres and schools were closed or had very limited opening hours. Parents were suddenly confronted with having to manage childcare and long-distance learning in parallel to their own employment. Support from grandparents became more important than ever.

On the other hand, social distancing measures reduced privately provided childcare. Older people were perceived as a special risk group that was particularly at

risk from the virus. Experts explicitly advised against grandparent care for grandchildren. (NDR Podcast with Christian Drosten: Martini 2020). Therefore, many families may have decided to reduce contact with grandparents to protect them from infection.

Different population groups may have made different decisions on grandchild care. The older the grandparents were, the greater their risk of suffering from severe Covid-19 (Robert Koch Institute 2021) and the more likely they may have decided against caring for their grandchildren. In addition to age, certain pre-existing conditions such as cardiovascular diseases, chronic pulmonary disease, diabetes, or cancer were identified as risk factors for severe Covid-19 (Robert Koch Institute 2021).

Moreover, grandchild care was not evenly distributed across different population groups before the pandemic. Grandmothers, for example, provided grandchild care significantly more often than grandfathers, because women still assumed the function of "kin keepers" and maintained family relationships more often (Mahne and Klaus 2017). This may have been exacerbated in the pandemic, as men had a higher risk of becoming severely ill with Covid-19. (Robert Koch Institute 2021). People with a low educational level tended to have fewer resources than those with a higher educational level, so they may have had fewer resources to invest in their grandchildren, and their social relationships may have been more strained by economic worries and hardships (Mahne und Huxhold 2015). Correspondingly, older studies showed that more highly educated grandparents were more likely to take care of their grandchildren than those with a lower educational level (Igel 2012). The pandemic may have further exacerbated the situation for those with a low educational level.

Furthermore, the geographical proximity between grandparents and grandchildren was decisive for how easily grandparents could integrate grandchild care into everyday life (Bengtson and Roberts 1991). If the grandchildren lived in the same town, grandparents were more likely to care for their grandchildren on a regular basis and step in spontaneously when needed than if they lived further away. These differences may have further increased during the pandemic due to social distancing measures and the call to avoid unnecessary travel.

Empirical studies on grandchild care during the Covid-19 pandemic have been scarce so far. A European study examining changes in the frequency of contact between older people and their adult children concluded that intergenerational contact remained largely stable overall and even tended to increase, although it was not possible to examine the extent to which physical contact was replaced by contacts via telephone/internet. Older men and people with a low educational

level, however, reported reduced contact with their adult children (Vergauwen et al. 2021).

Research questions

Against this background, this chapter examines how the proportion of grandparents caring for grandchildren and the amount of time they spent caring for their grandchildren changed during the pandemic. Specifically, we looked at the situation in winter 2020/21, when schools were still mostly open and the vaccination campaign had not yet started. Rapid antigen tests were also not yet available at the time of the survey.

The following research questions were asked:

1) Did grandparents intensify or reduce grandchild care during the pandemic?
2) Did older grandparents in particular decide against looking after their grandchildren during the pandemic?
3) What were the differences between grandmothers and grandfathers and between educational groups?
4) What role did risk factors for suffering from severe Covid-19 play in whether grandparents took care of their grandchildren?
5) How much did the decision to care for grandchildren depend on geographical proximity?
6) What was the contribution of grandchild care to economic value creation in the first year of the pandemic?

9.3 Data and Methods

The analyses in this chapter were based on the oral surveys of the German Ageing Survey (DEAS, see Vogel et al. (2020)) from 2017 and 2020/21. We looked at changes in grandchild care between these two observation points, i.e. at a time before the Covid-19 pandemic (2017) and during the second wave (November 2020 to March 2021). By adopting this approach, we hoped to obtain evidence of Covid-related changes. However, it was not possible to clearly attribute changes to the Covid-19 pandemic, as observed changes may also have been a consequence of general societal change or other historical events between 2017 and 2020/21. This had to be taken into account when interpreting the results.

In this chapter, we report weighted proportions on participation in grandchild care (care rate) and weighted arithmetic means on the amount of time spent doing grandchild care. In doing so, we draw conclusions about the population living in

private households in the respective years and thus describe the changes between the two points in time.

At both observation points, the sample included people aged between 46 and 90 who had at least one grandchild under the age of 14. From the age of 14, the likelihood of grandparents caring for their grandchild declined significantly, as the children were old enough to manage on their own (Zoch et al. 2021). Using these criteria, we obtained a sample size of 2535 respondents in 2017 and 2075 in winter 2020/21.

Grandchild care was identified via the following questions in the German Ageing Survey: "Do you look after or supervise other people´s children privately, e.g. your grandchild or the children of siblings, neighbours, friends, or acquaintances?" Grandchild care was recorded as a separate category. If the respondents answered "yes", they were then asked: "How many hours do you spend on this on average?" Respondents could indicate either hours per day, per week or per month. This information was then converted into hours per week. When converting daily data into weekly hours, we assumed a six-day week. The upper limit was set at 96 h per week (6 days of 16 h each).

Differences in grandchild care were examined according to the following characteristics: age (divided into three age groups: 46–59 years (27 per cent in 2020/21), 60–69 years (40 per cent in 2020/21) and 70–90 years (24 per cent in 2020/21)—the age groups thus represented the working phase, the transition-into-retirement phase and the retirement phase), gender (49 per cent men, 51 per cent women in 2020/21), education (low-medium education level (68 per cent in 2020/21) vs. high education level (32 per cent in 2020/21)),[1] health and geographic proximity to the nearest grandchild (lived in the same town (42 per cent in 2020/21) vs. lived further away (58 per cent in 2020/21)). In terms of health status, six risk factors for a severe course of Covid-19 were considered: hypertension (48 per cent in 2020/21), cardiac insufficiency (17 per cent in 2020/21), chronic pulmonary disease (9 per cent in 2020/21), cancer (8 per cent in 2020/21), diabetes (14 per cent in 2020/21) and severe overweight (a body mass index above 30, (22 per cent in 2020/21)) (Robert Koch Institute 2021). The first five risk factors were elicited by the following question: "Please look at the following list: Has a doctor ever told you that you are suffering from one of the illnesses listed?" The body mass index was calculated using information on height and weight.

[1] Low and medium educational levels were combined due to small case numbers with low education levels.

9.4 Findings

9.4.1 The Proportion of Grandparents Caring for Grandchildren Remained Stable

The results showed that the proportion of grandparents caring for their grandchildren slightly decreased from 39 per cent in 2017 to 34 per cent during the winter of 2020/21 (Fig. 9.1). This change was not statistically significant. The average amount of time that care-providing grandparents spent caring for their grandchildren decreased slightly from 9.7 h per week in 2017 to 9.0 h per week in the winter of 2020/21. This change was also not statistically significant. Thus, the overall amount of grandchild care remained remarkably stable during the pandemic.

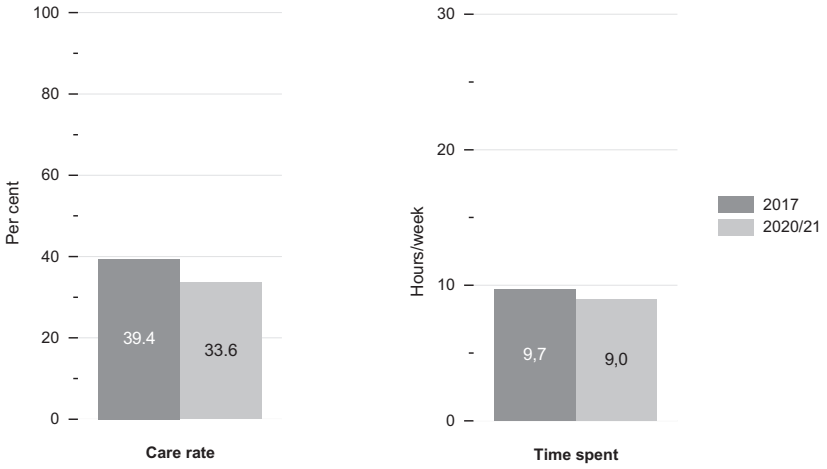

Fig. 9.1 Childcare rate (in per cent) and amount of childcare (in h/week) by survey year. *Source* DEAS 2017 (care rate: n = 2531, hours: n = 1005), DEAS 2020/21 (care rate: n = 2070, hours: n = 681), weighted analyses, rounded estimates. Changes between 2017 and 2020/21 were not statistically significant ($p < 0.05$)

Grandparents Made a Considerable Contribution to Economic Value Creation During the Pandemic

Through grandchild care, grandparents also contributed to economic value creation, because parents often require childcare to engage in gainful employment. Unpaid work such as grandchild care is not included in the calculation of gross domestic product (GDP). Nevertheless, there are methods to determine the economic value of unpaid care and domestic work in private households based on time use data (Schwarz and Schwahn 2016).

To estimate the overall economic contribution made by grandparents through grandchild care during the pandemic, we therefore extrapolated the time spent on grandchild care in 2020 to the total population, combining data on grandchild care from the German Ageing Survey with data from the German Microcensus, which provides an estimate of the number of people in a given age range in Germany. Finally, we used the statutory minimum wage to relate the grandchild care provided to the gross domestic product.

To do this, we first determined the annual volume of grandchild care. Since DEAS only asked grandparents to roughly estimate the time they spent on grandchild care but did not require them to record it in detail as in a time use survey, we used two scenarios to calculate the range within which the total volume of grandchild care was likely to fall. For the upper threshold, we assumed a six-day week and that grandparents cared for their grandchildren for 48 weeks or 11 months per year. For the lower threshold, we used a five-day week and assumed that grandparents cared for their grandchildren for 44 weeks or 10 months a year. This approach yielded the following estimate:

Extrapolated to the total population, about 4.5 million grandparents aged 46 to 90 in Germany cared for their grandchildren under the age of 14 in 2020 and spent an average of 384 to 431 h per year on this. This amounted to around 1.75 to 1.95 billion hours of grandchild care per year.

Grandparents thus made a considerable contribution to economic value creation in Germany. Taking the current minimum wage of 9.35 euros as the age rate for each hour of care provided, we arrived at an economic value of grandchild care of 16 to 18 billion euros. This corresponded to about 0.5 per cent of the gross domestic product, which amounted to 3368 billion euros in 2020 (Federal Statistical Office [Statistisches Bundesamt] 2021).

9.4.2 Grandparents Who were in Transition to Retirement were Less Likely to Care for Their Grandchildren in 2020/21 than in 2017

A comparison of grandchild care by age of grandparents showed that in 2020/21, fewer grandparents in the transition-to-retirement age group cared for their grandchildren than in 2017. While 47 per cent of 60–69-year-olds reported caring for their grandchildren in 2017, their care rate was only 37 per cent in 2020/21 (Fig. 9.2). This decline was statistically significant. In the oldest age group of 70–90-year-olds, grandchild care was significantly lower than in the middle age group in 2017 at 32 per cent and it decreased to 25 per cent in 2020/21, although this change was not statistically significant. In contrast, no changes were evident in the youngest age group: in 2017, 36 per cent of 46–59-year-old grandparents were caring for their grandchildren, compared to 39 per cent in 2020/21. Overall, the results suggested that people aged 60 and older tended to withdraw from grandchild care, while such a trend was not evident among younger grandparents.

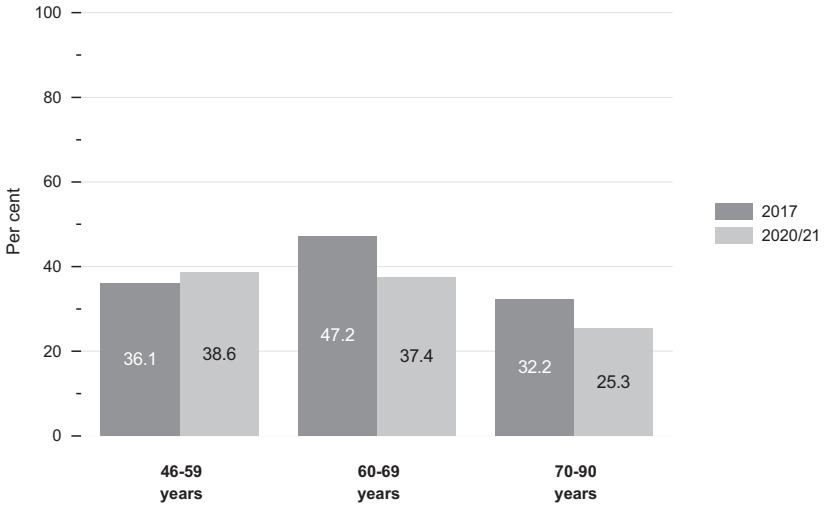

Fig. 9.2 Childcare rate 2017 and 2020/21 by age group (in per cent). *Source* DEAS 2017 (n = 2531), DEAS 2020/21 (n = 2070), weighted, rounded estimates. Statistically significant ($p < 0.05$).: Decline in care rate among 60–69-year-olds, differences between the middle and oldest age groups in 2017 and 2020/21, differences between the middle and youngest age groups in 2017

9.4.3 Gender Differences in Grandchild Care Narrowed

Both grandmothers and grandfathers were slightly less likely to care for their grandchildren in 2020/21 than they were in 2017. In the winter of 2020/21, 36 per cent of grandmothers provided grandchild care while 31 per cent of grandfathers did so (Fig. 9.3). In 2017, 43 per cent of grandmothers and 35 per cent of grandfathers cared for their grandchildren. However, the decline in grandchild care was not statistically significant. Nevertheless, gender inequalities decreased. In 2017, women cared for their grandchildren significantly more often than men. The 2017 result thus confirmed the findings known from the literature that grandmothers were more involved in grandchild care than grandfathers. In winter 2020/21, the gender differences were no longer statistically significant. The care rates thus converged, despite men having a higher risk of becoming severely ill with Covid-19 than women (Robert Koch Institute 2021). This hence ran counter to our expectation that men would reduce grandchild care more than women in the pandemic and that this could be due to gender differences in coping with the pandemic. As other studies have shown, women in general were more likely to adhere to pandemic containment measures than men (Galasso et al. 2020; Lin et al. 2021). Therefore, they may also have been more likely to limit grandchild

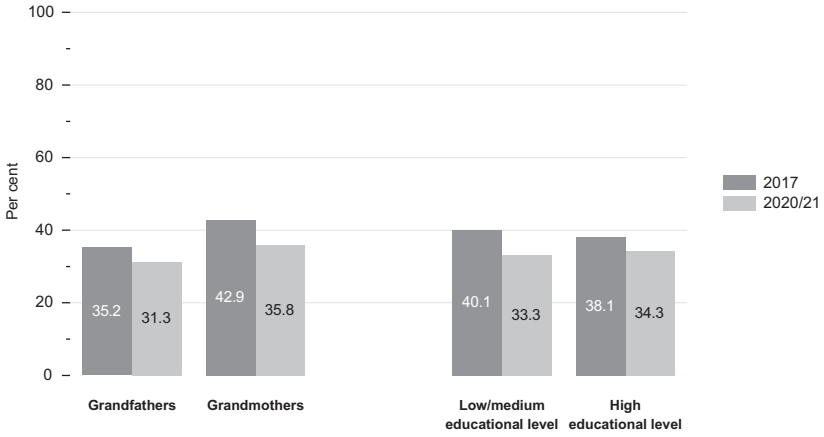

Fig. 9.3 Childcare rate 2017 and 2020/21 by gender and educational levels (in per cent). *Source* DEAS 2017 (n = 2531), DEAS 2020/21 (n = 2070), weighted analyses, rounded estimates. Changes between 2017 and 2020/21 were not statistically significant ($p < 0.05$). Statistically significant ($p < 0.05$): Differences between men and women in 2017

care due to social distancing measures. However, the convergence of care rates between grandmothers and grandfathers could also have been the result of general social developments.

9.4.4 No Differences in Grandchild Care by Educational Levels

In the winter of 2020/21, 33 per cent of grandparents with a low or medium educational level and 38 per cent of grandparents with a high educational level were looking after their grandchildren (Fig. 9.3). In 2017, the figures were slightly higher for both groups, at 40 per cent for grandparents with low or medium educational levels and 38 per cent for grandparents with high educational levels. However, the decline in grandchild care between 2017 and 2020/21 was not statistically significant in either educational group. Grandparents with low or medium educational levels therefore cared for their grandchildren about as often as those with high educational levels at both observation points. We hence could not replicate the finding from older studies that more highly educated grandparents were more likely to care for their grandchildren than grandparents with a lower educational level (Igel 2012).

9.4.5 Risk Factors for Severe Covid-19 Were Only Marginally Associated with a Decline in Grandchild Care

In addition to age, certain pre-existing conditions such as cardiac insufficiency, chronic pulmonary disease, cancer or diabetes were identified as risk factors for suffering from severe Covid-19. Severe overweight was also associated with an increased risk of developing severe Covid-19. (Robert Koch Institute 2021). Therefore, we looked at how these risk factors were related to grandchild care (Fig. 9.4).

First, we looked at chronic pulmonary disease. Here, we saw that the grandchild care rate had not changed significantly for grandparents with or without chronic pulmonary disease. In the winter of 2020/21, the care rate was 34 per cent in both groups, and in 2017 it was 40 per cent for grandparents without chronic pulmonary disease and 33 per cent for grandparents with chronic pulmonary disease.

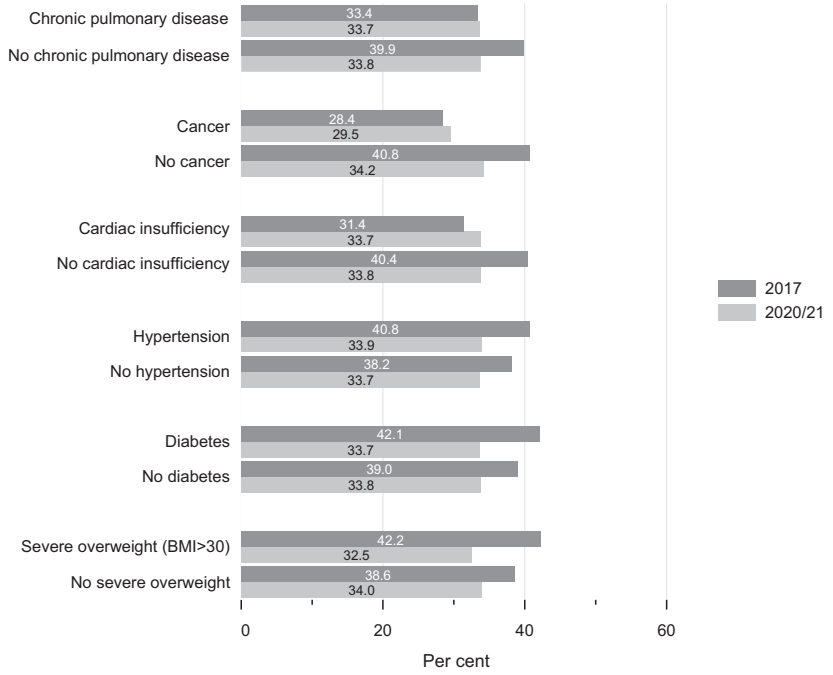

Fig. 9.4 Care rates in 2017 and 2020/21 by risk factors for severe Covid-19. *Source* DEAS 2017 (n = 2495 for overweight, n = 2528 for all other pre-existing conditions), DEAS 2020 (n = 2050 for overweight, n = 2067 for all other pre-existing conditions), weighted, rounded estimates. Statistically significant ($p < 0.05$): Decreases in care rate among grandparents without cancer, grandparents without cardiac insufficiency and grandparents with severe overweight, differences between grandparents with and without cancer 2017

Regarding cancer, contrary to our expectations, people without cancer were significantly less likely to care for their grandchildren in 2020/21 (34 per cent) than in 2017 (40 per cent), while the care rate for people with cancer remained stable (31 per cent in 2017, 34 per cent in 2020/21).

A similar pattern emerged for cardiac insufficiency: those without cardiac insufficiency were significantly less likely to care for their grandchildren in the winter of 2020/21 (34 per cent) than in 2017 (40 per cent), while there were no significant changes in the childcare rate among those with cardiac insufficiency (31 per cent in 2017, 34 per cent in 2020/21).

Regarding hypertension, the second cardiovascular disease we studied, we found no significant changes in the proportion of grandparents with or without hypertension who looked after their grandchildren. In the winter of 2020/21, the care rate in both groups was 34 per cent, and in 2017 it was 41 per cent for people with hypertension and 38 per cent for people without hypertension.

The care rate of grandparents with and without diabetes did not change significantly either. In 2020/21, 34 per cent each were caring for their grandchildren, compared to 39 per cent of those without diabetes and 42 per cent of those with diabetes in 2017.

Finally, people with severe overweight (BMI > 30) were less likely to care for their grandchildren in the Covid-19 pandemic (33 per cent) than in 2017 (42 per cent), while no significant change could be observed among people who did not suffer from severe overweight. In 2017, the care rate in this group was 39 per cent and in the winter of 2020/21, it was 34 per cent.

Overall, our analyses showed that the presence of risk factors for severe Covid-19 did not translate into lower rates of grandchild care during the pandemic. Severe overweight was the only exception from this pattern. In fact, for two serious conditions—cancer and cardiac insufficiency—we found that the rate of care only remained stable for people who had these conditions, while it decreased for people without cardiac insufficiency and cancer. Our results contrasted with other studies that found that people with pre-existing conditions were more cautious during the pandemic (e.g. not meeting family members; not meeting non-family members; wearing face masks, etc.) than people without pre-existing conditions. (Bíró et al. 2021; Delerue Matos et al. 2022).

At this point we can only speculate about the reasons for this discrepancy. One possible explanation could be that we distinguished between several pre-existing conditions in our analyses that differed in terms of their severity. Studies suggest that people who had a limited lifespan due to a life-threatening illness such as cancer or severe cardiovascular disease had a particularly strong need to spend their remaining time with their closest social contacts. (Carstensen and Fredrickson 1998). For many grandparents, their relationship with their grandchildren is very important and experienced as very intimate (Mahne and Huxhold 2012; Mahne and Klaus 2017). This may mean that some grandparents who suffered from life-threatening pre-existing conditions were not willing to give up contact with their grandchildren, even in the face of increased risks. In addition, the middle generation, i.e. the parents of the grandchildren, might also have made a greater effort (e.g. through costly testing) to enable grandparent-grandchild contact in cases where grandparents had a serious pre-existing condition. In contrast, people with less severe pre-existing conditions or no pre-existing conditions may

have assumed that they could make up for lost time with grandchildren after the pandemic and decided not to care for their grandchildren.

It is also worth noting that we gathered information on the diseases based on the question of whether a doctor had ever diagnosed the disease in question. Because of this, some people at the time of the survey may no longer have been actually suffering from the disease. The fact that very severely ill people were unlikely to participate in DEAS may also have played a role.

9.4.6 Grandparents Who Lived Further Away from Their Grandchildren Were Less Likely to Care for Them during the Pandemic Than Before

As expected, we found that grandparents living further away were generally significantly less likely to care for their grandchildren than those living in the same town. These differences were exacerbated in the Covid-19 pandemic. Among grandparents living in the same locality, grandchild care decreased only slightly, from 57 per cent to 54 per cent between 2017 and 2020/21 (Fig. 9.5). This difference was not statistically significant. Thus, at both observation points, more than half of the grandparents who lived close to their grandchildren were caring for them. For those living further away from their grandchildren, the care rate was only half as high in 2017 at 28 per cent; it dropped to 21 per cent in the winter of 2020/21. This drop was statistically significant. If the grandchildren lived further away, there may have been a need to travel by public transport or to stay overnight. However, due to the pandemic, all non-essential travel was discouraged and the general social distancing measures, the perceived risk of infection on public transport and closed hotels may have discouraged grandparents from visiting or inviting their grandchildren to stay with them.

9.5 Discussion and Conclusion

Overall, grandchild care remained remarkably stable during the Covid-19 pandemic. In 2020/21, one third of grandparents cared for their grandchildren under the age of 14, thus maintaining family relationships that were very important to them. In addition, they also supported the parents of these grandchildren, who faced special challenges and suffered from increased stress in view of day-care and school closures (Li et al. 2021). Extrapolated to the total population in Germany, grandparents provided about 1.75 to 1.95 billion hours of childcare in

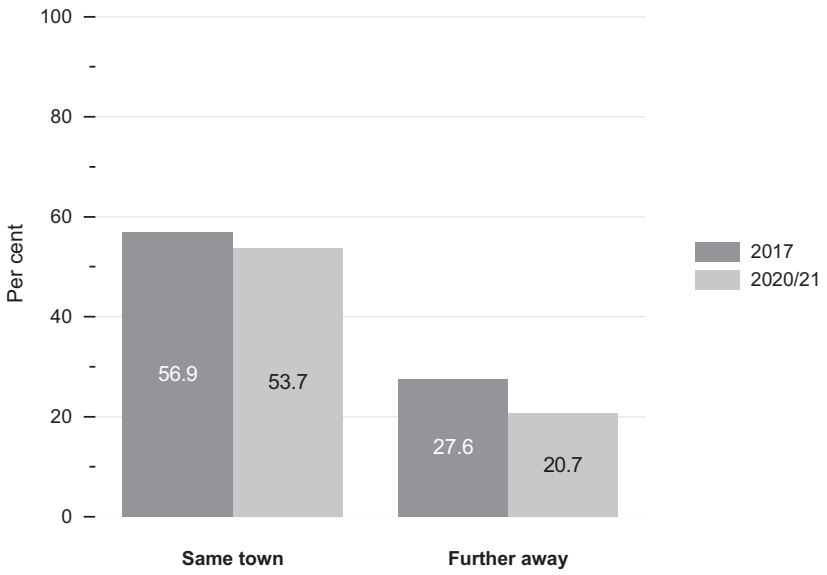

Fig. 9.5 Childcare rate 2017 and 2020/21 by geographical proximity to the next grandchild (in per cent). *Source* DEAS 2017 (n = 2438), DEAS 2020/21 (n = 1965), weighted analyses, rounded estimates. Statistically significant ($p < 0.05$): Decline in care rates among grandparents living further away, differences between grandparents living in the same town as their grandchild(ren) and those living further away 2017 and 2020/21

2020. Based on the minimum wage, this corresponded to an economic value of 16 to 18 billion euros or 0.5 per cent of the gross domestic product of 2020. This illustrates that older people were not only a vulnerable risk group in need of protection and solidarity but also made a considerable contribution to society during the pandemic. This contribution should be recognised and valued.

However, the trend showed that some groups of grandparents cared for their grandchildren less often during the pandemic than before, while we did not find any group that became more involved in caregiving in 2020/21. The results thus indicated that some grandparents decided (temporarily) not to care for their grandchildren due to social distancing measures and to protect themselves from infection. When interpreting the results, however, it is important that the survey was conducted for the most part in a period when schools were still open and the vaccination campaign had not yet started. Rapid antigen tests were also not yet available at the time of the survey.

Regarding the question of which characteristics were associated with a higher or lower care rate, the geographic proximity to the nearest grandchild turned out to be the most decisive factor. More than half of grandparents who lived in the same town as their grandchildren cared for their grandchildren. This was more than twice the rate reported by those whose grandchildren lived further away. During the pandemic, these differences became even more pronounced. This showed that organisational barriers (travelling) made it difficult to provide care. Socio-demographic characteristics and risk factors for severe Covid-19 were less relevant than proximity in determining whether grandparents provided care for their grandchildren. In contrast to previous studies, we found no gender or educational differences in grandchild care in 2020/21.

Mixed findings emerged regarding risk factors for severe Covid-19. In addition to age, we looked at six pre-existing conditions that increased the risk of developing severe Covid-19: hypertension, cardiac insufficiency, cancer, chronic pulmonary disease, diabetes and severe overweight. While the rate of caregiving decreased among older grandparents during the pandemic (especially among the middle age group of 60–69-year-olds), the expectation that grandparents with pre-existing conditions would be less likely to care for their grandchildren was only confirmed for severely overweight grandparents. No other pre-existing conditions were associated with reduced grandchild care. Regarding cardiac insufficiency and cancer, we even found that grandparents without these diseases cared for their grandchildren less frequently in 2020/21 than in 2017, while the care rate for grandparents with these diseases remained stable.

These findings were surprising and in contrast to the results of other studies, according to which people with pre-existing conditions were more likely to limit their private contacts (Bíró et al. 2021; Delerue Matos et al. 2022). One possible explanation is that some seriously ill people decided to continue caring for their grandchildren because, given their illness, they did not know whether they would be able to make up for missed grandchild care after the pandemic.

It is also plausible that some grandchild care was delivered digitally without the risk of contracting Covid-19. For example, data from France, Spain and Italy showed that during the pandemic, older people increasingly used video chat services to remain in contact with their children and grandchildren (Arpino et al. 2021). In Germany, too, older people used the internet significantly more frequently in 2020 than in 2017 to maintain social contact, although it was unclear to what extent this involved contact with and care for grandchildren (see chap. 13).

Another limitation of the present analyses was that we had no information on the professional situation of the parents. Parents as "gatekeepers" play a decisive role in deciding on and organising the grandparent-grandchild relationship. The extent to which grandparents are involved in the care of grandchildren therefore also depends strongly on the needs of the parents (Mahne and Huxhold 2012; Igel 2012). For example, if the parents were working reduced hours (short-time work) due to Covid-19, they may have decided to forego care by grandparents. If, on the other hand, the parents had long working hours, they may have been dependent on the support of grandparents when day-care centres and schools were closed.

The results point to the resilience of intergenerational solidarity during the pandemic. With increasing vaccination rates, the majority of those who had temporarily given up contact with their grandchildren probably resumed grandchild care. Thus, the small decline in grandchild care during the Covid-19 pandemic was likely only temporary.

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10 Loneliness Increased Significantly among People in Middle and Older Adulthood during the Covid-19 Pandemic

Oliver Huxhold and Clemens Tesch-Römer

10.1 Key messages

In the first wave of the pandemic, more people in the second half of life were lonely than in previous years. In 2020, the loneliness rate for people aged 46 to 90 was about 14 per cent, 1.5 times higher than in previous years. In 2014 and 2017, about 9 per cent of people in this age group felt lonely in both years.

The increase in the risk of loneliness in the first wave of the pandemic affected different population groups to the same extent. Loneliness increased to a similar extent for all age groups, for women and men, and for different educational groups.

Close social relationships did not protect people against increases in the risk of loneliness in the first wave of the pandemic. Close social relationships generally reduced the risk of loneliness: people in partnerships and people living in multi-person households were less likely to be lonely than people without partnerships and those living alone. However, the risk of loneliness increased at the same rate in both groups (people with and without close social relationships) between 2014/2017 and 2020.

Even having good contact with neighbours did not protect against increases in the risk of loneliness in the first wave of the pandemic. Good

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contact with neighbours was generally helpful: people in the second half of life who had good contact with their neighbours had a significantly lower risk of loneliness than people without good neighbourly contact. However, the risk of loneliness increased equally in both groups (people with and without good neighbourly contact) between 2014/2017 and 2020.

10.2 Introduction

To combat the Covid-19 pandemic, governments had to introduce pandemic-containment measures that significantly interfered with social relationships. For example, people had to wear masks and keep a distance of at least one and a half metres, preferably even more. They were asked to only maintain personal contact with a small group of people in order to avoid chain infections. Most contact with other people could therefore only take place via telephone and internet video conferencing services. Community activities—such as attending theatres, cinemas and museums, taking part in team sports and dance events and going to restaurants and pubs—were not possible. The measures reduced personal social contact predominantly to people who lived in the same household or neighbourhood and limited social support services, such as help with errands. In view of these social restrictions, the question of whether the Covid-19 pandemic was associated with an increase in loneliness, especially for people in older adulthood, has been repeatedly raised in the public debate.

The general risk of loneliness
This study of the experience of loneliness before and during the pandemic included people in the second half of life, aged between 46 and 90. The analysis compares loneliness rates in the summer of 2020 to loneliness rates at two points before the start of the Covid-19 pandemic, namely in 2014 and 2017. This comparison enables us to examine the influence of the pandemic on the risk of feeling lonely in the second half of life. Due to social distancing rules and the accompanying reductions in social interactions and social support, we should expect to find that there was an increase in loneliness in the first months of the Covid-19 pandemic (June/July 2020) compared to the period before the pandemic.

Risks of loneliness in different population groups
However, not all population groups may have been equally affected by the pandemic's impact on loneliness risks. We therefore also investigated whether the increase in loneliness in the wake of the Covid-19 pandemic differed for people

of different ages, for women and men, and for people with different educational levels.

Age: The increase in loneliness might have varied depending on age, hitting some age groups harder than others. For example, the health effects of Covid-19 are often more serious in older people than in younger people (Robert Koch Institute 2020). Because older people may have been particularly cautious and isolated themselves more than younger people due to their greater risk of contracting severe Covid-19, older people may have been at greater risk of experiencing increases in loneliness due to the Covid-19 pandemic with increasing age (Luchetti et al. 2020). On the other hand, many older people may have had previous experiences of being and living alone and may hence have been better able to cope with the circumstances than people in middle adulthood (Böger and Huxhold 2018a), who are normally more involved in social networks and social activities (Huxhold et al. 2013). Therefore, the Covid-19 pandemic may have led to a greater increase in the risk of loneliness among people in their middle years than among older people (Entringer and Kröger 2020).

Gender: Under normal conditions, there are only minor differences between women and men regarding the risk of experiencing loneliness (Böger et al. 2017). However, women report more frequent contact with relatives and friends than men (Sander et al. 2017), and women usually have access to more social support (Fischer and Beresford 2015). Consequently, women may have experienced greater losses in their social relationships due to pandemic-containment measures than men and may thus have been at a greater risk of experiencing loneliness due to the pandemic. However, women's better access to support may have also acted as a "buffer" that cushioned the impact of social distancing measures on the risk of loneliness.

Education: Educational status may also have had implications for experiences of loneliness. People with a high educational level have a greater number of social contacts, even in old age (Shaw et al. 2007, 2010), than people with a lower educational level. This may mean that more highly educated people felt more constrained by restrictions on social contact than people with lower levels of education. Yet, highly educated adults' larger social networks may have served as a resource that helped to reduce the impact of the pandemic on the experience of loneliness.

Social integration as a buffer against pandemic-related loneliness risk?

Integration into spatially close social networks may have played a particularly important role in experiences of loneliness in the Covid-19 pandemic. These factors include partnerships, household composition and neighbourhoods. Generally, living in a partnership is a strong protective factor against loneliness (Böger and

Huxhold 2018a). Living with other people in a multi-person household also protects against the risk of being lonely (Victor et al. 2000). Finally, the quality of neighbourly relationships also plays a role (Kemperman et al. 2019). We therefore investigated whether and to what extent partnerships, household composition and integration in the neighbourhood also ameliorated the risk of loneliness during the Covid-19 pandemic.

Questions
In this chapter, we present findings on three questions:

- Did the risk of loneliness increase for people in the second half of life after the onset of the Covid-19 pandemic?
- Did the risk of loneliness increase differently in different population groups after the onset of the Covid-19 pandemic? The analysis considers age, gender and educational level.
- Did the risk of loneliness increase more for people who are not in a partnership, people living alone or people without close neighbourhood contacts as a result of the pandemic than it did for people in a partnership, people living in multi-person households and people with close neighbourhood contacts?

The results of this chapter are based on analyses of the 2014, 2017 and 2020 survey waves of the German Ageing Survey (DEAS; Vogel et al. 2020). The present analyses were based on the data from persons aged between 46 and 90. In this age range, information on loneliness was available for 7517 people in 2014, 5434 people in 2017 and 4609 people in 2020. Weighting was used to ensure that the results of the analyses of these data could be considered representative of the resident population in Germany between 46 and 90 years of age. Statistical testing was carried out using weighted logistic regressions.

Three survey years were considered (2014, 2017 and 2020). This enabled us to make statements on the specific influence of the pandemic. If the loneliness risk had been similar in all three years, we could have concluded that the pandemic had no influence on the loneliness risk. However, if the loneliness risk was similar only in 2014 and 2017 and increased significantly in 2020, we could have concluded that the pandemic had an influence on the loneliness risk.[1]

[1] Technical information: the analyses tested whether the loneliness rates in 2014 and 2017 were statistically significantly different from each other. If this was not the case, the mean value of the loneliness rates 2014 and 2017 was compared with the loneliness rate 2020.

10.2.1 Loneliness

Loneliness was measured with a loneliness scale (de Jong Gierveld et al. 2006). The scale contained three positive and three negative statements that respondents could agree or disagree with on a four-point scale from 1 (*strongly agree*) to 4 (*strongly disagree*). The individual statements are:

- I miss having people around among whom I feel comfortable (negative statement, indicates loneliness)
- There are plenty of people I can rely on when I have problems (positive statement, does not indicate loneliness)
- I often feel rejected (negative statement, indicates loneliness)
- There are many people I can trust completely (positive statement, does not indicate loneliness)
- I miss emotional security and warmth (negative statement, indicates loneliness)
- There are enough people I feel close to (positive statement, does not indicate loneliness).

People were counted as "lonely" if they agreed or strongly agreed with the majority of the negative statements and disagreed or strongly disagreed with the majority of the positive statements.[2]

10.2.2 Age, Gender and Education

Age: Four age groups were formed to examine the role of age: 46–55-year-olds (17.1 per cent of respondents), 56–65-year-olds (28.8 per cent of respondents), 66–75-year-olds (29.1 per cent of respondents), and 76–90-year-olds (25.0 per cent of respondents).

Gender: Women (50.0 per cent) and men (50.0 per cent) were identified based on self-reports.

[2] Technical information: the values for statements 2, 4 and 6 were recoded—i.e. they were converted so that the value 4 indicates high loneliness and the value 1 indicates low loneliness. An average value was calculated from the values for all six statements, which can range from 1 (loneliness low) to 4 (loneliness high). People were counted as "lonely" if their scale value was greater than 2.5.

Education was divided into three groups: People with a low educational level (6.3 per cent of respondents), medium educational level (50.2 per cent of respondents) and high educational level (43.5 per cent of respondents).

10.2.3 Social Resources in Close Proximity

Social resources in close proximity were assessed based on partnership status, household size and neighbourhood relations. This information was collected in 2014, 2017 and 2020.

Partnership status was determined with the question: "Do you have a spouse or steady partner?" The answer to this question was used to form two groups (partner: 77.7 per cent of respondents; no partner: 22.3 per cent of respondents).

Household: Household size was measured by asking people: "How many people in total live in your household, including yourself?" The analysis distinguished between two types: those who lived with others and those who lived alone (living with others: 78.4 per cent of respondents; living alone: 21.6 per cent of respondents).

Neighbourhood relations: The availability of close neighbourly relations was assessed by the following question: "How close is your contact with your neighbours currently?" The response categories were "no contact", "only rare", "not very close", "close" and "very close". The response categories were combined. The answer categories "close" and "very close" relations were combined into "close contact with neighbours" (43.0 per cent of respondents). All other response categories were combined into "no close contact" (57 per cent of respondents).

10.3 Findings

10.3.1 Increases in Loneliness Rates After the Start of the Pandemic

The analyses show that the risk of loneliness increased due to the Covid-19 pandemic (Fig. 10.1). Loneliness rates were around 9 per cent in both 2014 and 2017. In contrast, the loneliness rate in 2020 was 13.7 per cent, 4.8 percentage points higher than in 2014 and 2017. The difference between the 2014/2017 loneliness rates and the 2020 loneliness rate was statistically significant.

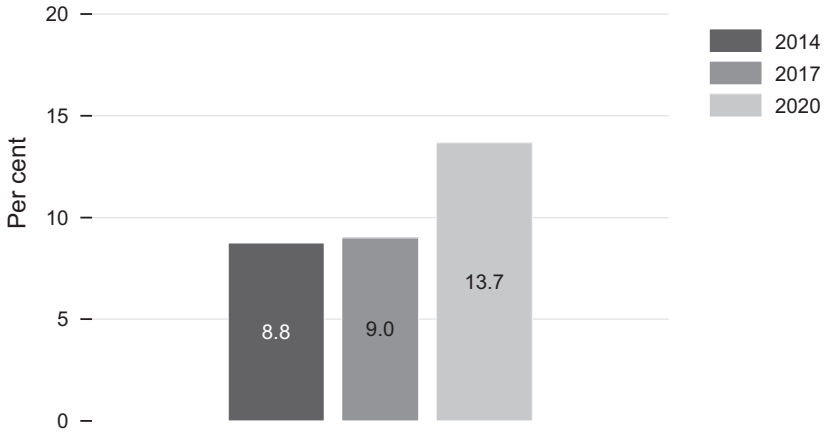

Fig. 10.1 Loneliness rates by survey year (in per cent). *Source* DEAS 2014 (n = 7517), DEAS 2017 (n = 5434), DEAS 2020 (n = 4609), weighted analyses, rounded estimates. The difference between 2014 and 2017 is not significant. The difference between 2014/2017 and 2020 is significant

10.3.2 No Group Differences in the Increase in Loneliness Rates in the Pandemic

*Age: S*imilar increases in loneliness risk were evident in all age groups in the wake of the Covid-19 pandemic (Fig. 10.2). For those aged 46 to 55, loneliness rates were 10.2 per cent in 2014 and 10.7 per cent in 2017, but they were 16.4 per cent in 2020. The picture is similar for other age groups (56–65-year-olds: 9.9 per cent in 2014, 9.0 per cent in 2017 and 12.3 per cent in 2020; 66–75-year-olds: 6.3 per cent in 2014, 7.9 per cent in 2017 and 13.5 per cent in 2020; 76–90-year-olds: 8.1 per cent in 2014, 7.6 per cent in 2017 and 11.9 per cent in 2020).

The differences in loneliness rates were relatively small between all age groups in each survey wave. In 2014, the 66–75-year-old group had a significantly lower loneliness rate than the younger groups of 46–55-year-olds and 56–65-year-olds. In 2017, the loneliness rate was significantly lower among 76–90-year-olds than among 46–55-year-olds. All other differences between age groups were not significant.

Loneliness rates in 2020 (during the pandemic) were significantly higher than the average rates in 2014 and 2017 (before the pandemic) in all age groups. The

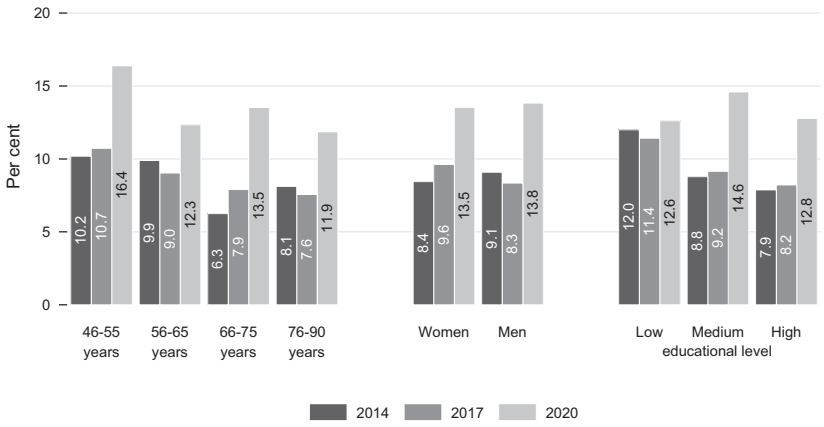

Fig. 10.2 Loneliness rates by survey year, age, gender and educational level (in per cent). *Source* DEAS 2014 (n = 7517), DEAS 2017 (n = 5434), DEAS 2020 (n = 4609), weighted analyses, rounded estimates. The difference between 2017 and 2020 is significant for all groups except the low educated. The increase between 2017 and 2020 is about the same for all groups. There are no significant differences in the increase between age groups, between genders or between educational levels

difference in loneliness rates between 2014/2017 and 2020 was statistically at a comparable level in all groups. Thus, there was no evidence that the loneliness rate in any given age group increased more than the loneliness rate in any other age group.

Gender: The increase in loneliness rates between the pre-pandemic period (2014/2017) and during the pandemic (2020) was equal in size and statistically significant for both genders (Fig. 10.2). Among women, the loneliness rates were 8.4 per cent in 2014 and 9.6 per cent in 2017, compared to 13.5 per cent in 2020. Among men, the loneliness rates were 9.1 per cent in 2014 and 8.3 per cent in 2017 compared to 13.8 per cent in 2020. Women's and men's loneliness risks did not differ statistically significantly from each other at any time points (2014, 2017, 2020).

Education: Comparing the pre-Covid-19 period (2014/2017) and the Covid-19 period (2020), we found increases in loneliness at all educational levels (Fig. 10.2). The corresponding figures are 12.0 per cent, 11.4 per cent and 12.6 per cent for people with a low educational level, 8.8 per cent, 9.2 per cent and 14.6 per cent for people with a medium educational level and 7.9 per cent, 8.2 per cent and 12.8 per cent for people with a high educational level (for 2014,

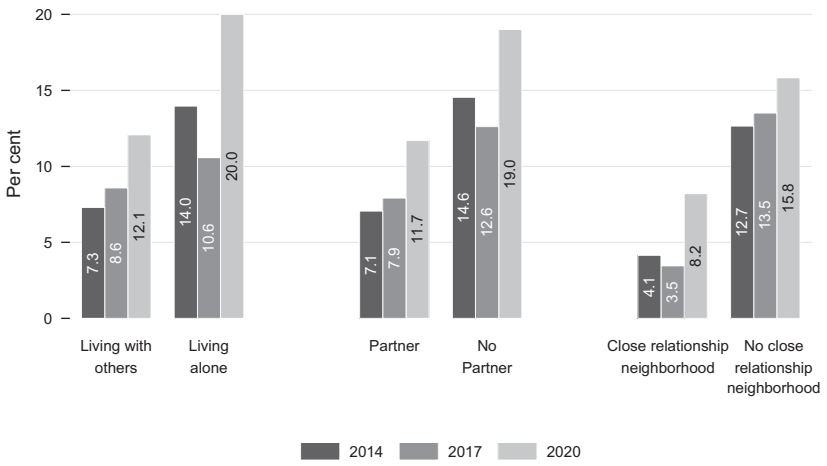

Fig. 10.3 Loneliness rates by survey year and social integration (in per cent). *Source* DEAS 2014 (n = 7517), DEAS 2017 (n = 5434), DEAS 2020 (n = 4609), weighted analyses, rounded estimates. The difference between 2017 and 2020 is significant for all groups. The increase between 2017 and 2020 is about the same for all groups. There are no significant differences in the increase between people living alone and those not living alone, between people in a partnership and those without a partnership, or between people with a close relationship with their neighbours and those without this relationship

2017 and 2020 respectively). The increase between 2014/2017 and 2020 was only statistically significant for the medium and high education groups. However, the increases in the high and medium education groups were not more pronounced than the increase for the people with a low educational level.

The comparison between education groups showed that low educated individuals had a higher risk of loneliness in 2014 than people with medium and high educational levels. The medium and high education groups did not differ significantly from each other at that time. No statistically significant differences in education were found for 2017 and 2020.

10.3.3 Social Resources in Close Proximity Were not a Buffer Against Loneliness in the Pandemic

People who had a partner, who did not live alone and who maintained close contact with their neighbours were less at risk of feeling lonely than people who did

not have a partner, who lived alone and who did not maintain close contact with their neighbours (Fig. 10.3).

The loneliness rates found in the most recent survey wave for people living with others were also the highest to date: these were 7.3 per cent in 2014, 8.6 per cent in 2017 and 12.1 per cent in 2020 (Fig. 10.3). For people living alone, the figures for the corresponding years were 14.0 per cent, 10.6 per cent and 20.0 per cent. Thus, household size may be protective factor against loneliness: on average, the risk of loneliness was about 1.7 times higher among people living alone than among people living with others. However, the increase in loneliness rates between 2014/2017 (before the pandemic) and 2020 (during the pandemic) was similar for both groups—for people living alone and people living with others in the same household.

The situation was similar with regard to partnership status. The loneliness rates for people who had a partner were 7.1 per cent (2014), 7.9 per cent (2017) and 11.7 per cent (2020). For people who did not have a partner, the figures for the corresponding years were 14.6 per cent, 12.6 per cent and 19.0 per cent. Hence, having a partner was also a protective factor against loneliness: on average, the loneliness risk for people who did not have a partner was about 1.9 times higher than the loneliness risk for people who had a partner. But again, the increase in loneliness rates between 2014/2017 (before the pandemic) and 2020 (in the pandemic) was similar for people with and without a partner.

The presence of close contacts in the neighbourhood was also associated with a lower risk of loneliness but not with a lower increase in loneliness in the Covid-19 pandemic. People who maintained close contact with their neighbours had loneliness rates of 4.1 per cent in 2014, 3.5 per cent in 2017 and 8.2 per cent in 2020. For people who did not maintain close contact with their neighbours, the figures for the corresponding years were 12.7 per cent, 13.5 per cent and 15.8 per cent. In all waves, people who had close contact with their neighbours had a loneliness risk that was only about one third of the risk of loneliness for people who did not have this contact.

Overall, the analysis shows that social resources in close proximity were not related to a lower increase in loneliness in the wake of the Covid-19 pandemic. It is true that in 2020 (as in 2014 and 2017), people who lived with others were less lonely than people who lived alone, people who had a partner were less lonely than those who did not, and people with close contacts in their neighbourhood were less lonely than those without these contacts. However, the increase in loneliness rates between 2014/2017 and 2020 affected all these groups to about the same extent.

10.4 Conclusion

Comparing loneliness rates in 2014 and 2017 with loneliness rates in 2020 gives a clear indication that the Covid-19 pandemic in June and July 2020 negatively affected the social lives of people aged between 46 and 90. The loneliness rate for people in the second half of life increased by about 1.5 times between 2017 and 2020, from 9 to 13.7 per cent. Most importantly, the pandemic-related increase in loneliness was similar in size for people in middle adulthood and older adulthood, for women and men, and for people with low, medium or high educational levels. In other words, the pandemic affected loneliness rates in all population groups equally. It must be emphasised again here that the German Ageing Survey (DEAS) only interviews people in private households. It is possible that the experience of loneliness in the Covid-19 pandemic was different for people living in nursing homes, perhaps due to restrictive visiting rules.

Contrary to what many in the public might have expected, people of advanced age (76 to 90 years) living in private households did not experience more loneliness in the pandemic than people in middle adulthood (46 to 55 years). This finding might be linked to the subjective nature of the experience of loneliness. Loneliness is a subjective feeling that only arises when there is a perceived discrepancy between one's own social expectations and actual circumstances (Tesch-Römer and Huxhold 2019). People in middle age may, on average, have had greater resources to cope with the negative social impact of the pandemic than people in older age, such as access to online communication or a larger social network (Antonucci et al. 2019; Huxhold et al. 2013, 2020). Yet, it is precisely because of these advantages that they have higher expectations of a fulfilled social life. There is evidence that older people cope better with being alone—for instance, when they do not have a partner—than people in middle age (Böger and Huxhold 2018a). In addition, people in middle age may have been more likely to be affected by specific pandemic-related burdens, such as scaled-back childcare services or job worries, than people in older adulthood. These additional burdens may have limited time and energy that could have been invested in social relationships, especially in middle age. In addition, analyses of the German Ageing Survey have shown that middle-aged individuals were just as concerned about the pandemic as older people (see chapter "How did individuals in the second half of life experience the Covid-19 crisis? Perceived threat of the Covid-19 crisis and subjective influence on a possible infection with Covid-19"). This could imply that older people did not in actuality restrict their social lives more than

younger people. Considering these arguments, it is possible that loneliness rates rose equally across all age groups in the pandemic due to a confluence of factors.

The analyses also revealed that the increase in loneliness rates, presumably triggered by the pandemic, did not differ between men and women or between educational groups. These findings could also be explained by an interplay of several mutually compensating factors. Women were likely to suffer greater losses in their social activities as a result of the pandemic than men, and those with medium or higher levels of education were more likely to experience greater losses in their social contacts than people with a low educational level, since both women and highly educated adults were more socially active than men and people with a lower educational level before the pandemic (Fischer and Beresford 2015; Sander et al. 2017; Shaw et al. 2010). At the same time, both women and more highly educated people had greater social resources (Fischer and Beresford 2015; Shaw et al. 2007) than men and less well-educated ones. For example, women spend more time on average maintaining social networks and have access to more social support than men (Sander et al. 2017; Fischer and Beresford 2015). This may have helped those groups to mitigate the negative effects of social distancing measures.

The normally effective protective factors of social resources in close proximity—of living together with other people in a household, having a partner and having good neighbourhood relations—were not associated with a lower increase in the risk of loneliness at the beginning of the pandemic. It is possible that people who are well integrated in their local social environment had higher expectations for their social life overall and evaluated pandemic restrictions more negatively than people who did not have such relationships. Because of these higher expectations, the generally protective effect of having social resources in close proximity may not have been effective during the first months of the Covid-19 pandemic.

Overall, the increase in loneliness during the pandemic is a cause for concern, as loneliness can have serious consequences for mental and physical health (Böger and Huxhold 2018b; Hawkley and Cacioppo 2010). It should also be noted that the longer people feel lonely, the more difficult it is for them to free themselves from their state of loneliness. Long periods of loneliness reduce self-worth and make it more difficult to connect with others (Hawkley and Cacioppo 2010). Therefore, increased rates of loneliness may have negative consequences that persist after the pandemic.

The Covid-19 pandemic has still not ended. For these reasons, the coronavirus crisis has made programmes that combat loneliness even more important (Federal

Ministry for Family Affairs, Senior Citizens, Women and Youth 2021). In a certain sense, the pandemic even offers an opportunity. For as bad as the effects of the crisis have been on many people's social embedding, they have also raised public awareness of the issue of loneliness. Since many more people experienced severe loneliness in the course of the pandemic, the stigmatisation of lonely people may even have decreased. For these reasons, we can hope that low-threshold measures to combat loneliness will be better accepted and disseminated in the aftermath of the pandemic. Thus, paradoxically, the pandemic could create better conditions for contacting the hard-to-reach group of lonely people.

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Part V

Societal Participation During the Covid-19 Pandemic

Volunteering in Organisations by People in the Second Half of Life during the Covid-19 Pandemic

11

Julia Simonson and Nadiya Kelle

11.1 Key Messages

In the second wave of the Covid-19 pandemic, the proportion of volunteers remained largely stable compared to pre-pandemic times; the amount of time spent volunteering also remained unchanged. This also applied by gender, age and education—no statistically significant trend differences in volunteering participation or time spent volunteering were found for any of these groups.

During the Covid-19 pandemic, differences in volunteer participation by age, gender and education remained. People between the ages of 76 and 90 continued to have the lowest participation in volunteering. Nevertheless, it should be noted that almost every fifth person in this age group was active as a volunteer. Gender and educational group differences in volunteer participation also persisted during the second wave of the Covid-19 pandemic: women were involved in volunteering in lower proportions than men. Highly educated people continued to volunteer at higher rates than people with low and medium educational levels in 2020/21.

The amount of time spent volunteering during the Covid-19 pandemic continued to differ by age and gender. The 66–75 age group participated in the most time-intensive voluntary work. There were also significant differences in the amount of time spent volunteering between women and men in the winter of

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2020/21, with higher time investment by men. Individuals with high educational level did not differ in their time investment from those with low or medium educational levels—as was the case before the Covid-19 pandemic in 2017.

11.2 Introduction

Volunteering is an important form of social participation and is significant for integration into society (Alscher et al. 2021; Roth 2010). Particularly in old age, when the option to participate in society through gainful employment recedes into the background, doing voluntary work offers opportunities for participation that can help people to establish and maintain social contacts and acquire new skills and knowledge (Simonson and Vogel 2020; Vogel and Romeu Gordo 2019). Studies also show that participation in volunteering is positively related to health and life satisfaction (Li and Ferraro 2005; Müller and Tesch-Römer 2017).

Older people today engage in volunteering in significantly larger proportions than members of earlier birth cohorts did when they were at the same age (Burkhardt and Schupp 2019; Şaka 2018). However, participation in volunteering is unevenly distributed—that is, not all population groups are involved in equal proportions. This was already the case before the Covid-19 pandemic. For example, in 2019, older people were still less involved than younger people, and people with a low educational level were less involved than people with a high educational level (Simonson et al. 2021).

To date, there is limited evidence on how access to volunteering changed for individual populations in the second half of life in the Covid-19 pandemic and to what extent the pandemic was linked to increases in inequality in volunteering. It is well known that the Covid-19 pandemic led to far-reaching social changes that also affected organised civil society (Burkhard and Liebig 2021; Gross et al. 2020). Some associations and organisations faced pandemic-related resignations by members and financial losses; at the same time, their expenses increased, because they had to implement Covid-19-prevention strategies (Tahmaz 2021). Due to the measures to contain the pandemic and especially the social distancing measures during the first and second lockdowns, many people were unable to participate in their voluntary activities as usual. The partial closure of schools and day-care centres also increased the amount of private care required for children and grandchildren (Bünning et al. 2020; Zinn and Bayer 2020), with grandparents still providing reliable care to their grandchildren (see chapter "Grandchild care during the Covid-19 pandemic"). The resulting changes in time availability could presumably also have affected participation in voluntary work. On the other hand,

the Covid-19 pandemic gave rise to new commitments, for example, due to the increased demand for and willingness to provide neighbourly help, such as support for people in quarantine (Bölting et al. 2020; Spear et al. 2020).

The developments outlined above have likely not had the same effect on volunteering for all individuals. With regard to voluntary participation by people of different ages, we might expect older people to have withdrawn more from public life than younger people and thus also from volunteering because Covid-19 was riskier for them (Robert Koch Institute 2021). Furthermore, especially at the beginning of the pandemic, older adults were often portrayed in public discourse as a homogeneous group of people who were frail and helpless and who should adhere to particularly strict measures of social distancing (Ayalon et al. 2020). This discourse may have contributed to a withdrawal from voluntary activities by older people. Yet, empirical evidence shows that older people themselves did not perceive the pandemic as more threatening as well as temporary closures of outpatient care services, which prompted people, especially women, to spend increased time giving care and nursing (Bünning et al. 2020; see also chapter "Covid-19 crisis = care crisis? Changes in care provision and care-givers' well-being during the Covid-19 pandemic"). This in turn may have had a particularly negative impact on women's volunteer participation and their time investments in volunteering. Furthermore, the impact of the pandemic differed for people with different educational statuses. People with lower educational levels were more affected by job furlough schemes or job loss during the first wave of the pandemic; they also had fewer opportunities to work from home than people with higher educational levels (Von Gaudecker et al. 2020; Möhring et al. 2020). Additional stresses, such as fear of contracting the virus, worries about their livelihood or job search could have contributed to the fact that people with low educational levels increasingly withdrew from voluntary work or reduced their commitment to it. Furthermore, we can assume that many voluntary activities shifted to the digital space. Overall, there was a widespread shift of social communication to the digital space in the wake of the Covid-19 pandemic, although internet use is not equally distributed across all population groups—people with low educational level used and continue to use the internet less frequently than people with high educational levels, and older people use it less frequently than younger people (see chapter "Internet use by people in the second half of life during the Covid-19 pandemic: social inequalities persist"). We would expect to find a greater decline in volunteering among groups of people who use the internet less frequently than others, such as people with low educational levels and the elderly, than among those with high internet use, such as the more highly educated and younger people.

In the following, we will trace how participation and time spent in volunteering by people in the second half of life changed between 2017 and 2020/21. In addition, the analyses will show how the development of voluntary participation and time intensity differed between population groups and identify which groups may have reduced their voluntary work more than others—for instance, because they were not able to use digital communication tools. The differentiation criteria used are age, gender and educational status.

Specifically, we will address the following questions:

1) To what extent did the proportions of those engaged in volunteering change over time between 2017 and 2020/21? How did the possible changes in volunteering participation differ by population groups (age, gender or educational groups)?
2) How did the time intensity of voluntary activities change? How did possible changes in time intensity differ by population groups (age, gender or educational groups)?

The results of this chapter are based on analyses of the 2017 and 2020/21 survey waves of the German Ageing Survey (DEAS).[1] Our analysis of these two survey waves using a trend design allows us to compare the pre-Covid-19 period (2017) and the period during the second wave of the Covid-19 pandemic in winter 2020/21. People aged between 46 and 90 years with valid information on the practice of voluntary work were included at both survey points. The 2017 sample on which the analysis is based consisted of 6455 people; in 2020/21, the analytical sample consisted of 5352 people. We present weighted percentage values for engagement in voluntary work (voluntary work rate) and weighted arithmetic mean values for the time spent on voluntary work. The reported contents were collected as follows:

Organisation-bound voluntary commitment Those who stated that they were a member of at least one group or organisation and subsequently stated that they held a function or honorary office in that organisation were included in the analyses as organisation-bound volunteers. In 2017, people aged 50 and over were additionally asked whether they participated in groups that were particularly aimed at older people who had retired or were transitioning to retirement.

[1] The DEAS paper-pencil-survey conducted in summer 2020 did not collect any information on participation in volunteering. It is therefore not included in the analyses.

Respondents could indicate up to five groups each in the general and retirement-oriented categories. In 2020/21, the survey was slightly adapted and the separate query of retirement-oriented groups was eliminated.

Time spent on organisation-bound volunteering For each volunteering activity indicated, people were asked about the time they spent on it. The information could be given in hours per day, hours per week, hours per month or days per year. This was converted into hours per week and combined for all a person's volunteering activities.[2] The upper threshold of time spent per week on voluntary work was set at 60 h per week (top coding of higher values).

Age, gender and education Self-reports were used to determine age, gender and education. In some cases, this information was already on record due to the respondent's previous participation in the German Ageing Survey. Four age groups were used to examine the role of age: 46–55-year-olds (2017: n = 1020, 2020/21: n = 638), 56–65-year-olds (2017: n = 1887, 2020/21: n = 1579), 66–75-year-olds (2017: n = 1886, 2020/21: n = 1584) and 76–90-year-olds (2017: n = 1662, 2020/21: n = 1551). The analyses compared women (2017: n = 3203, 2020/21: n = 2724) and men (2017: n = 3252, 2020/21: n = 2628). Education was divided into two groups: individuals with low and medium educational levels[3] (2017: n = 3597, 2020/21: n = 2746) and individuals with high educational levels (2017: n = 2828, 2020/21: n = 2605).

11.3 Findings

The proportion of volunteers in organisations remained stable overall in the Covid-19 pandemic

At 22.2 per cent, a good fifth of those aged 46 to 90 were engaged in a voluntary activity in an organisation or group in winter 2020/21 (Fig. 11.1). There was no statistically significant change in the overall proportion of 46–90-year-olds engaged in such activities between 2017 and 2020/21; in 2017, it was 22.6 percent.

[2] For the conversion from daily to weekly hours, a six-day week was assumed. When converting annual to weekly data, it was assumed that people volunteer for an average of five hours per day, spread over 48 weeks per year.

[3] Low and medium educational level were combined due to small case numbers among those with low educational level.

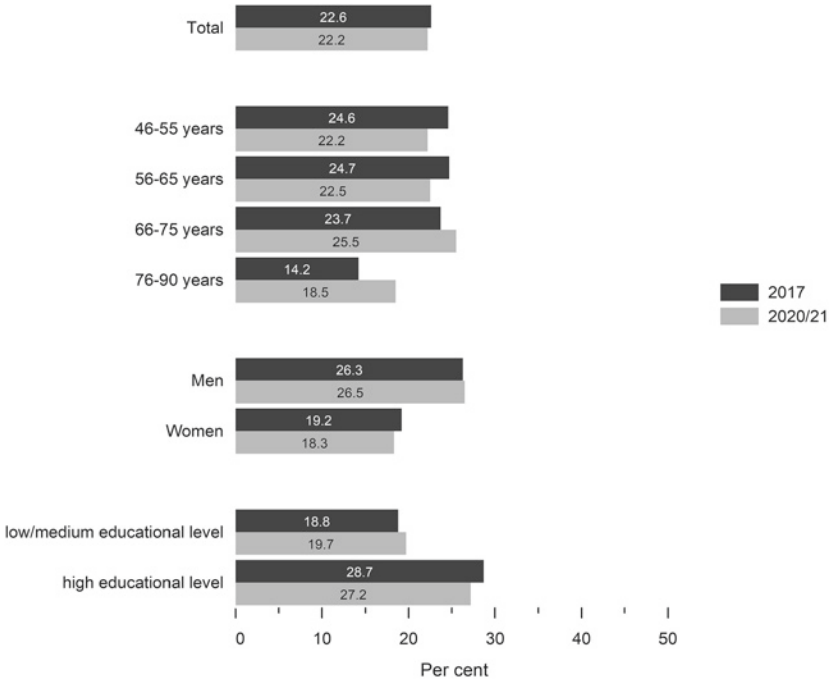

Fig. 11.1 Proportion of volunteers in organisations in 2017 and 2020/21 in total and by age, gender and education (in per cent). *Source* DEAS 2017 (n = 6455), DEAS 2020/21 (n = 5351–5352), weighted analyses, rounded estimates. Difference between 2017 and 2020/21 in total and in all groups not statistically significant. Group differences: difference between age group 76–90 years and all other age groups statistically significant in 2017 ($p < 0.05$), difference between age group 76–90 years and age group 66–75 years statistically significant in 2020/21 ($p < 0.05$). Differences between men and women and between education groups in both waves statistically significant ($p < 0.05$)

Even when we differentiated by age group, we found no statistically significant changes over time. Volunteer participation was less common among those aged 76 and older than at younger ages at both points in time, but up to the age of 75, participation rates did not differ significantly between age groups. This finding is in line with results from other studies, which have also found declining participation rate from the middle of the eighth decade of life but not before. (Burkhardt and Schupp 2019; Simonson et al. 2021).

Women are generally less likely to volunteer in organisations than men—and this did not change in the Covid-19 pandemic

Even when we differentiated by gender, we did not find any statistically significant changes in the trend: volunteering rates remained stable for both women and men. The proportion of women who engaged in voluntary work in an organisation or group in the second half of life was clearly and statistically significantly below that of men at both points in time. Contrary to the German Survey on Volunteering (Simonson et al. 2021), we found no convergence or equalisation of the volunteering rates between women and men. This may in part be due to the different age ranges used by the surveys but it may also be because of the underlying definitions of volunteering. While the German Survey on Volunteering also considers activities that are carried out in an informal setting, the German Ageing Survey focuses on formal voluntary work carried out in organisations or groups. Here, women and men seem to face even more unequal access opportunities.

People with low or medium educational levels remained less likely to volunteer in organisations than people with high educational levels during the Covid-19 pandemic

For people with low and medium educational levels, just as for people with high educational levels, there were no statistically significant changes in the volunteering rate between 2017 and 2020/21. At both points in time, people with high educational levels were significantly more involved in volunteering than people with low or medium educational levels. This finding is consistent with the results based on other data collected before the pandemic (e.g. Erlinghagen and Hank 2006; Tesch-Römer and Huxhold 2021), but also with previous findings based on the German Ageing Survey (e.g. Naumann and Romeu Gordo 2010; Wetzel and Simonson 2017). This may reflect the unequal access and participation opportunities depending on the educational backgroand.

Volunteers did not change the time they devote to their voluntary work in the Covid-19 pandemic

The amount of time people in the second half of life spent on volunteering remained stable between 2017 and 2020/21 (Fig. 11.2). On average, volunteers aged between 46 and 90 spent slightly more than four hours per week on their volunteer work, which is about half a full working day.

Even when we differentiated by age group, we did not find any statistically significant changes between 2017 and 2020/21 in the amount of time invested in volunteering. Contrary to what we assumed, older people spent as much time

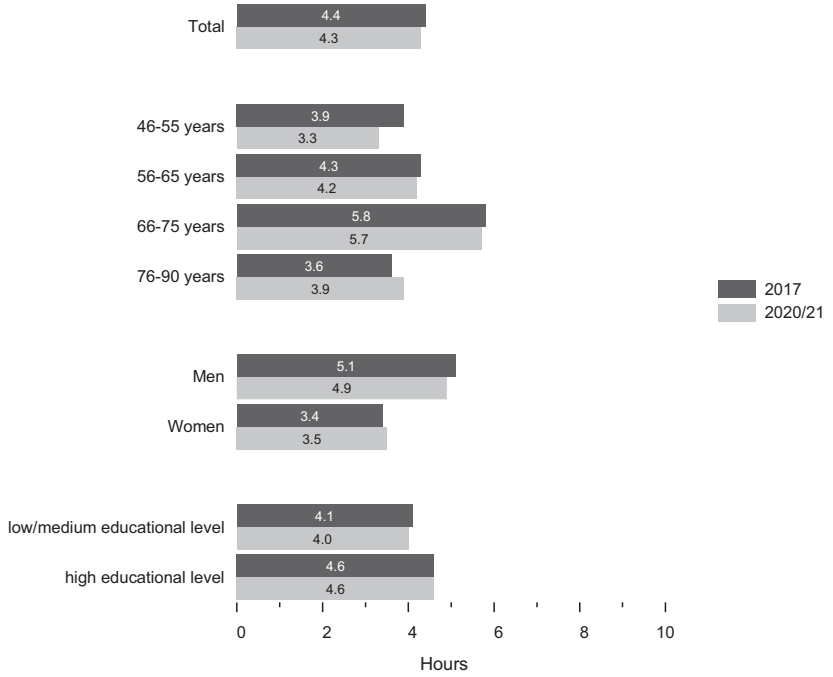

Fig. 11.2 Amount of time spent on volunteering in 2017 and 2020/21 in total and by age group, gender and education (hours per week, mean values). *Source* DEAS 2017 (n = 1499), DEAS 2020/21 (n = 1270), weighted analyses, roanded estimates. Difference between 2017 and 2020/21 in total and in all groups not statistically significant. Group differences: difference between age group 66–75 years and all other age groups statistically significant in 2017 ($p<0.05$), difference between age group 66–75 years and age group 46–55 years statistically significant in 2020/21 ($p<0.05$). Differences between women and men in both waves statistically significant ($p<0.05$). Differences between education groups in both waves not statistically significant

volunteering as before the Covid-19 pandemic despite having a greater risk of severe Covid-19. People who were in the early stage of retirement (aged 66 to 75 years) devoted a particularly large amount of time to their volunteer activities. This was quite plausible given that people in this age range have time resources that become available after retirement and often enjoy comparatively good health (Spuling et al. 2019).

There were no statistically significant changes between the two observation points with regard to the hours spent on voluntary work by women and men. On average, men spent significantly more time on voluntary work than women—at both observation points. While men spent an average of 4.9 h per week on their voluntary activities in 2020/21, the figure for women was only 3.5 h per week, which is almost one and a half hours less. Women in the second half of life not only volunteered less frequently than men, but they also spent less time on their voluntary work. This could be because women have less time available due to other tasks—care work, for instance—but it could also be related to the type of voluntary work they do.

Even the analysis of differences according to educational level found no significant changes between the two observation points with regard to the hours spent on voluntary work. Likewise, the educational groups did not differ statistically significantly from each other with regard to the time spent on voluntary work. The results of the German Survey on Volunteering (FWS) point in a similar direction, showing that although people with a low educational level are generally less involved in volunteering, when they do volunteer, they spend even more time on volunteering than people with high educational levels (Kelle et al. 2021).

11.4 Summary and discussion

Participation in organisation-bound volunteering by people in the second half of life remained stable even under pandemic conditions. In the second wave of the Covid-19 pandemic in winter 2020/21, a similar number of people engaged in volunteering as in 2017, and the amount of time they spent volunteering also remained unchanged. This also applies across gender, age and educational groups—no statistically significant trend differences in volunteering participation or time spent volunteering were evident for any of these groups.

Even though the Covid-19 pandemic and the measures to contain it severely restricted people's lives, at least temporarily, many volunteers seem to have found a way to continue their voluntary work—and to spend similar numbers of hours as before the pandemic. This interpretation is at least suggested by the findings of this chapter. There is a parallel that can be drawn here to grandchild care provided by grandparents, which was also highly stable during the pandemic (see chapter "Grandchild care during the Covid-19 pandemic").

It remains unclear whether the data we used capture continued voluntary activities or new and modified activities. Longitudinal analyses would be necessary for this. It is also unclear to what extent the increased use of the internet during the

Covid-19 pandemic (see chapter "Internet use by people in the second half of life during the Covid-19 pandemic: social inequalities persist") contributed to the fact that people in the second half of life were able to continue doing voluntary work, since the data did not allow us to determine whether the internet was used more frequently in voluntary work.

Differences in volunteering participation by age, gender and education remained almost unchanged in the second wave of the Covid-19 pandemic in winter 2020/21 compared to before the pandemic. Individuals aged between 76 and 90 years still volunteered the least of all age groups, whereas individuals in the early years of retirement, between 66 and 75 years, were particularly frequently involved. Women continued to be less involved in volunteering than men and spent fewer hours doing so. People with low or medium educational levels volunteered at lower rates than people with higher educational levels. The Covid-19 pandemic did not, as occasionally postulated, proved to be a "magnifying glass" in terms of inequalities in voluntary participation (e.g. Butterwegge 2021). Indeed, the Covid-19 pandemic in general was not a magnifying glass in the sense of amplifying social inequalities, as is sometimes postulated, but it did not help reduce these inequalities either.

The question remains open as to how volunteering participation by people in the second half of life continued to develop during and in the aftermath of the pandemic. This question will have to be discussed in future studies. In any case, the results of this chapter point to the resilience of voluntary work in the face of a crisis. This is particularly positive news when one considers the potential of voluntary work by older people, especially since people at the earlier stages of retirement invest a great deal of time in their voluntary work when they do volunteer. Nevertheless, despite largely stable volunteering rates and unchanged time investment in volunteering, individual shifts may have occurred between different volunteering activities that need to be investigated in future research.

Against the backdrop of the inequalities in the practice of voluntary work, which are proving to be stable, the question arises as to how access opportunities to voluntary work can be shaped in such a way that the participation function of voluntary work potentially benefits all people in the second half of life. It is possible that the Covid-19 pandemic, by making "old inequalities" more visible, may have opened up opportunities to counteract these inequalities more strongly.

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12 Age Discrimination in the Pandemic Was not the Rule—Every Twentieth Person in the Second Half of Life Reported Experiencing Discrimination Because of Their Age

Markus Wettstein and Sonja Nowossadeck

12.1 Key Messages

Experiences of age discrimination

In summer 2020, 5.4 per cent of individuals in the second half of life reported that they had been targets of age discrimination since the start of the Covid-19 crisis. In contrast, the vast majority of individuals (94.6 per cent) reported that they had not experienced age discrimination since the start of the pandemic.

Age discrimination was reported at similar rates by all age groups in the second half of life, by women and men, and by different educational groups. People in different age groups (50–59, 60–69, 70–79, 80–90) did not differ significantly in how often they reported experiencing age discrimination. The proportion was between about 3 and 6 per cent in all groups. The proportions were also very similar for women and men. As far as the educational level is concerned, more people with low educational levels stated that they had experienced discrimination or unfavourable treatment (8.1 per cent) than people with medium (4.1 per cent) and high education (6.4 per cent), but this difference was also not statistically significant.

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Age discrimination was experienced more frequently by people who rated their health as less good. Almost twice as many people with poor self-rated health (7.3 per cent) reported experiencing age discrimination as people with very good to good self-rated health (3.9 per cent).

Areas of experienced age discrimination

With advancing age, the proportion of individuals who stated that they had been target of age discrimination in medical care and in everyday life increased. Age discrimination in medical care was most frequently reported by the oldest people aged 80 to 90 years (3.7 per cent), while less than 1 per cent of 50–59-year-olds reported having experienced age discrimination in this area. At 2.4 per cent, a higher proportion within the oldest group reported having experienced age discrimination in everyday life than younger age groups (e.g., only 1.1 per cent of 50- to 59-year-olds).

More women than men reported experiencing age discrimination in everyday life. The proportion of women reporting this discrimination was 2.0 per cent; among men it was 1.2 per cent. In contrast, there were only negligible differences between women and men in terms of experienced age discrimination in medical care.

A higher proportion of people with poor self-rated health reported experiencing age discrimination in everyday life compared to people with good self-rated health. Persons with good vs. poor self-rated health did not differ significantly regarding experienced age discrimination in medical care. In contrast, there was a clear difference regarding experienced age discrimination in everyday life: 3.1 per cent of people with poor self-rated health reported having experienced it. This proportion is more than five times higher than among those with good or very good health (0.6 per cent).

12.2 Introduction

Since the beginning of the Covid-19 crisis in Germany around mid-March 2020, one-sided portrayals that overemphasise the vulnerability of older people, sweepingly portrayed as a risk group, have been repeatedly found in the media, but also in political discourse (Kessler and Bowen 2020). Such general characterisations of older people as a vulnerable risk group neglect the great differences within the group of older persons (Gerstorf et al. 2006; Nelson and Dannefer 1992; Smith

and Gerstorf 2004), especially in the area of health and regarding health changes which occur in old and very old age (Wettstein et al. 2016; Wolf et al. 2015).

This type of media coverage and the political debate during the Covid-19 crisis may thus have changed perspectives on old age in a negative way. This, in turn, could have meant that people of an older age, who frequently did not get the chance to express their opinion in the public discussions (Pelizäus and Heinz 2020), perceived themselves as targets of age discrimination[1] (Ayalon 2020; Ayalon et al. 2020; Ehni and Wahl 2020). This discrimination takes different forms. It could be "*benevolent* ageism" (Apriceno et al. 2020), expressed in a perception of older people as particularly vulnerable and in a paternalistic and overprotective attitude towards them. However, ageism could also be *hostile* ("hostile ageism"; Apriceno et al. 2020) and manifest itself in perceptions of older people as a burden and in contemptuous attitudes towards them.

Some studies have suggested that a negative public discourse about older people emerged after the start of the pandemic. For example, the term "boomer remover" (meaning "eliminator of the baby boomer birth cohorts") spread on social media, and some used it to describe the pandemic (Lichtenstein 2020; Meisner 2020). An analysis of tweets posted in March on the topic of Covid-19 and older people found that almost a quarter of these posts were discriminatory, derogatory or offensive towards older people (Jimenez-Sotomayor et al. 2020). Experienced discrimination due to age may also have become more frequent in medical care, for example, because of the debate on whether a patient's age was reason for (non-)treatment decisions, if optimal medical care could no longer be provided to all due to limited medical resources. There were corresponding recommendations from expert groups as well as triage guidelines in various countries that advocated for or at least considered an age limit in such emergency situations (Ehni et al. 2020). Such decisions to withhold treatment from certain age groups were also reported in countries where dramatic hospital overloads occurred (Ayalon et al. 2020).

[1] Age discrimination can be expressed in different ways and occur in different forms: it can take the form of social discourse (e.g. overgeneralising well-meaning or malicious statements about "the elderly"), it can be objectively measurable as an active act of discrimination (e.g. in medical care), or it can be a person's subjective perception that they are subject to age discrimination. This chapter covers the latter form of age discrimination, that is, age discrimination as experienced disadvantage/discrimination based on one's age. It can affect different age groups and is closely related to the other forms of age discrimination mentioned.

Due to the often negative portrayals of older people, we might assume that experienced age discrimination increased in frequency after the onset of the pandemic, possibly not only among older people, because perceived age discrimination also affects middle-aged adults (Beyer et al. 2017). Yet, given the large differences between older people as described above, we cannot expect *all* people in the second half of life to have experienced age discrimination after the onset of the Covid-19 pandemic. Nor is it certain that experienced ageism in the second half of life actually increased as a result of the pandemic. In some cases, the pandemic might have instead provided an opportunity for intergenerational and interfamily support, thus also promoting intergenerational solidarity (Gilligan et al. 2020); in these cases, even ha Covid-19-related reduction in the experience of age discrimination might have occurred. In fact, the findings of one survey of people in Germany aged 50 and over reflect this heterogeneity. In that survey, the majority neither agreed nor disagreed with the statement that older people were subject to age discrimination during the Covid-19 pandemic; rather, very different degrees of individual agreement and rejection were indicated (Wahl et al. 2020).

Different social groups may have experienced ageism to different degrees. This chapter examines the role of age, gender, education and health status.

Age could have played a role in age discrimination experienced after the onset of the Covid-19 crisis: On the one hand, scientific sources such as the Robert Koch Institute (2020) reported a "steadily increasing risk of a severe course from around 50–60 years of age" (see also Karagiannidis et al. 2020; Nachtigall et al. 2020). This fact is indisputable but could also have contributed to the phenomenon that people over 60 were more often blamed for measures such as lockdowns or social distancing rules and may also have been targets of (hostile) age discrimination more often than people in middle adulthood. Paternalism by others regarding behaviour in everyday life and precautions could also have affected this age group more often. On the other hand, during the Covid-19 pandemic, older people may also have benefited more from certain solidarity-based, decidedly anti-discriminatory attitudes and actions (Barrett et al. 2020; Sipocz et al. 2020), as well as social support (Gilligan et al. 2020), meaning that some older people may also have experienced *less* frequent ageism after the start of the pandemic.

This chapter also examines the role of ***gender*** in the experience of age discrimination. In the 2014 survey wave of the German Ageing Survey, women more frequently reported having experienced age discrimination, although there were no gender differences when different areas of discrimination were considered separately (Beyer et al. 2017). Other studies also reported a gender difference regarding age discrimination to the disadvantage of women—especially those studies that started surveying after the beginning of the pandemic (Reiner et al.

2020). Yet, men reportedly had a higher risk of being hospitalised and even dying in the event of Covid-19 (Atkins et al. 2020; Robert Koch Institute 2020), meaning that they were a "risk group" in two ways, namely due to their gender and their age; this group may hence have experienced paternalism more frequently during the Covid-19 pandemic than women.

Education might also have been relevant for experienced age discrimination: independent of the Covid-19 pandemic, individuals with a low educational level generally report being affected more often by age discrimination—for example, in medical care—than people with a higher educational level (Beyer et al. 2017). This difference may have been exacerbated in the Covid-19 crisis. On the other hand, there was a convergence between educational groups in certain areas after the start of the Covid-19 pandemic, for example, in terms of their life satisfaction (Entringer et al. 2020), and such convergence may have also occurred in age discrimination.

Age discrimination may also have affected those who rated their ***health*** less favourably. These more negative health ratings were presumably due to certain diseases, which in turn were a risk factor for severe or even fatal Covid-19 (Atkins et al. 2020; Karagiannidis et al. 2020; Nachtigall et al. 2020; Robert Koch Institute 2020). Therefore, older people with poorer self-rated health were also doubly labelled a "risk group", due to their age and due to their health status, and they may have experienced pejorative labels, such as those circulating in social media, more strongly as age discriminatory due to their greater vulnerability compared to people who rated their health better.

Research questions

This chapter examines the proportion of people in the second half of life who reported having been subject to age discrimination after the start of the Covid-19 pandemic in summer 2020. In addition to this question, the chapter considers areas of life age discrimination occurred in namely medical care and everyday life.

The following research questions are explored:

- What proportion of individuals in the second half of life in June/July 2020 reported having experienced age discrimination since the start of the Covid-19 crisis (mid-March 2020)?
- Did specific population groups (age groups, women and men, educational groups and people with different self-rated health status) differ in the extent to which they experienced ageism?
- Furthermore, did these population groups differ in the areas (in everyday life or in medical care) in which their experiences of discrimination occurred?

12.3 Data and Methodology

The results of this chapter are based on analyses of the seventh wave of the German Ageing Survey (DEAS; Vogel et al. 2020). For the present analyses, we included the data of 4510 persons aged between 50 and 90 years.

The following measures were used for the analyses:

- Perceived disadvantage because of one's age (hereafter: experienced age discrimination) was recorded with the question: "Since mid-March, have you been discriminated against or placed in a worse position than others because of your age?" This question could be answered in a "yes" or "no" format.
- Those persons who reported experiencing age discrimination (n = 200) were subsequently asked: "Can you tell us in which areas of life this occurred?". In the present analyses, the following specified areas were evaluated[2]:
  - In medical care (e.g. medical diagnosis, treatment or prescriptions).
  - In everyday life (e.g. when shopping, at events or in personal relationships).
- To measure self-rated health, the survey asked: "How do you rate your present state of health?". Respondents could answer this question on a scale from 1 (very good) to 5 (very bad). In the following analyses, values 1 and 2 were interpreted as "good self-rated health" and values from 3 to 5 as "moderate to (very) poor" or impaired self-rated health.

Age, gender and educational status were determined based on self-reports and were already known due to previous participation in the German Ageing Survey. Four age groups were distinguished: 50–59-year-olds (n = 768; 17.0 per cent), 60–69-year-olds (n = 1434, 31.8 per cent), 70–79-year-olds (n = 1421, 31.5 per cent) and persons aged 80 to 90 (n = 887, 19.7 per cent). Women (n = 2293, 50.8 per cent) and men (n = 2217, 49.2 per cent) were also compared. Education was divided into three groups: individuals with a low educational level (n = 187; 4.2 per cent), a medium educational level (n = 2120; 47.0 per cent) and a high educational level (n = 2202; 48.8 per cent). There were only 17 people with a low

[2] Questions also elicited information about discrimination "at work or when looking for work (e.g. awarding of positions, in the workplace itself or dismissal from employment)" and "in other areas"; however, this is not considered in the following analyses.

educational level who experienced age discrimination, so we combined people with low and medium educational levels into one group for our analyses by areas of age discrimination. In addition, age discrimination "in other areas" was only mentioned by very few people (<1 per cent of the total sample), meaning that we could not conduct any further group-specific analyses for this area.

12.4 Findings

Among people in the second half of life, one in twenty reported having experienced age discrimination since the start of the Covid-19 crisis

As Fig. 12.1 shows, in summer 2020, most people in the second half of life (94.6 per cent) reported having experienced no age discrimination since mid-March 2020. In contrast, 5.4 per cent reported having experienced age discrimination.

Thus, most people in the second half of life did not appear to have faced age discrimination. In 2017, the corresponding proportion was 8.5 per cent (Spuling et al. 2020). This proportion was thus larger than in 2020, but it also related to a longer period (12 months in the 2017 survey versus 3 to 4 months in the 2020 survey). Therefore, there is no direct comparability.

Similar proportions among different age groups, among women and men, and among people with different educational levels were affected by age discrimination

As shown in Fig. 12.1, the proportions of those reporting age discrimination from the beginning of the Covid-19 crisis were similar across all age groups. Although age discrimination seems to have occurred slightly less frequently in the 70–79 age group (3.4 per cent) than in all other age groups, whose proportions ranged from 5.0 to 6.3 per cent, this difference was not statistically significant. Experienced age discrimination therefore did not seem to vary depending on age, at least not within the second half of life.

Similarly, the proportions were very similar for women and men. Regarding the role of education, people with a low educational level reported having experienced age discrimination more often (8.1 per cent) than people with medium or high educational levels (4.1 and 6.4 per cent), but this difference was not statistically significant. The group of respondents with a low educational level was small overall, and in absolute numbers there were only 17 people within this group who reported having been discriminated against because of their age.

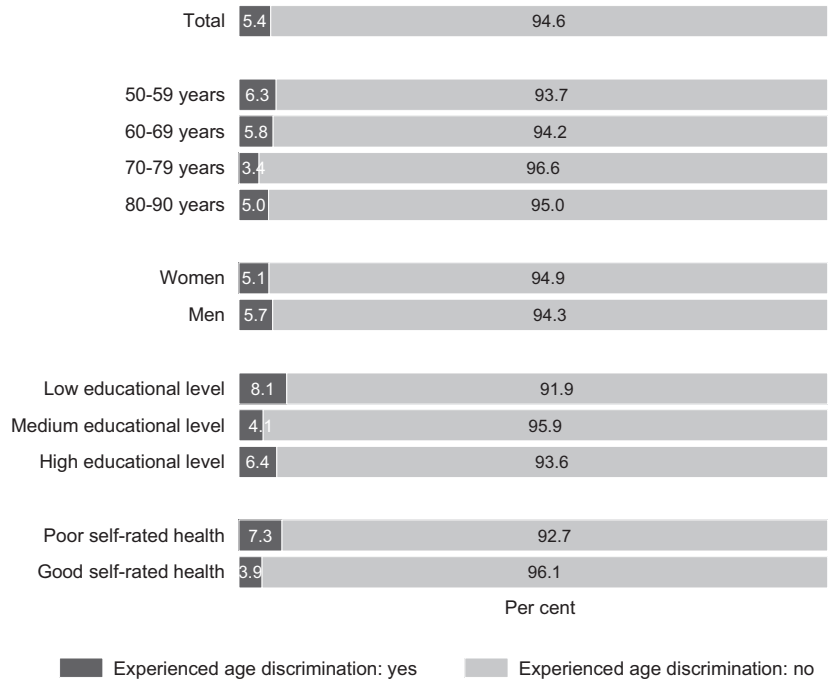

Fig. 12.1 Proportion of people who say they were discriminated against by others or placed in a worse position than others because of their age since mid-March 2020, in total and by age, gender, education and self-rated health (in per cent). *Source* DEAS 2020 (n = 4510), weighted analyses, rounded estimates The differences according to age, gender and education were not statistically significant. In contrast, the difference depending on subjective health was statistically significant

From these results, we can conclude that experiences of age discrimination in the second half of life did not seem to be a matter of age and that there were no significant differences between middle-aged and older adults. Similarly, a comparable number of women and men reported having experienced age discrimination. Regarding education, a small but non-significant difference emerged. Individuals with low educational level reported having been a target of age discrimination slightly more often than people with medium or high educational levels.

People who rated their health less favourably were more likely to report experiencing age discrimination

In contrast, there was a noticeable difference in experienced age discrimination depending on self-rated health. Comparing people with good and with poor self-rated health, we found that almost twice as many people with poor self-rated health (7.3 per cent) reported experiencing age discrimination as those with good self-rated health (3.9 per cent) (Fig. 12.1).

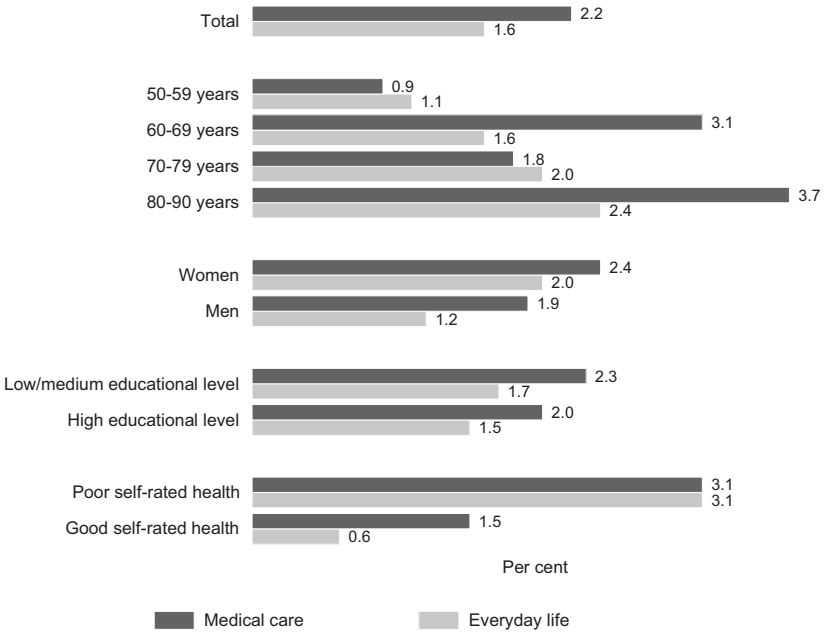

Fig. 12.2 Proportion of people who reported that they had been discriminated against by others or placed in a worse position than others because of their age in medical care or in everyday life since mid-March 2020, in total and by age, gender, education and subjective health status (in per cent). *Source* DEAS 2020 (n = 4510), weighted analyses, rounded estimates. The differences between the age groups were significant for both domains (everyday life and medical care); the difference between women and men was only significant for the domain everyday life; the differences by education were not significant for either domain (everyday life and medical care); only the difference in the domain everyday life was significantly different between persons with good vs. poor self-rated health

Areas of age discrimination: with increasing age, the proportion of people experiencing age discrimination in medical care and in everyday life increased
As Fig. 12.2 shows, 2.2 per cent of respondents reported having been discriminated against in medical care because of their age. Age discrimination in everyday life was reported by 1.6 per cent of respondents.

The areas in which experienced age discrimination was reported differed significantly by age. Gender also had implications for experienced age discrimination but there were no significant differences by educational level.

The proportion of the oldest age group reporting age discrimination in medical care (3.7 per cent) and in everyday life (2.4 per cent) was larger than in the other age groups, especially compared to the youngest group, 50–59-year-olds (experienced age discrimination in medical care: 0.9 per cent; in everyday life: 1.1 per cent). Experiences of age discrimination in medical care thus seemed to increase with age (except for 70–79-year-olds, who reported this type of experienced discrimination less frequently than 60–69-year-olds), as did experienced age discrimination in everyday life.

There was no difference between women and men in the proportion of those who experienced age discrimination in medical care. However, a larger proportion of women (2.0 per cent) than men (1.2 per cent) stated that they had been disadvantaged or placed in a worse position in everyday life because of their age. For people with different levels of education, however, there was no significant difference between the two areas of discrimination.

People who rated their health as poor were more likely to have reported experiencing age discrimination in everyday life
Differences based on self-rated health were much more striking than the differences between age groups or between women and men regarding reported age discrimination in everyday life. More than five times as many people with poor self-rated health experienced this form of discrimination (3.1 per cent) than people with good self-rated health (0.6 per cent). A larger proportion of people with poor self-rated health reported discrimination in medical care than those with good self-rated health (3.1 per cent versus 1.5 per cent), but this difference was not statistically significant.

In summary, these results show that compared to people with good self-rated health, more people with poor self-rated health stated that they had experienced age discrimination in everyday life. In medical care, on the other hand—presumably a very crucial area of life for those with a negative evaluation of their own health—more people with poor self-rated health saw themselves disadvantaged than people with good health, but this difference was small and not statistically significant.

12.5 Conclusion

The Covid-19 crisis may have promoted ageism, as it generated—sometimes very one-sided—discussions about the vulnerability, need for protection and risk status of older people (Kessler and Bowen 2020), as well as about the role of age in possible decisions to give or refuse treatment (Ehni et al. 2020). In addition, the portrayal of older people and their situation in the pandemic, especially in social media, was sometimes characterised by age-discriminatory posts and tendencies (Jimenez-Sotomayor et al. 2020; Lichtenstein 2020; Meisner 2020; Sipocz et al. 2020).

One in twenty respondents reported having experienced age discrimination since the start of the Covid-19 crisis

A key finding of the survey was that in the summer of 2020, 5.4 per cent of respondents reported that they had experienced age discrimination since the beginning of the Covid-19 crisis (i.e. since mid-March 2020). The overwhelming majority, on the other hand, more than 94 per cent, reported that they had not experienced age discrimination.

On the one hand, this result can be interpreted as an "all-clear", because there was seemingly no universal age discrimination, at least in the early phase of the pandemic as perceived by people in the second half of life. Other studies have reported similar results, according to which some people feared age discrimination after the onset of the Covid-19 crisis or had experienced it themselves, but at the same time, the proportion of these people in the population of older people was rather small (Reiner et al. 2020; Wahl et al. 2020).

On the other hand, the results of the present study show that as many as one in twenty people reported having experienced age discrimination. Other studies that have investigated ageist tendencies in social media (Jimenez-Sotomayor et al. 2020) estimated the prevalence of age discrimination as far greater and more problematic. The type of age discrimination studied may make a difference—i.e. whether a survey looks at personal and subjective age discrimination or objectively measurable age discrimination that is directed against the group of older people in general. Given how severe the consequences of experienced age discrimination are for well-being, health and longevity (Chang et al. 2020; Levy et al. 2020), every single person affected by age discrimination was one person too many. Therefore, despite the apparently low prevalence of experienced age discrimination, efforts by politicians, journalists and scientist should be intensified to counteract a one-sided and loss-oriented view of aging. In addition, the potential, strengths, adaptability and resilience of older people should be publicly

addressed, especially in relation to the Covid-19 crisis (Entringer and Kröger 2020; Eurofound 2020; Gilan et al. 2020; Lind et al. 2020; Röhr et al. 2020). Negative age stereotypes and age discrimination may also arise due to insufficient knowledge about the life phases of middle adulthood and old age. It is therefore important to provide balanced and comprehensive information about this phase of life and about the diversity of age(s). Not all older people have poor health; within the older age group there are—as in all other age groups—considerable interindividual differences. Initiatives to convey realistic and balanced views on aging (e.g. the BMFSFJ initiative "New Images of Old Age" or the thematic year 2012 "In the Best Age. Always" against age discrimination by the Federal Anti-Discrimination Agency) should therefore be continued and expanded.

Clearly, ageism is a problem that predated the Covid-19 pandemic (Beyer et al. 2017; Spuling et al. 2020), and negative or hostile attitudes towards older people and age stereotypes existed beforehand. Efforts and campaigns to combat ageism will therefore continue to be necessary for the remainder of the pandemic and as it subsides.

Ageism during the Covid-19 crisis affected different age groups, women and men, and people with different educational levels equally

Was the Covid-19 crisis the great "leveller" from which different population groups suffered equally? At least in terms of experienced age discrimination, this seemed to be the case in the early phase of the pandemic, because between 5 and 6 per cent in each age group reported having experienced age discrimination following the onset of the crisis from middle adulthood upwards. The exceptions were 70–79-year-olds, of whom a slightly lower proportion reported such discrimination (3.4 per cent), though this was not significantly different from the other age groups. Other studies also reported that older people's perceptions of being discriminated against in the early period of the pandemic were largely independent of the age of the respondents (Wahl et al. 2020). Similarly, among both women and men, around 5 to 6 per cent reported having experienced age discrimination. As far as education is concerned, on the other hand, it seems that more people with low educational levels reported having experienced age discrimination than people with medium or high educational levels. However, this difference between education groups was not statistically significant, a finding that is also evident in other studies (Reiner et al. 2020).

At least so far, these findings suggest that no socio-demographic "risk group" in middle and older age emerged as being particularly vulnerable to age discrimination during the Covid-19 crisis. Experienced age discrimination affected people of different ages, and measures to protect against discrimination must therefore

also consider all age groups within the second half of life. In addition, it is also important to avoid stigmatising people in the "first half of life", such as children, adolescents or young adults, who were by no means ruthless "super spreaders" during the pandemic (Doblhammer and Trappe 2021; Pelizäus and Heinz 2020). Politicians must resist blaming any age group for the pandemic and its consequences, be they younger or older people. Such apportionment of blame is fundamentally wrong and could be a source of intergenerational conflicts. In addition, research should observe whether this pattern of non-existent age and gender differences continued as the pandemic progressed or whether it changed, for example, during the debate on vaccination prioritisation.

Age discrimination during the Covid-19 crisis seemed to have affected different age groups within the second half of life to a similar extent. However, certain very old people with particular vulnerabilities—such as nursing home residents, who were not sufficiently represented in this study and who experienced temporary visiting bans during the pandemic (Rothgang et al. 2020), with their remarkable negative consequences for mood and well-being (Benzinger et al. 2021; Sporket 2020)—might have experienced more frequent and more problematic disadvantages. Groups like these should therefore be given more consideration in future empirical studies.

With increasing age, more individuals reported having experienced age discrimination in medical care and in everyday life because of their age

The areas in which people in the second half of life experienced age discrimination varied with age: The youngest age group, 50–59-year-olds, mentioned medical care and everyday life less frequently than all other age groups. In contrast, the proportion of people who experienced discrimination in these areas was greater in the group of 80–90-year-olds than in the other groups.

Especially for older and very old people, the key areas of discrimination were thus medical care and everyday life. Doctors and nursing staff, but also the public (Jimenez-Sotomayor et al. 2020) and the media (Lichtenstein 2020; Reiner et al. 2020), should be sensitised to aspects of age discrimination as well as to negative age views and their consequences. This requires comprehensive and ongoing education and training of health workers.

As far as further group differentiations were concerned, women affected by age discrimination more frequently reported having experienced age discrimination in the area of everyday life. This gender difference was not evident before the pandemic (Beyer et al. 2017) and could therefore be partly due to it. Women may have felt that they had been the target of pandemic-related age discrimination in everyday life to a greater extent than men (Reiner et al. 2020). In contrast,

there were no substantial differences between groups of different educational levels regarding experienced age discrimination in medical care or in everyday life.

People who rated their own health as poor were more likely to have reported experiencing age discrimination—especially in everyday life

The difference in experienced age discrimination depending on self-rated health was more pronounced than the differences according to age, gender or education: 7.3 per cent of the people with poor self-rated health reported having experienced age discrimination. This proportion was significantly higher than the proportion of those who rated their health as good or very good (3.9 per cent). People with poor self-rated health could also have experienced a greater degree of discrimination because of their age, since the stigma of belonging to the "risk group" (Robert Koch Institute 2020) affected them doubly: because of their age and because of their health conditions. These people may also have experienced more paternalism and overprotective behaviour from relatives and others than those who considered their health status to be better and who thus also saw themselves as less at risk for severe Covid-19. This could also explain why, among those who experienced age discrimination, those with less good self-rated health were more than five times more likely to mention discrimination in "everyday life" than those who rated their health as better.

People with poor health thus suffered due to the pandemic in many respects: due to pre-existing conditions, they were more at risk for severe or even fatal Covid-19 (Atkins et al. 2020; Karagiannidis et al. 2020; Nachtigall et al. 2020; Robert Koch Institute 2020). They also—justifiably—perceived the pandemic as more threatening (Jungmann and Witthöft 2020; Traunmüller et al. 2020; see chapter "How did individuals in the second half of life experience the Covid-19 crisis? Perceived threat of the Covid-19 crisis and subjective influence on a possible infection with Covid-19") and reported being affected by ageism significantly more often than people with better self-rated health. Therefore, these people needed support from politics and society. On the one hand, it was and still is important to ensure that they get through the pandemic with a lower objective and subjective risk—for example, due to optimal health care (e.g. treatment of pre-existing conditions, preventive and therapeutic measures) –and with help in everyday life from others. On the other hand, this highly burdened group should not become a target of age discrimination. Health-impaired persons should not be blamed for measures such as lockdowns and social distancing rules, nor should they be patronised and treated in an overprotective manner.

Summary

According to the available findings, a minority of people in the second half of life experienced age discrimination during the Covid-19 crisis, namely about 5.4 per cent of respondents. Although this may not appear to be a large number, any type of age discrimination is significantly detrimental to the quality of life and health of the people affected (Chang et al. 2020; Levy et al. 2020). Therefore, action is definitely called for. A one-sided picture of older people as a highly vulnerable population group is not warranted, while the resilience, adaptability, potential and strengths of this population group should not go unnoticed and unmentioned. Such one-sided, negative views on ageing encourage ageism, as they lead some to behave paternalistically and overprotectively towards older people, or even to blame them for measures such as lockdowns or social distancing rules.

People who assessed their own health as poorer than those with better self-rated health seemed to be more frequently affected by age discrimination. Particularly these people should be supported politically as well as socially and protected from discrimination, paternalism and stigmatisation.

The Covid-19 crisis may also have generated intergenerational solidarity and support (Barrett et al. 2020; Gilligan et al. 2020; Sipocz et al. 2020) and reduced experienced ageism. This potential should not go unused, and these kinds of solidarity and support should be explicitly appreciated and promoted so that they last beyond the end of the pandemic. For one thing is indisputable: ageism existed before the pandemic, and it can by no means be traced back only to the Covid-19 crisis. Therefore, political, and social initiatives to combat ageism need perseverance and, if they are to be lastingly successful, they must continue until well after the end of the pandemic.

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Internet Use by People in the Second Half of Life during the Covid-19 Pandemic: Social Inequalities Persist

13

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13.1 Key Messages

In 2020, more people in the second half of life had internet access than in 2017. Between 2017 and 2020, the proportion of people who had access to the internet increased by about 4 percentage points: from 82.6 per cent in 2017 to 86.4 per cent in 2020. The increase was most pronounced in the 61–75 age group.

Differences between population groups in access to the internet remained. In both 2017 and 2020, older people aged 76 and over were proportionately much less likely to have access to the internet than people in middle adulthood (aged 46 to 75). Gender and education differences that were already evident in 2017

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persisted in 2020: Women were proportionately less likely to have access to the internet than men in 2020, and people with a low educational level were less likely to have access than people with a medium or high educational level.

One fifth of people who had access to the internet reported using the internet more frequently following the onset of the Covid-19 pandemic than before. In particular, more frequent internet use was reported in the youngest age group, 46–69-year-olds. Here, about one in four people said they used the internet more often than before the Covid-19 pandemic. In the 76 to 90 age group, only about one in eight people reported this.

The most frequent use of the internet was searching for information, maintaining social contacts, and for entertainment and culture. By contrast, respondents used the internet less frequently for banking, shopping, finding new social contacts, and creating their own content. In all areas surveyed, the proportion of people who said they used the internet frequently grew between 2017 and 2020. Particularly large increases were evident in the areas of entertainment and culture, searching for new social contacts, and online shopping.

There were still clear age differences in the way people used the internet. People aged 76 to 90 who had access to the internet used it less frequently than people aged 46 to 75 in all areas considered. Older people aged 76 and older, in particular, used the internet rarely for shopping. Concerning internet use for maintaining existing social contacts, the difference between older people and people in middle adulthood was significantly smaller compared to 2017.

13.2 Introduction

At the end of March 2020, the German federal government decided to initiate the first nationwide lockdown to contain the spread of Covid-19. The rules were initially relaxed in individual federal states in May 2020, and the pandemic slowed down during the summer. Yet, with the onset of winter, the number of cases increased, prompting the federal government to impose a renewed lockdown in November 2020 to get the pandemic under control during the second wave. Despite the initially successful efforts to reduce the number of infections, the far more infectious Covid-19 variants caused a renewed increase in the number of infections, which were interpreted as the beginning of a third pandemic wave.

A central instrument of policy responses to Covid-19 pandemic were restrictions on social contacts and public life. All social groups were affected by the restrictions, but the associated burdens were distributed differently.

In dealing with contact restrictions and the closure of public, cultural and commercial facilities, the potential of digital technologies was frequently noted. These made it possible to adapt work processes, organise everyday life digitally, and maintain social contacts while complying with pandemic regulations and guidelines. Digital technologies, it was said, would help to mitigate the psychological, social, and economic effects of pandemic-related restrictions and ensure social participation (Brakemeier et al. 2020).

However, to use digital technologies, people have to have access to them. This requires the availability of a digital infrastructure, such as a desktop computer or a mobile device (e.g., laptop, tablet, smartphone) with licensed and updated software, as well as access to the internet. However, previous studies showed that there were differences in internet access between younger and older people. Older people were less likely to have access to the internet than younger people and they used the internet less often than younger people (Huxhold and Otte 2019). This was especially true for people of advanced age, who particularly often lacked internet access (Doh 2020; Seifert et al. 2021; German Bundestag 2020).

This digital divide between older and younger people is an expression of social inequality. Alongside age, education and gender play a role here. For example, people with a low educational level had less access to the internet and used digital services significantly less often than people with a medium and a high educational level (Huxhold and Otte 2019; Ehlers et al. 2020). Women in the second half of life also used the internet less frequently than men of this age (Huxhold and Otte 2019). These aspects of inequality reinforced existing age differences. For example, older people with a high educational level differed less in their internet use from younger people with a high educational level than older people with a low educational level differed from younger people with a low educational level (Tesch-Römer et al. 2016).

The digital divide might have led to the exclusion of people without internet access from social participation if, for example, shopping facilities, public services, communication, and entertainment were only provided digitally. Such a shift of public life activities and services to the digital sphere took place in many areas as a result of the restrictions imposed to contain the Covid-19 pandemic. Against this background, this chapter looks at how access to the internet and the use of specific internet-based services and application purposes changed across different age groups between 2017 and 2020. On this basis, conclusions can be drawn about potentials and challenges of digital technologies in the pandemic for older people.

13.3 Research Questions

Internet access and use offers people options to cope with the challenges in everyday life, this was particularly true during the pandemic. In the following, the aim is to clarify whether the proportion of people in the second half of life who have access to the internet had increased since 2017 and whether internet use increased following the onset of the pandemic. The question is whether social inequalities continued to structure access to and use of the internet.

To this end, this chapter examines the following questions.

- Access to the internet
  What proportion of people in the second half of life had access to the internet? Did this proportion change between 2017 and 2020? Were there differences in internet access by age, gender, and education? How did the differences in age, gender, and education compare between the two survey dates?
- Use of the internet since the beginning of the pandemic
  Did the use of the internet for private purposes change following the onset of the pandemic? Were there differences by age, gender, and education?
- Use of the internet for different purposes
  For what thematic purposes was the internet used and how often? How did the frequency of use for the purposes considered change between 2017 and 2020? How did the use of the internet for different purposes that were central to deal with the pandemic – such as seeking information, maintaining social contacts, entertainment and culture, and online shopping – change in the different age groups between 2017 and 2020?

For this chapter, data from the German Ageing Survey from 2017 and the paper–pencil short survey of the German Ageing Survey from June/July 2020 were evaluated. Changes in internet access and internet use were thus considered by looking at changes between 2017, that is before the start of the Covid-19 pandemic and after the first wave of the Covid-19 pandemic in June/July 2020.

The following measures were used in the analyses:

- *Access to the internet.*
  Access to the internet was surveyed using the question: "Do you have access to the internet?" The answer options "yes, at home" and "yes, at work" were combined into one category ("yes") for analytical purposes. In 2020, 86.2 per cent of people aged 46 to 90 had private access and 35.3 per cent had professional access to the internet. In total, 86.4 per cent of people aged 46 to 90 had access to the internet (private and/or professional).

- *Internet use since the beginning of the pandemic.*
  The change in the frequency of private internet use since the beginning of the Covid-19 pandemic was surveyed with the following question: "Do you use the internet at home more often or less often since mid-March?" The possible answers were "more often", "remained the same", "less often". This question was only asked in June/July 2020 and only to those who reported having access to the internet.
- *Frequency of internet use for different purposes.*
  The frequency of internet use for different purposes was assessed with the following question: "How often do you use the internet for the following purposes?" The surveys in 2017 and 2020 asked about the same seven purposes of internet use in an identical or very similar way.
  1. Contact with friends and relatives (e.g., e-mail, facebook, chat, video telephony like Skype)
  2. Search for new social contacts (e.g., friends, partners, like-minded people)
  3. Searching for information (e.g. news, advisers, Wikipedia)
  4. Shopping (e.g. amazon, eBay, online pharmacy). In 2020, "food delivery" was additionally mentioned as an example.
  5. Banking business (e.g. online banking). In 2020, "banking apps" and "mobile payment via smartphone" were additionally mentioned as examples.
  6. Entertainment (e.g. listening to music, watching films, playing games, watching TV)
  7. Create own content (e.g. texts, photos, music, uploading videos for blogs, websites, online selling).

The following response options were given: "daily", "several times a week", "once a week", "once to three times a month", "less often", "never". For a simplified presentation, the categories "daily" and "several times a week" were combined as "frequently" and the categories "several times a week" to "less often" were combined as "occasionally". This question was also only asked to people who reported having access to the internet.

Information on peoples' age, gender, and educational level was based on self-reporting or was already known due to previous participation in the German Ageing Survey. To examine the role of age, three age groups were formed: 46–60 years ($n_{2020} = 997$, 20.9 per cent; $n_{2017} = 1517$, 27.6 per cent), 61–75 years ($n_{2020} = 2166$, 45.5 per cent; $n_{2017} = 2576$, 46.8 per cent) as well as 76–90 years ($n_{2020} = 1600$, 33.6 per cent; $n_{2017} = 1406$, 25.6 per cent). In addition, women ($n_{2020} = 2431$, 51.1 per cent; $n_{2017} = 2753$, 50.1 per cent) and men ($n_{2020} = 2328$, 48.9 per cent; $n_{2017} = 2746$, 49.9 per cent) were compared. Education was divided into three groups: individuals with a low educational level ($n_{2020} = 205$; 4.3 per

cent; $n_{2017} = 260$, 4.7 per cent), a medium educational level ($n_{2020} = 2250$; 47.2 per cent; $n_{2017} = 2741$, 49.9 per cent), and a high educational level ($n_{2020} = 2307$; 48.4 per cent; $n_{2017} = 2499$, 45.4 per cent).

13.4 Access to the Internet

Most people in the second half of life in Germany reported having access to the internet. This proportion increased slightly between 2017 and 2020, by just under 4 percentage points from 82.6 to 86.4 per cent (Fig. 13.1).

However, at both points in time, people in middle adulthood had greater access to the internet than older people (Fig. 13.1). In the youngest age group (46–60 years), coverage was almost complete, at over 96 per cent in both 2017 and 2020. Among the middle age group, 61-to-75-year-olds, the proportion of those with access to the internet increased significantly between 2017 and 2020, from 82.9 to 91.6 per cent. Among 76-to-90-year-olds, the proportion of people with internet access also increased between 2017 and 2020, from 45.1 per cent to 52.1 per cent. However, almost half of the people in this age group still lacked internet access.

Differences in access to the internet were also evident regarding gender. Women in the second half of life had less access to the internet than men and this only changed slightly between the survey years: even in 2020, the proportion of women who had access to the internet, 82.5 per cent, was lower than the proportion of men, 90.5 per cent.

The educational level was also of considerable importance for internet access: here, large differences were evident in both 2017 and 2020. While almost 94.2 per cent of people with a high educational level had internet access in 2020, the share of people with a low educational level who had internet access was 61.6 per cent, a significant gap of almost 33 percentage points. Of those with a medium educational level, 82.8 per cent had access to the internet in 2020.

13.5 Internet Use Since the Beginning of the Covid-19 Pandemic

People with internet access were asked in 2020 whether they had used the internet more frequently since the beginning of the Covid-19 pandemic than before. Only private use was considered. Of people aged 46–90 years, 20.7 per cent

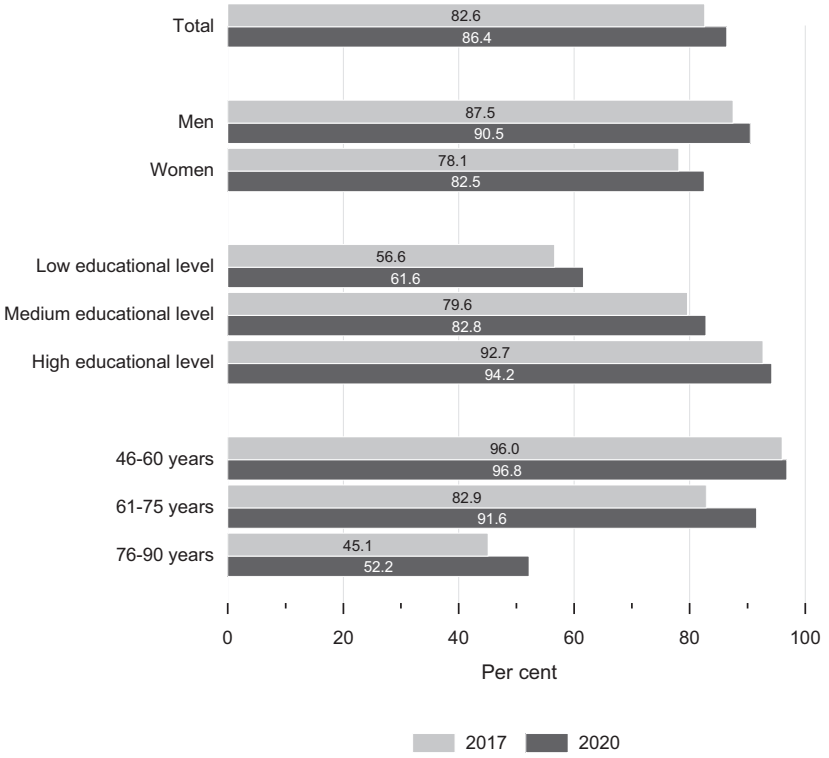

Fig. 13.1 People who had access to the internet, total, by age, gender, and education, 2017 and 2020 (in per cent). *Source* DEAS 2017 (n = 5314), DEAS 2020 (n = 4626), weighted analyses, rounded estimates. Statistically significant increase of people who reported having access to the internet in total from 2017 to 2020 ($p < 0.05$); There were statistically significant associations between internet access and the characteristics age, gender, and education for 2017 and 2020 ($p < 0.05$). Significant changes regarding the proportion of people with internet access from 2017 to 2020 were evident in the group of 61-to-75-year-olds, within the group of men, as well as the group of women ($p < 0.05$)

reported having used the internet more frequently since the beginning of the Covid-19 pandemic than before the pandemic (Fig. 13.2). Most people stated that they had not changed their usage behaviour (77.3 per cent). Only just under 2 per cent of respondents reported having used the internet less frequently since the beginning of the pandemic.

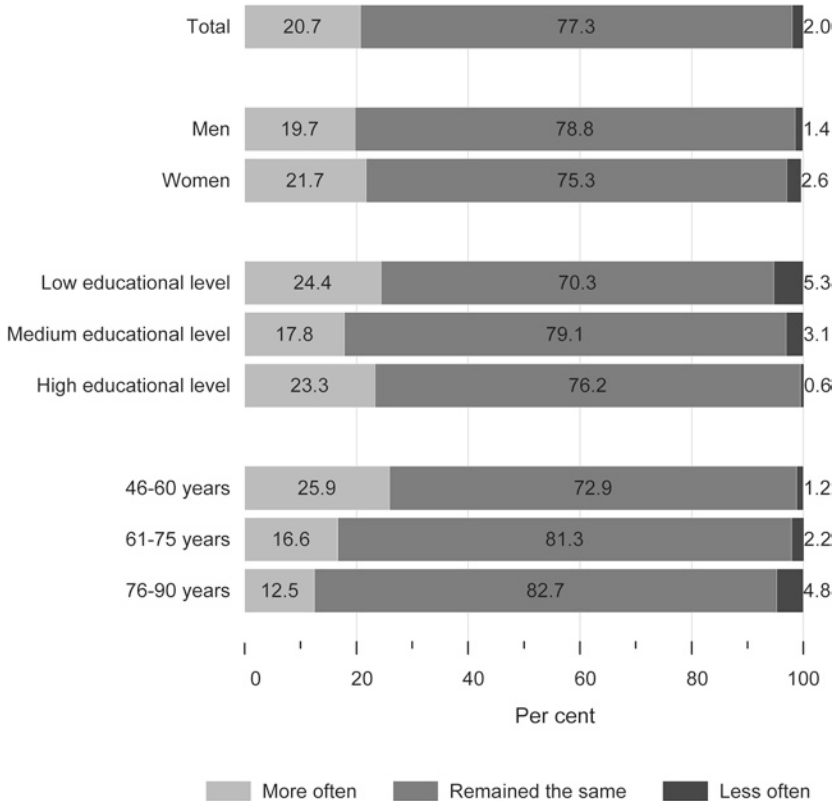

Fig. 13.2 Reported change in the frequency private internet use, total, by age, gender, and education, 2020 (in per cent). *Source* DEAS 2020 (n = 3806), weighted analyses, rounded estimates. Age and education show a statistically significant correlation with the reported change in frequency of private internet use ($p < 0.05$)

There were clear age differences in the reported changes in internet use since the beginning of the pandemic: people in middle adulthood have tended to expand their use more than older people: while about a quarter of people in the 46–69 age group used the internet more frequently, the figures were 16.6 per cent among 61-to-75-year-olds and 12.5 per cent among 76-to-90-year-olds (Fig. 13.2).

Only slight gender differences were evident in terms of reported changes in the frequency of internet use since the beginning of the pandemic.

However, there were also differences between people with different educational levels: about a quarter of people with a high or low educational level reported that they had used the internet more often since the beginning of the Covid-19 pandemic. In contrast, only 17.8 per cent of people with a medium educational level had used the internet more frequently since the beginning of the pandemic.

Overall, only a minority of those people in the second half of life with internet access reported using the internet more frequently for private purposes after the onset of the Covid-19 pandemic than before. In this context, the following age differences can be highlighted: people of advanced age (76–90 years) were significantly less likely to have access to the internet than people aged 46–75 (Fig. 13.1) and when they did have access to the internet, the reported increases in frequency of use after the beginning of the pandemic were significantly lower than in the younger age groups (Fig. 13.2).

13.6 Internet Use for Different Purposes

People used the internet for various purposes. Figure 13.3 provides an overview of the proportion of people in the second half of life who used the internet frequently, occasionally, or never for the purposes surveyed for the years 2017 and 2020. In both years, 2017 and 2020, the internet was most frequently used for searching for information, maintaining existing social contacts, and accessing entertainment and culture. In 2020, more than three-quarters among all people with internet access used the internet daily or several times a week to search for information—e.g., to find out about the latest news or to visit advice sites. More than half of the people used the internet at least several times a week in 2020 to keep in touch with friends or relatives and to listen to music, watch films or play games (entertainment and culture). Frequent internet use increased for all of the purposes addressed between 2017 and 2020, except for the "create own content" purpose.[1] The internet was used more frequently for entertainment and culture, but also for finding new social contacts and doing online shopping—albeit at lower levels (Fig. 13.3).

[1] Only the proportion of people who frequently used the internet to create their own content had not changed statistically significantly between 2017 and June/July 2020.

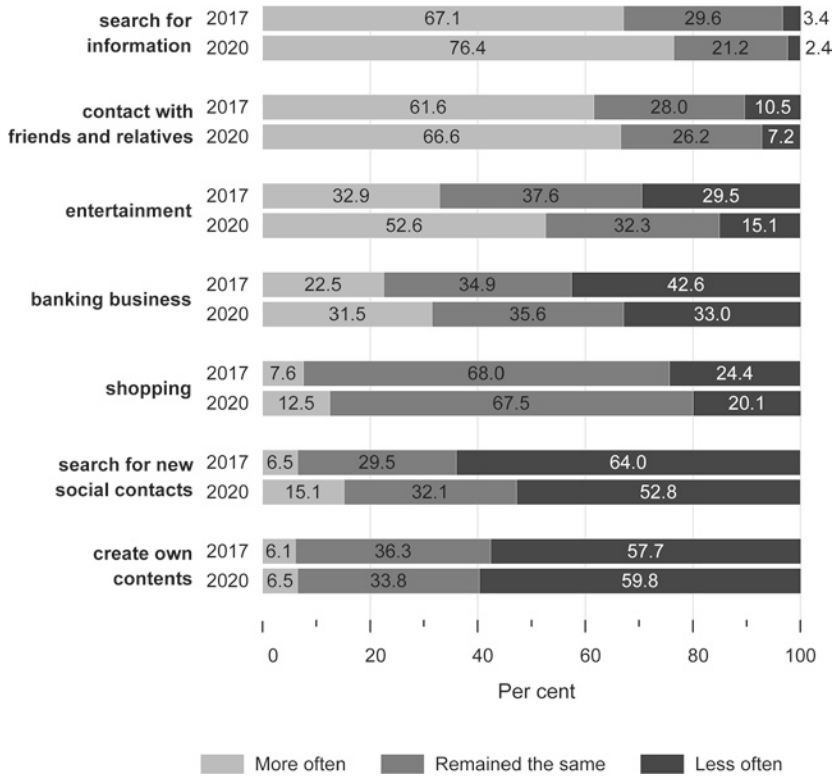

Fig. 13.3 Use of internet access by people aged 46–90 by thematic purpose, 2017 and 2020 (in per cent). *Source* DEAS 2017 (n = 4173), DEAS 2020 (n = 3837), weighted analyses, rounded estimates. The change in frequent internet use among people with internet access from 2017 to 2020 was significant for all purposes of internet use ($p < 0.05$); only the frequent internet use for the purpose of creating own content showed no significant change from 2017 to 2020

13.7 Age Differences in Internet Use

In the following, a more differentiated look is taken at four of the seven purposes of internet use that may have been particularly helpful for people in the second half of life during the Covid-19 pandemic: searching for information, maintaining existing social contacts, entertainment and culture, and online shopping. These

were broken down for people with frequent use, people with occasional use and people who never used the internet for the purpose (Fig. 13.4 to 13.7).

Searching for information was the most frequent purpose for internet use. In all age groups, over 90 per cent used the internet at least occasionally to search for information in both 2017 and 2020 (Fig. 13.4). The proportions of people who frequently used the internet to search for information increased significantly in all age groups between 2017 and 2020. Among those aged 46–60, the increase was 9.0 percentage points (from 72.7 to 81.7 per cent), among those aged 61–75, it was 12.2 percentage points (from 62.5 to 74.7 per cent) and among those aged 76–90, it was 9.5 percentage points (from 49.6 to 59.1 per cent).

More than 90 per cent of people aged 46–90 used the internet at least occasionally to maintain existing social contacts (Fig. 13.5). What is striking here is that in the oldest age group, 76-to-90-year-olds, the proportion of those with

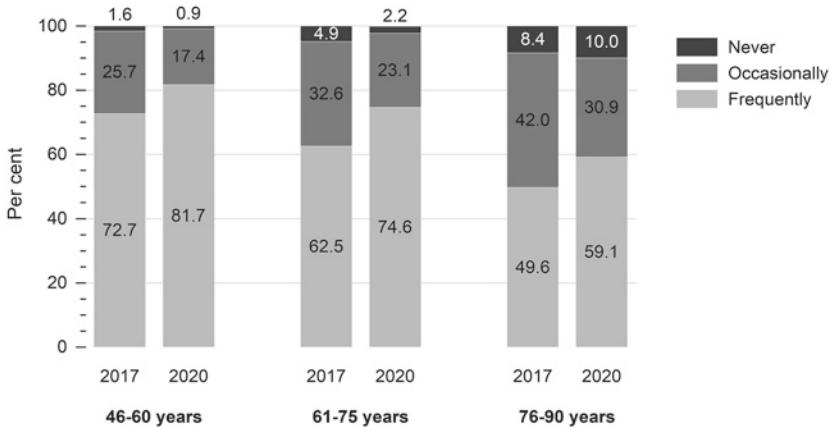

Fig. 13.4 Frequency of internet use to search for information, by age group, 2017 and 2020 (in per cent). *Source* DEAS 2017 (n = 4140), DEAS 2020 (n = 3789), weighted analyses, rounded estimates. In 2017 and 2020, there were statistically significant correlations between frequency of internet use and age ($p < 0.05$); The proportion of people with internet access who frequently used the internet to search for information differed statistically significantly between 2017 and 2020 within the following age groups: 46–60 years, 61–75 years ($p < 0.05$). The proportion of people with internet access who occasionally used the internet to search for information differed statistically significantly within all three age groups between 2017 and 2020. The proportion of people with internet access who never used the internet for this purpose differed statistically significantly within the 61–75 age group between 2017 and 2020 ($p < 0.05$)

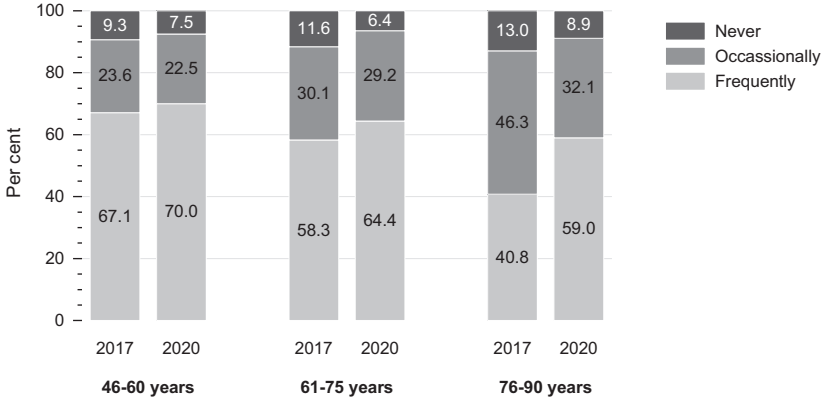

Fig. 13.5 Frequency of internet use to maintain existing contacts with friends and relatives, by age group, 2017 and 2020 (in per cent). *Source* DEAS 2017 (n = 4149), DEAS 2020 (n = 3787), weighted analyses, rounded estimates. In 2017 and 2020, there were statistically significant correlations between the frequency of internet use for contact with friends and relatives and age ($p < 0.05$); the proportion of people with internet access who frequently used the internet for this purpose differed statistically significantly within the 76–90 age group between 2017 and 2020 ($p < 0.05$). The same applies to occasional use of the internet to stay in contact with friends and relatives. The proportion of people with internet access who never used the internet for this purpose differed statistically significantly within the 61–75 age group between 2017 and 2020 ($p < 0.05$)

frequent use increased sharply between 2017 and 2020. In 2017, only 40.8 per cent in this age group used the internet frequently to maintain contact with friends and relatives. By June/July 2020, this proportion had increased to 59.0 per cent, an increase of 18.2 percentage points. The increase was smaller in the younger age groups: among 46-to-60-year-olds, there was an increase of 2.9 percentage points to 70.0 per cent; among 46-to-60-year-olds there was an increase of 6.1 percentage points to 64.4 per cent. Even if there were still age differences regarding the frequency of internet use for socialising in 2020, the differences between the age groups narrowed from 2017 to 2020.

As age increased, the proportion of people who used the internet occasionally or frequently for entertainment and culture tended to decrease (Fig. 13.6). This applied in 2017 and in 2020. However, between 2017 and 2020, there was a relatively large increase in all three age groups of people who frequently used the internet for entertainment or culture, for example to watch movies, listen to music or play games.

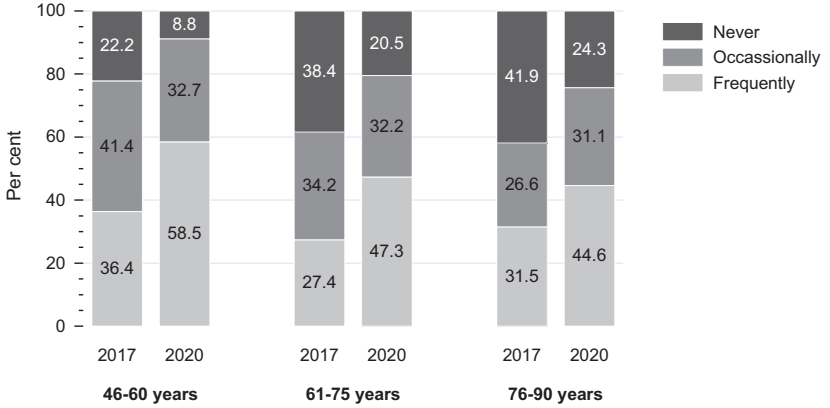

Fig. 13.6 Frequency of internet use for entertainment and culture, by age group, 2017 and 2020 (in per cent). *Source* DEAS 2017 (n = 4135), DEAS 2020 (n = 3781), weighted analyses, rounded estimates. In 2017 and 2020, there were statistically significant correlations between the frequency of internet use for entertainment and age ($p < 0.05$); The proportion of people with internet access who frequently used the internet for entertainment and culture differed statistically significantly within all three age groups in 2017 compared to 2020 ($p < 0.05$). The proportion of people who occasionally used the internet for this purpose differed statistically significantly within the 46–60 age group between 2017 and 2020 ($p < 0.05$). The proportion of people who never used the internet for entertainment and culture differed statistically significantly within all three age groups between 2017 and 2020 ($p < 0.05$)

However, the increase was smaller in the oldest age group than in the younger age groups. Between 2017 and 2020, the increase in frequent internet use for this purpose was 22.1 percentage points for those aged 46–60 (from 36.4 to 58.5 per cent), it was 19.9 percentage points for those aged 61–75 (from 27.4 to 47.3 per cent) and it was 13.1 percentage points for those aged 76–90 (from 31.5 to 44.6 per cent).

There were pronounced age differences regarding the use of the internet for shopping in both 2017 and 2020. Older people did much less online shopping than people in middle adulthood (Fig. 13.7). For example, in the summer of 2020, 86.8 per cent of people with internet access aged 46–60 reported that they occasionally or frequently did online shopping, compared to just 56.3 per cent of those people aged 76–90 years. However, the proportion of 76- to 90-year-olds who never used the internet to shop online decreased significantly between 2017 and 2020 (by 9.8 percentage points from 53.5 to 43.7 per cent).

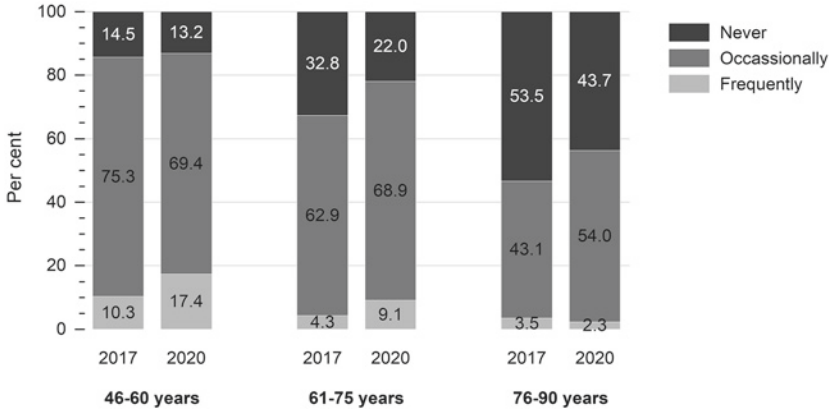

Fig. 13.7 Frequency of internet use for shopping, by age group, 2017 and 2020 (in per cent). *Source* DEAS 2017 (n = 4143), DEAS 2020 (n = 3787), weighted analyses, rounded estimates. In 2017 and 2020, there were statistically significant correlations between the frequency of internet use for shopping and age ($p < 0.05$); The proportion of people with internet access who frequently used the internet for shopping differed statistically significantly within the 46–60 age group and the 61–75 age group between 2017 and 2020 ($p < 0.05$). The proportion of people who occasionally used the internet for this purpose differed statistically significantly within all three age groups between 2017 and 2020 ($p < 0.05$). The proportion of people who never used the internet for shopping differed statistically significantly within the 61–75 age group between 2017 and 2020 ($p < 0.05$)

13.8 Summary and Discussion

The present findings showed that digitalisation in Germany progressed further between the years 2017 and 2020. Whether the Covid-19 pandemic acted as an accelerator for digitalisation or not cannot be clearly determined based on the available analyses and must be taken into account when interpreting the findings. Nevertheless, certain developments could be identified:

A large proportion of people in the second half of life already had access to the internet and this proportion increased further between 2017 and 2020: by almost 4 percentage points to 86.4 per cent. The increase was particularly significant in the 61–75 age group. Similarly, among the over-75s, a larger proportion had internet access in 2020 compared to 2017. However, only just over half of the over-75s had internet access in 2020. This illustrated that although access to the internet had risen in all age groups between 2017 and 2020, it was especially

older people aged 75 and older that still lacked internet access. And consequently, especially people from this age group could not benefit from digital opportunities arising via internet access in general and in context of the Covid-19 pandemic. There was a lot of talk about a digital divide between "young and old" in society, for example, between the "first" and "second half of life" (Seifert et al. 2021). Yet, the findings of this chapter show how important it is to additionally consider differences within the group of people in the second half of life.

Concepts and models for digital education and participation must take the specific situation of this age group into account, especially of the 75 + group. This is even more important as the shift from many offline services to the digital sphere in the pandemic, as well as the persistence of contact restrictions, may have made the living situation of older people without internet access more difficult. For example, booking vaccination appointments, shopping for shoes or attending concerts was often only possible online.

A solid 20 per cent of people with internet access aged between 46 and 90 years reported using the internet more frequently for private purposes after the onset of the Covid-19 pandemic. However, the proportion of those who reported no change in frequency of use was very high, at 77 per cent. In this context, age differences should also be noted. While more than a quarter of those aged 46–60 years stated that they had used the internet more often for private purposes since the beginning of the pandemic than before, only an eighth of those aged 75–90 years had done so. The pandemic thus led to an intensification of internet use for private purposes for people in the second half of life, albeit one that differed between the age groups. Overall, the findings were in line with other studies showing that the number of older people who had internet access and used it frequently was increasing (Seifert and Schelling 2016; Doh 2020; Initiative D21 2019).

The analyses also showed that among people with internet access, the frequency of internet use increased for almost all purposes between 2017 and summer 2020. For example, internet use for searching for information has intensified significantly in all age groups over the years. The same applied to internet use for entertainment and culture as well as for online shopping. In the case of internet use for maintaining social contacts, the 76-to-90-year-olds in particular reported a more frequent use for this purpose in summer 2020 compared to 2017.

The more frequent internet use by people in the second half of life with internet access suggested that the internet gained further importance during the pandemic. Findings from other recent studies also point in this direction. Those studies show that especially those who had already used the internet for information and communication purposes before the pandemic benefited from it during the pandemic—

people intensified their use of familiar communication tools such as the internet (Wahl et al. 2021; Hartung-Griemberg et al. 2020). Accordingly, the high increase in the frequency of internet use to maintain social contacts among the over-75s could be explained by the fact that this age group may have increasingly used the internet to maintain social contacts despite contact restrictions.

Overall, the findings presented here suggested that the digital divide in terms of internet access between people in middle adulthood and older people will decrease in the medium and long term. While almost everyone in the 46–60 group already had access to the internet in 2017 and therefore only a small increase was noted in 2020, there was a more substantial increase in internet access among the over-60 s in 2020. However, the results also show that access to the internet, as well as frequency of use were still strongly dependent on gender, education and age. Thus, it was mainly those people with a high educational level, men, and people between the ages of 46 and 75 who had access to the internet. In contrast, people with a low educational level, women and people aged 76 and older had internet access comparatively less often. These results indicated that social inequality factors continued to influence access to and use of the internet.

Regarding those people in the second half of life who did not have internet access, the challenge is to find ways for them to gain and maintain access to all important information, offers and services, especially in situations like the Covid-19 pandemic. In addition, it is necessary to strengthen the digital skills of people in the second half of life so that they can safely make use of the opportunities offered by the internet. This is a task that challenges science as well as society and politics. The Eighth Government Report on Older People emphasised the role of local authorities in the development of digital education, learning and experience spaces, as well as in providing low-threshold, local counselling, and support services for the acquisition of skills (German Bundestag 2020).

The goal of all efforts should be to enable social participation for all people. However, due to the existing digital divide, this will not be possible exclusively via the internet (German National Association of Senior Citizens' Organisations, 2020). Especially during the Covid-19 pandemic, access to the internet increasingly offered many advantages. The internet enabled people to contact friends and family while complying with contact restrictions. It also enabled people to participate in cultural events in the digital sphere and provided a wide range of entertainment. The internet also enabled people to access every day and other consumer goods without exposing themselves to a risk of infection while shopping. However, a digital divide in terms of access to the internet was particularly evident between people in middle adulthood (46–60 years) and older adulthood (76 years and older). In addition, educational differences as well as differences

between women and men were significant. Bundled and interlinked measures by the federal government, the states, and the municipalities are necessary to make access to and use of the internet as low threshold as possible for all people.

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