

Article

Impact of the Outbreak of the COVID-19 Pandemic on Formal and Informal Care of Community-Dwelling Older Adults: Cross-National Clustering of Empirical Evidence from 23 Countries

Aviad Tur-Sinai ^{1,2,*} , Netta Bentur ³, Paolo Fabbietti ⁴  and Giovanni Lamura ⁵ 

¹ Department of Health Systems Management, The Max Stern Yezreel Valley College, Yezreel Valley 1930600, Israel

² School of Nursing, University of Rochester Medical Center, Rochester, NY 14642-8404, USA

³ The Stanley Steyer School of Health Professions, Sackler Faculty of Medicine, Tel-Aviv University, Tel-Aviv 6997801, Israel; nettabentur51@gmail.com

⁴ INRCA IRCCS—National Institute of Health and Science on Ageing, Unit of Geriatric Pharmacoeconomics, 60124 Ancona, Italy; P.FABBIETTI@inrca.it

⁵ INRCA IRCCS—National Institute of Health and Science on Ageing, Centre for Socio-Economic Research on Ageing, 60124 Ancona, Italy; g.lamura@inrca.it

* Correspondence: avts2309@netvision.net.il; Tel.: +972-4-6423588; Fax: +972-4-6423522

Abstract: The COVID-19 pandemic has been dramatically affecting the life of older adults with care needs and their family caregivers. This study illustrates how the initial outbreak of the pandemic changed the supply of formal and informal care to older adults in European countries and Israel and assesses the resilience of these countries in providing support to their older populations by means of a mix of both types of care. We subjected data from the Survey of Health, Ageing and Retirement in Europe COVID-19 period (SHARE-COVID-19) across 23 European countries (including Israel) to descriptive and cluster analyses. In the first wave of the outbreak, a significant proportion of older adults in European countries received informal help, with an increase in the frequency of informal help received from children, neighbors, friends, or colleagues and a decrease in that received from other relatives. In most countries, difficulties in receiving home care services from professional providers were reported. Seven clusters were identified, reflecting different combinations of changes in the formal/informal care provision. In most countries, informal care is more resilient than home care services that formal providers deliver. Since they are an essential source for sustainable care, their challenges related to care should be addressed. The impact of the pandemic does not follow the traditional characterization of welfare regimes. A clustering effort may yield more understanding of the priorities that future care policies should exhibit at the national level and may identify potential systems for policymakers to enhance sustainability of care for community-dwelling older adults.

Keywords: informal care; home care; receiving help; cluster analysis; SHARE



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1. Introduction

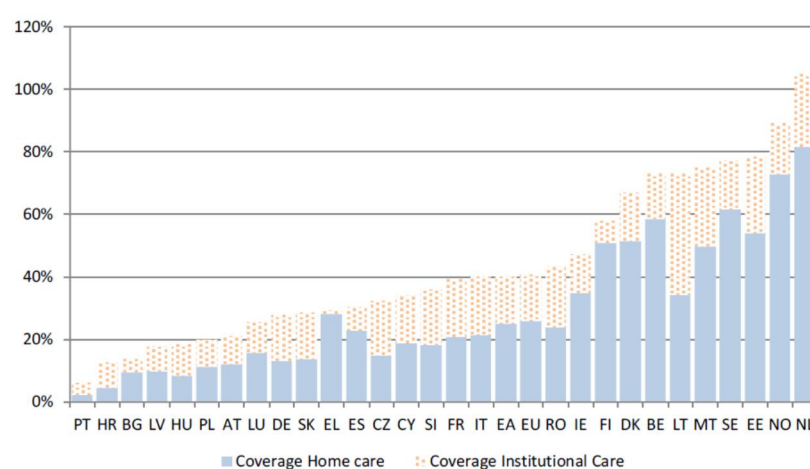
The COVID-19 outbreak caught the world unprepared. To tackle and contain the pandemic, most public-health efforts were initially addressed to the immediate impacts of the crisis, such as those relating to care for those infected, operating hospitals, and coping with the severely ill [1]. Countries also implemented a variety of additional wide-ranging interventions such as “stay-at-home” policies, “social distancing,” suspension or limitation of public transportation, and closing of non-essential shops, up to almost full lockdown [2]. To mitigate the impact of these restrictions, many countries added a series of economic and social interventions such as in-cash economic support [3], enlarged social-welfare provisions [4], and subventions for community and volunteer organizations [5], to name only a few.

Concurrently, countries started to monitor and gather data on mortality, morbidity, hospitalizations, and other measures of the impact of the pandemic on the population at

large and on specific subgroups, such as older adults in residential homes [6–8]. However, while most monitoring and evaluations focused on the immediate impact of the pandemic on general populations, hospitals, and residential care facilities, very little attention was devoted to the effects of the crisis on community-dwelling older adults [9]. Even though the vast majority of older adults live and are cared for at their home in the community [10] and despite their complex and sizable needs, the preliminary responses to the epidemic overlooked this special population group, already vulnerable before the outbreak, as well as their family caregivers [11].

The population of adults aged 65 and over in the European Union (EU) is about 90.5 million (almost 20% of the EU population), of whom some 49 million are aged 75+ [12]. About 70% of the older adults report chronic illness or health problems and require long-term care [12], making them one of the groups most at risk of COVID-19 and in need of immediate attention by social and healthcare systems. The current study presents an initial picture of how the supply of formal and informal care to older adults in need changed due to the first outbreak of the COVID-19 pandemic, and assesses the resilience of countries in supplying care to older adults in need as a mixture of both types of care. For the purpose of this specific paper, resilience is defined as the capacity, measured at a country level, of activating additional informal care resources and/or of keeping the provision of informal care services at pre-pandemic level, as two of the most important sources of support to face the challenges raised by the COVID-19 emergency.

Older adults with complex care needs in the community receive help and assistance from both formal and informal caregivers. The scientific literature distinguishes between these two main providers of care [13], and although there is no overall consensus about the precise definition and meaning of these terms [14], formal care usually refers to services provided by health and social care service organizations, either public or private (both for-profit and non-profit). Apart from residential (or institutional) care, this term usually includes home-based care such as assistance in basic and instrumental Activities of Daily Living (ADLs and IADLs), at-home medical and nursing care, and community-based services such as those provided by day-care centers [15]. Some formal caregivers—mainly medical and nursing home-care staff but also social workers and home helpers—are trained professionals, although in some countries many home-based care providers are represented by persons who are largely untrained in caring for vulnerable older adults and often have a migration background [16,17]. Figure 1 provides an overview of the coverage of home and residential care as well as of cash-benefits in the European Union.



(a) Home and institutional care

Figure 1. Cont.

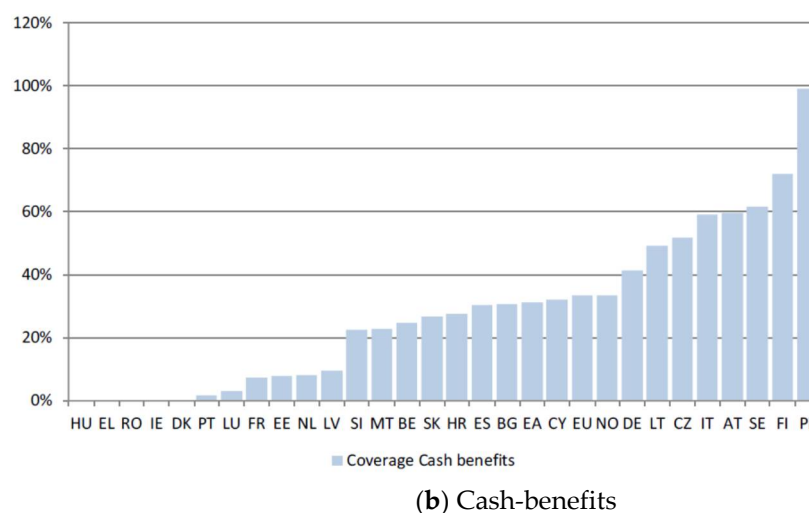


Figure 1. Coverage of (a) home care, institutional care, and (b) cash-benefits by country in the EU (as % of the dependent population). N.B.: Figures do not include data for Israel. Figure 1b does not contain data for Hungary. Source: [18].

Informal caregiving, in turn, is predominant in supporting older adults with long-term care needs. Most definitions of informal caregivers refer to spouses, children, and other family members but also to friends and neighbors who provide unpaid assistance to people with a chronic illness or disability or other long-lasting health, social, or care needs, within the construct of non-contractual voluntary work outside any professional or formal setting [19–21]. These caregivers play a crucial role in sustaining the health, well-being, functional independence, and quality of life of older adults in need and in providing them with varied kinds of instrumental and emotional support [22]. Also, informal caregivers often serve as the main interface between the formal care system and older adults who cannot manage daily life on their own, accessing and coordinating services on their behalf [23]. Few informal caregivers receive adequate training, if any, for this broad spectrum of tasks [24]. In the EU, a large number of people take care of ill, elderly, and/or disabled relatives [12]. Indeed, available estimates suggesting that as much as 80% of all long-term care is provided by informal caregivers, whose numbers range from 10% to 25% of the total population [25] with average rates that vary significantly between countries, among groups of countries, and depending on how informal care is defined and measured [26–28]. Therefore, long-term care services in the community cannot be delivered unless the quantitatively crucial role of informal caregiving, alongside formal care, is taken into account.

Both the COVID-19 pandemic and the measures undertaken to try to contain it have been dramatically impacting the daily lives of older adults with care needs and their family caregivers, creating a series of new and interconnected challenges for policymakers and other stakeholders who attempt to provide a proper response to such profound changes. Existing evidence suggests that, especially in the initial phase, these population groups faced increased levels of stress and anxiety for reasons including persistent lack of information and guidance on the appropriate behavior to adopt [29]. No few family caregivers sometimes felt obliged to adopt very restrictive measures and behaviors to protect their vulnerable family members from infection, including forgoing regular healthcare access. They were joined by new informal caregivers who had not engaged in this work before but now had to do so either because older-adult relatives had fallen ill or due to the absence of home help/care services during the pandemic; these novice caregivers were particularly in need of guidance and support [30]. Situations of social isolation and worsening mental health that were evident before the pandemic [31,32] were exacerbated as well. Social isolation is likely to grow particularly among those with lower digital skills—a noteworthy group among older adults and their informal caregivers [33,34]—who cannot benefit from

the extensive opportunities available today to connect with others via the internet or other digital media.

In light of the above, it is not surprising that changes in one or both forms of formal and informal care due to factors related to the pandemic—be it fear of the spreading disease, stay-at-home policies, or lockdown measures—may have broad and longstanding effects on the sustainability of care for older adults in the community.

To support the formulation of evidence-based suggestions on how to tackle these changes, this study (1) presents an initial picture of how the supply of formal and informal care to older adults in need in European countries and Israel changed due to the first outbreak of the pandemic and (2) assesses cross-nationally the resilience of these countries in supplying care to older adults in need as a mixture of both types of care. In other words, to examine the extent to which the countries succeed in ensuring the provision of adequate welfare services for the older adults, based on both formal and informal services.

2. Measures and Methods

2.1. Data Source and Study Sample

This study draws on data collected by the Survey of Health, Aging and Retirement in Europe (SHARE), which seeks to better understand the dynamics of the growing population of persons aged 50+ and to provide a research infrastructure for public policymaking on behalf of the older-adult population [35]. The data collected in SHARE make it possible to compare the health, economic situation, and welfare of older adults in 29 European countries over time by providing a multidisciplinary cross-national bank of microdata on health, psychological, and economic variables [36–38].

During the COVID-19 period, it became necessary to revise the way the SHARE data were collected. Data-gathering via interviews in respondents' homes was halted and replaced by telephone questionnaires. The questionnaire used at the beginning of the collection process was discontinued in favor of one that gathers focused data about the way people aged 50+ were coping with the crisis. This special-purpose survey centered on a series of topics related to respondents' general health, mental health, ways of coping with the virus in the medical sense, coping in the labor market, and social-network characteristics. The survey was conducted among 52,000 people in 26 European countries (including Israel) over a two-month period from June to August 2020 [39]. A similar survey (the Health and Retirement Study—HRS), administrated in the U.S., included two questions about informal help received from people outside the respondent's household during the COVID-19 outbreak. It did not, however, ask about formal care received during that time and for this reason, along with the belated release of its database [40], was not included in this study.

2.2. Variables Included in the Analysis

To study the impact of the pandemic on the supply of care to older adults in need, we first examined informal and formal care separately, starting with the former due to its predominance in care and its crucial role in supporting older adults in the community.

In regard to informal care, older adults were asked whether, during the outbreak of the pandemic, they had received informal help outside of home. The question was: “*Since the outbreak of Corona, were you helped by others from outside of home to obtain necessities, e.g., food, medications or emergency household repairs?*” with “Yes” and “No” as possible answers. To assess the total extent of informal care that older adults received, the participants were asked whether, during the outbreak of the pandemic, they had received less, the same, or more informal help from their children, other relatives, or non-relatives such as neighbors, friends, or work colleagues. An average level of help received from these three sources (children, other relatives, and non-relatives) was calculated, with reference to upturns and downturns in the level of help pursuant to the pandemic. A fourth source, “parents,” although taken into account in the SHARE questionnaire, was not included in our analysis due to the paucity of respondents who mentioned it. The question was

phrased as follows: “How often did the following people from outside your home help you to obtain necessities, compared to before the outbreak of Corona?” listing as possible sources “your own children,” “own parents,” “other relatives,” and other non-relatives such as “neighbors, friends, or colleagues.” In addition, change in the frequency of such help due to the pandemic was investigated, the respondents being asked whether this support took place “less often,” “about the same” or “more often,” compared with the pre-pandemic period.

As for formal care, the SHARE respondents were asked whether they had regularly received formal home care before the pandemic broke out and whether they faced difficulties in obtaining the home care they needed afterwards, through the following question: “Since the outbreak of Corona, did you face more difficulties in getting the amount of home care that you need?” with “Yes” and “No” as possible answers. As no other questions about formal care provision were asked in the survey, this variable was adopted as a proxy for formal care, it being assumed that the expression “home care” captures the role of care services provided to community-dwelling older people in the countries involved in the study.

2.3. Cluster Analysis

To identify country groups, a hierarchical cluster-analysis methodology was used. The aim of this analysis was to detect, within the 23 EU Member States (including Israel) for which data were available—some countries were excluded due to the small sample size of respondents receiving home care—the presence of groups of cases that are both similar (i.e., presenting “maximum similarity”) within each group and, at the same time, as different as possible from the other groups (i.e., reflecting the “highest diversity” between clusters). To this end, the complete-linkage (or “furthest-neighbor”) method was used and the clusters were created by adding, in each step, the nearest case to all others already present in the specific group. The Squared Euclidean distance between cases was used to give a progressively greater weight to cases that are beyond a defined distance. Two indicators were used for this analysis: (a) one for informal care, represented by the average value obtained from the “difference between those reporting more and those reporting less practical help” calculated for each of the three sources of informal help considered (children, other relatives, and non-relatives such as neighbors, friends, etc.) and (b) one for formal care, constituted by the “share of respondents reporting more difficulties in receiving home care.” At the end of the analysis, a seven-cluster solution was preferred over others because, among the options considered, it proved to be the one with the fewest “outliers” (countries reporting scores distant from those that characterized the other countries belonging to the same cluster).

3. Results

The main characteristics of the COVID-19 pandemic across the countries are presented in Table 1. There is a great variability in the characteristics, as can be seen using the cumulative confirmed COVID-19 cases per million people as well as the cumulative confirmed COVID-19 deaths per million people.

The impact of the first wave of the COVID-19 pandemic on the provision of formal and informal care varied among countries (Figure 1). In most of them, the overall share of those reporting that they had been receiving more informal care since the outbreak of the pandemic (represented by the blue bars) exceeded the rate of those who reported receiving less. The opposite was true only in four countries (Cyprus, Estonia, Israel, Italy), with Finland reporting substantially no change.

As for home care provision (the red bars in Figure 2), older adults in all investigated countries reported difficulties in receiving care commensurate with their needs due to the outbreak of the pandemic. However, huge differences were found cross-nationally: in around 10 EU member states, fewer than 10% of respondents reported such difficulties while much higher rates were recorded in one East European country (Hungary) and several Mediterranean countries (particularly Greece, Israel, and Italy), as well as France and Luxembourg.

Table 1. Extent of the COVID-19 pandemic, by country (Spring–Summer 2020) *.

Country	Cumulative Confirmed COVID-19 Cases per Million People	Cumulative Confirmed COVID-19 Deaths per Million People
Netherlands	3311.96	360.08
Poland	1289.13	46.40
Germany	2555.54	109.58
Switzerland	4151.19	229.24
France	3453.66	448.68
Luxembourg	11,193.72	188.51
Bulgaria	1830.19	62.60
Lithuania	786.47	23.51
Latvia	666.42	16.96
Slovakia	442.70	5.31
Malta	2097.21	20.38
Belgium	6139.81	850.67
Spain	6539.80	609.52
Denmark	2493.01	106.35
Croatia	1309.54	37.51
Sweden	7757.10	569.05
Finland	1355.78	59.74
Estonia	1592.87	47.49
Cyprus	1364.31	21.69
Italy	4115.04	581.97
Israel	9044.61	72.21
Hungary	472.45	62.01
Greece	442.70	20.15

* Note: Until the end of the SHARE Covid-19 survey in each country. Source: <https://ourworldindata.org/coronavirus> (accessed on 28 June 2021).

The data in Figure 3 make it possible to distinguish the role of the different sources of help in shaping the overall pattern of informal care illustrated above. They show, first, the more active role of adult children (represented by red bars) in supporting older parents in all countries without exception compared with pre-pandemic times. Much the opposite may be stated with regard to other relatives (captured by yellow bars), who in most countries (with several exceptions: Poland, Bulgaria, Netherlands, and France) seem to have refrained from providing practical support, delivering it less frequently during the pandemic than before its outbreak. Finally, a mixed picture emerges with regard to non-kinship groups (neighbors, friends, and colleagues, highlighted by the black bars), who provided more informal care more in about half of the countries and less in the other half. On the whole, as Figure 3 shows, the general trends identified across countries in Figure 1 with regard to informal care may be almost completely attributed to the variegated role of by non-kin and other relatives, whereas children were pillars of support for older adults in all countries.

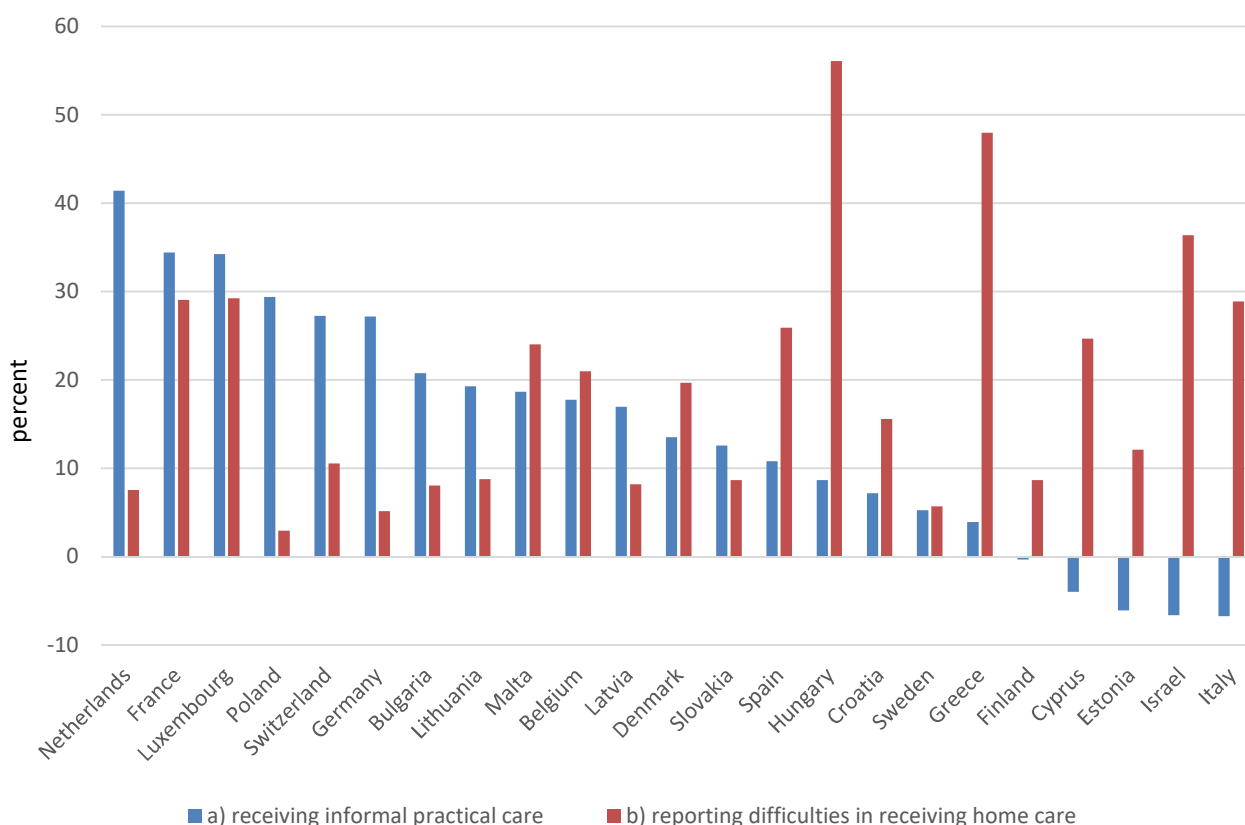


Figure 2. Share of Population that, since the Outbreak of the Pandemic, (a) Received Practical Care from Informal Caregivers Living outside the Household and (b) Reported Difficulties in Home Care.

To better understand possible interconnections between the effects of the pandemic on the informal care sector and those on the formal care side, and to distinguish among countries according to the intensity of this impact, Table 2 summarizes the findings in terms of change in the provision of care from the three informal sources (children, other relatives, and non-relatives) and the share of respondents reporting more difficulties in receiving formal home care in each country.

As anticipated in the Methods section (Section 2), our taxonomy yielded seven different clusters of countries. Cluster 1 comprises three West European countries (the Netherlands, Germany, and Switzerland) and one East European country (Poland), in which strong resilience in both informal and formal care is reported. Cluster 2 includes two West European countries (France and Luxembourg) that display strong resilience in informal care and moderate resilience in formal care. In Cluster 3, composed of four East European countries (Bulgaria, Latvia, Slovakia, and Lithuania), resilience is moderate in informal care and strong in formal care. In Cluster 4, comprising two West European countries (Denmark and Belgium) and two Mediterranean countries (Malta and Spain), resilience in both informal and formal care is moderate. Cluster 5 includes two North European (Sweden and Finland) and two East European countries (Estonia and Croatia) with strong resilience in informal care but weak resilience in formal care. Cluster 6 is comprised of three Mediterranean countries with weak resilience in informal care and moderate resilience in formal care. The two countries in Cluster 7 (Greece and Hungary) show weak resilience in both informal and formal care. Table 3 offers an alternative view of these clusters by presenting a matrix highlighting their positioning with regard to the intensity of the change in both informal and formal care provision, each parsed by three levels of intensity. As indicated in the table, the cluster represented by the Netherlands, Poland, Germany and Switzerland (corresponding to Cluster 1 in Table 2), shows the highest values in terms of informal care change and the lowest for home care, suggesting that in these countries the reaction of informal care networks has been among the strongest to support older people during the

first pandemic wave, and at the same time the home care delivery has continued with the least difficulties. On the opposite end, Greece and Hungary (representing Cluster 7 in Table 2) report some of the lowest levels in terms of informal care reaction, and the highest with regard to the difficulties experienced by home care recipients, thus highlighting an overall low level of resilience in tackling the pandemic challenge.

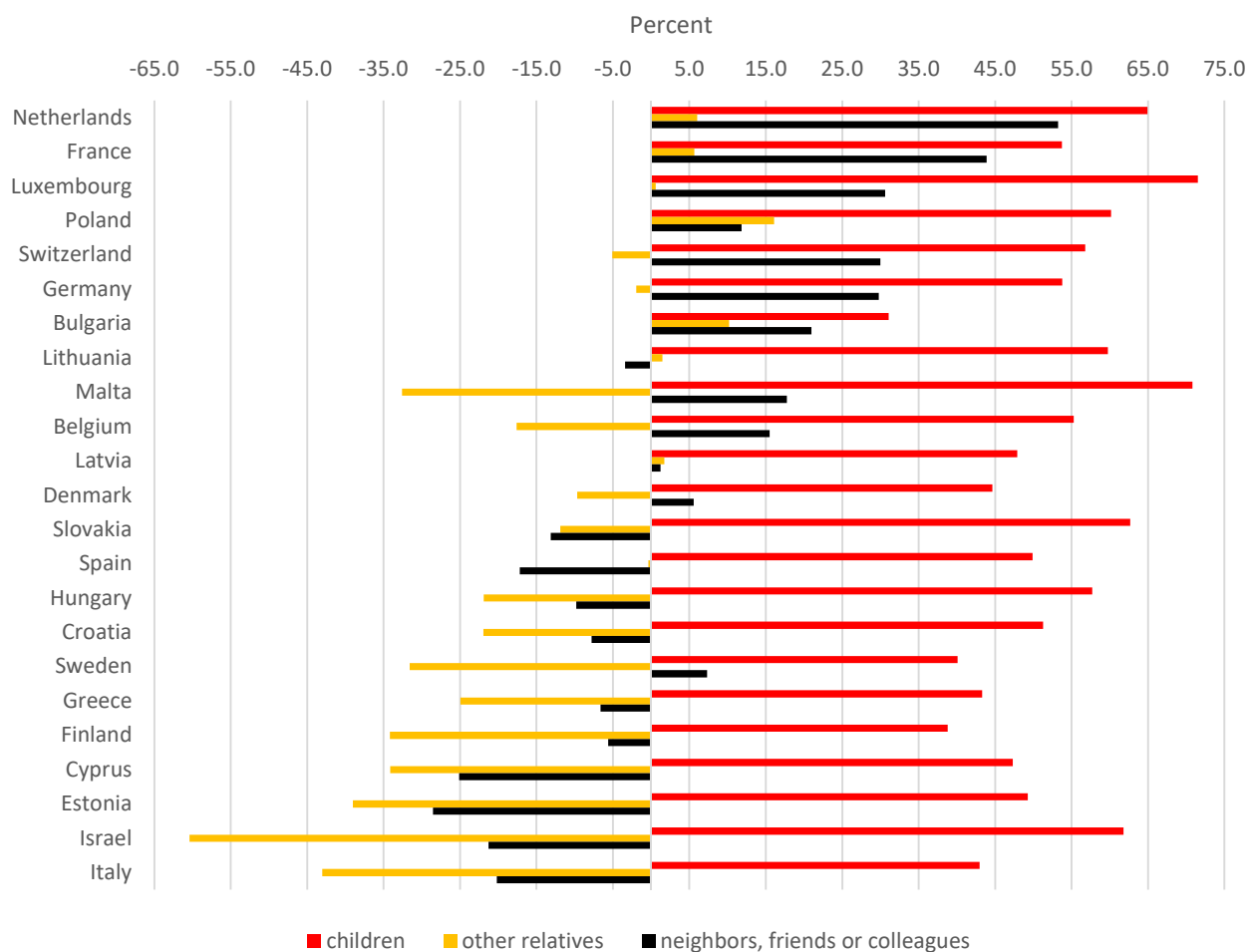


Figure 3. Share of Population Receiving Informal Care either More Often or Less Often than in the Pre-Pandemic Period, by Type of Informal Provider.

Table 2. Country Clusters, Based on Change in Level of Informal and Formal Help during the Pandemic Outbreak Period (Spring–Summer 2020).

Cluster	Country	Difference between Those Reporting More and Those Reporting Less Practical Help from ...			Change in Informal Care (=Average of Columns "a," "b" and "c")	Share of Respondents Reporting More Difficulties in Receiving Home Care	Deviation from Average	
		... Children	... Other Relatives	... Non Relatives (Neighbor, etc.)			Informal Care	Home Care
		a	b	c	d	e	f	g
1	Netherlands	64.9	6.0	53.3	41.4	7.6	27.3	−11.8
1	Poland	60.2	16.1	11.8	29.4	2.9	15.2	−16.4
1	Germany	53.8	−2.0	29.8	27.2	5.1	13.0	−14.2
1	Switzerland	56.8	−5.1	30.0	27.2	10.5	13.1	−8.8
2	France	53.7	5.7	43.9	34.4	29.0	20.3	9.7
2	Luxembourg	71.5	0.6	30.6	34.2	29.2	20.1	9.9
3	Bulgaria	31.1	10.2	21.0	20.7	8.0	6.6	−11.3
3	Lithuania	59.8	1.5	−3.4	19.3	8.8	5.1	−10.6
3	Latvia	47.9	1.7	1.2	17.0	8.2	2.8	−11.1
3	Slovakia	62.7	−11.9	−13.1	12.6	8.7	−1.6	−10.7
4	Malta	70.8	−32.6	17.8	18.7	24.0	4.5	4.7
4	Belgium	55.3	−17.6	15.5	17.7	21.0	3.6	1.6
4	Spain	49.9	−0.4	−17.2	10.8	25.9	−3.4	6.6
4	Denmark	44.6	−9.7	5.5	13.5	19.7	−0.6	0.3

Table 2. Cont.

Cluster	Country	Difference between Those Reporting More and Those Reporting Less Practical Help from ...			Change in Informal Care (=Average of Columns "a," "b" and "c")	Share of Respondents Reporting More Difficulties in Receiving Home Care	Deviation from Average	
		... Children	... Other Relatives	... Non Relatives (Neighbor, etc.)			Informal Care	Home Care
		a	b	c	d	e	f	g
5	Croatia	51.3	−22.0	−7.8	7.2	15.6	−7.0	−3.8
5	Sweden	40.1	−31.6	7.3	5.3	5.7	−8.9	−13.6
5	Finland	38.8	−34.2	−5.6	−0.3	8.7	−14.5	−10.7
5	Estonia	49.3	−39.0	−28.5	−6.1	12.1	−20.2	−7.2
6	Cyprus	47.3	−34.1	−25.1	−4.0	24.7	−18.1	5.3
6	Italy	43.0	−43.0	−20.2	−6.8	28.9	−20.9	9.6
6	Israel	61.8	−60.4	−21.3	−6.6	36.4	−20.8	17.0
7	Hungary	57.7	−21.9	−9.8	8.7	56.1	−5.5	36.8
7	Greece	43.3	−24.9	−6.6	3.9	48.0	−10.2	28.6
	Average	52.9	−15.2	4.7	14.1	19.3		

Legend:

First quartile (in relation to the difference between highest and lowest deviation from average)
Second quartile
Third quartile
Fourth quartile

Table 3. Country Clusters, Based on Level of Change in Informal and Formal Care Provision during the Pandemic Outbreak Period (Research Period: Spring–Summer 2020).

Change in Home Care Provision *										
		1: Fewer Difficulties		2: Medium		3: More Difficulties				
		Informal Help	Home Care		Informal Help	Home Care		Informal Help	Home Care	
Change in informal care *	1: stronger	Netherlands	41	8	France	34	29			
		Poland	29	3						
		Germany	27	5	Luxembourg	34	29			
		Switzerland	27	11						
	2: medium	Bulgaria	21	8	Denmark	14	20			
		Latvia	17	8	Belgium	18	21			
		Slovakia	13	9	Malta	19	24			
		Lithuania	19	9	Spain	11	26			
	3: weaker	Sweden	5	6	Cyprus	-4	25	Greece	4	48
		Finland	0	9	Italy	-7	29			
		Estonia	-6	12	Israel	-7	36	Hungary	9	56
		Croatia	7	16						

*: A positive value for “change in informal care” means that the share of those reporting more practical support from relatives compared to pre-pandemic times is higher than that of those reporting less practical support from these sources (the higher this value, the stronger the activation of informal care networks during the first pandemic wave). By contrast, the value for “change in home care provision” simply reports the share of those reporting more difficulties in receiving home care services compared to pre-pandemic times (therefore indicating that, the higher this value, the more problematic the delivery of home care during the pandemic).

4. Discussion

The foregoing investigation makes it possible, to our knowledge for the first time on such a large cross-national basis, to identify the impact of the first wave of the COVID-19 pandemic on informal and formal care available to community-dwelling older adults in Europe and Israel. This information is crucial for understanding where the need to provide support is greater in cases of emergencies such as those represented by a pandemic outbreak, and for planning future policy steps to properly address the deficiencies that may beset one of the most vulnerable groups of our society [9].

The study yielded a series of findings. First, in the first months of the COVID-19 outbreak, a significant proportion of older adults in European countries received informal help, enjoying an increase in the amount of informal help from children, neighbors, friends, and colleagues and suffering a decrease in informal help from other relatives. Alternatively, older adults encountered great difficulty in obtaining formal help from professional bodies. An attempt to combine these two types of help indicates the complexity of the change in the picture of help during that period. Thus, in some European countries the amount of

formal and informal help grew during that time while in others a completely opposite picture was found—less help received formally and informally. A more complex picture was found in a significant number of European countries: older adults received less formal help and more informal help in some countries and vice versa in others.

Thus, the first policy-relevant message emerging from the highlighted findings is that, in most countries, **informal care**—considered in terms of practical help coming from different sources, both within and outside the family network—**is more resilient than home care services delivered by formal providers**. One of the main policy implications of these results is that, in order to ensure a pandemic-resistant strategy to tackle future episodes of similar reach, partnership between formal and informal care providers should be strengthened systematically so that the former can benefit from the resilience that characterizes the latter. However, in order to prevent a further overburdening of already overstretched informal care networks in pandemic times, this should also be integrated by a strengthening of the formal care provision, offering users, among other things, a wider choice of solutions and supports, in order to make the formal system more resilient and able to respond to critical challenges like the COVID-19 crisis.

Second, the findings illuminated above seem to suggest that **the impact of the pandemic has not followed the traditional characterization of welfare regimes [41]**. This can be observed, for instance, in the fact that the countries reporting a weaker response by the informal care network belong not only to the Mediterranean and South European areas (e.g., Italy, Israel, Cyprus, and Greece) but also to some users of the Scandinavian model (Finland and Sweden). Similarly, a stronger informal reaction characterizes countries belonging to different welfare regimes, e.g., the Netherlands, France, Luxembourg, Poland, Switzerland, and Germany. The same is true about the impact observed in terms of difficulties in delivering formal home care, the intensity of which unites some East European and Mediterranean countries with France and Luxembourg at the high end and other East European countries (Poland, Bulgaria, Latvia and Lithuania) with Scandinavian countries (Sweden and Finland) at the low end.

The third takeaway is that, in order to capture the cross-national variety of the reactions and, therefore, of the policy strategies needed to counterbalance them, **a clustering effort may be useful in attaining a comprehensive understanding of the priorities that future care policies should have** at the national level and also in enhancing the targeting of supranational efforts in this area. The latter are particularly relevant at the present writing in view of the comprehensive package of investments planned, for instance, by the EU in its “Next-Generation-EU” recovery plan, which is expected to allocate EUR 750 billion in grants and loans to overcome the impact of the pandemic (https://ec.europa.eu/info/strategy/recovery-plan-europe_en#nextgenerationeu, accessed on 28 June 2021). The findings of our study show that, for instance, countries belonging to the second cluster (France and Luxembourg) should place special emphasis on strengthening their home care service systems, of which users reported difficulties to an extent well above the cross-national average of the investigated countries. As for Clusters 5 (Croatia, Sweden, Finland, and Estonia), 6 (Cyprus, Israel, and Italy), and 7 (Hungary and Greece), they share the peculiarity of a rather weak informal care network, so that their efforts should take this into account when formulating policy recommendations. The situation that characterizes the last group (Cluster 7, including Israel) is particularly worrisome with regard to home care as well, the provision of which was dramatically affected during the first wave of the pandemic. In these countries, too, the combined effect of the crisis in both sectors (informal and formal care) seems to suggest the need to take strong countervailing measures. The awareness of this necessity may have played a role in stimulating the particularly proactive approach that Israel and Hungary adopted in promoting their vaccination campaigns in recent months. Any overarching attempt to provide an effective governance at the EU level of these country-based policy developments can certainly benefit from monitoring tools, like those based on the clustering exercise provided here, to understand whether

specific, multi-country programs may be needed and put in place to support changes in the wished direction.

The foregoing results should be interpreted in view of the unavoidable limitations of this study. First, since the data were collected in summer 2020, the inferences expressed above relate to a policy perspective that aims to provide timely interventions to alleviate the burden that many households with older adults in need of care were experiencing. However, while national-level investigations might have been speedier in amassing evidence of use for both scientific and policy purposes, the current study, to our knowledge, is one of the first that present data on a large number of countries and compare them.

Second, the data are based on self-reportage and may therefore reflect a subjective perspective. This aspect should also be borne in mind in conjunction with the few questions in the SHARE-COVID survey that addressed care-related issues. Therefore, we adopted the question on “home care” as a proxy for formal care in order to conduct a comparison with questions asked in previous waves. This, however, obviated the possibility of a longitudinal analysis in this specific area. Due to lack of information about the pre-COVID situation, cross-national differences in care provision (especially with regard to informal care) before the pandemic could not be taken into account in this analysis, which, accordingly, offers a dynamic perspective only.

Third, this study did not take into account demographic and epidemiological characteristics of the investigated countries and overlooked socioeconomic measures that they took to contain the pandemic. Such information could have been useful in better capturing the dynamics behind the changes in both formal and informal care provision analyzed here. This, however, would have weighed on the core focus of our analysis, and was therefore left for the next research steps, as suggested below.

Despite the limitations highlighted above, this study yields original information on the impact of the pandemic at the intersection of formal and informal care for older adults in a large number of countries. Thus, it provides an evidence-based background for the formulation of cross-national recommendations for future care policies that should exhibit at the national level and may identify potential systems for policymakers to enhance sustainability of care for community-dwelling older adults, in this area in addition to those already enunciated for individual countries [42]. Future research may reinforce this initial effort by investigating the dimensions studied here (formal and informal care) within a more comprehensive framework. Such an inquiry would contribute to the debate already under way in this area (e.g., [43]) by including data on the epidemiological impact of the pandemic (reported cases of contagion, casualties, etc.) and its effects in other dimensions of social life (economic, social, educational, etc.), such as those measured by indicators like the stringency index [44].

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References

1. Santana, R.; Sousa, J.S.; Soares, P.; Lopes, S.; Boto, P.; Rocha, J.V. The demand for hospital emergency services: Trends during the first month of COVID-19 response. *Port. J. Public Health* **2020**, *38*, 30–36. [\[CrossRef\]](#)
2. Kissler, S.M.; Tedijanto, C.; Lipsitch, M.; Grad, Y. Social distancing strategies for curbing the COVID-19 epidemic. *medRxiv* **2020**. [\[CrossRef\]](#)
3. Ashraf, B.N. Economic impact of government interventions during the COVID-19 pandemic: International evidence from financial markets. *J. Behav. Exp. Financ.* **2020**, *27*, 100371. [\[CrossRef\]](#)
4. Tisdell, C.A. Economic, social and political issues raised by the COVID-19 pandemic. *Econ. Anal. Policy* **2020**, *68*, 17–28. [\[CrossRef\]](#)
5. Jantzen, R.; Noisel, N.; Camilleri-Broet, S.; Labbe, C.; de Malliard, T.; Payette, Y.; Broet, P. Epidemiological and socio-economic characteristics of the COVID-19 spring outbreak in Quebec, Canada: A population-based study. *medRxiv* **2020**. [\[CrossRef\]](#)
6. D’Adamo, H.; Yoshikawa, T.; Ouslander, J.G. Coronavirus disease 2019 in geriatrics and long-term care: The ABCDs of COVID-19. *J. Am. Geriatr. Soc.* **2020**, *68*, 912–917. [\[CrossRef\]](#)
7. Fisman, D.N.; Bogoch, I.; Lapointe-Shaw, L.; McCready, J.; Tuite, A.R. Risk factors associated with mortality among residents with coronavirus disease 2019 (COVID-19) in long-term care facilities in Ontario, Canada. *JAMA Netw. Open* **2020**, *3*, e2015957. [\[CrossRef\]](#) [\[PubMed\]](#)
8. Roxby, A.C.; Greninger, A.L.; Hatfield, K.M.; Lynch, J.B.; Dellit, T.H.; James, A.; Taylor, J.; Page, L.C.; Kimball, A.; Arons, M.; et al. Detection of SARS-CoV-2 Among Residents and Staff Members of an Independent and Assisted Living Community for Older Adults—Seattle, Washington, 2020. *MMWR. Morb. Mortal. Wkly. Rep.* **2020**, *69*, 416–418. [\[CrossRef\]](#) [\[PubMed\]](#)
9. Cohen, M.A.; Tavares, J. Who are the most at-risk older adults in the COVID-19 era? It’s not just those in nursing homes. *J. Aging Soc. Policy* **2020**, *32*, 380–386. [\[CrossRef\]](#) [\[PubMed\]](#)
10. Brooks, S.K.; Webster, R.K.; Smith, L.E.; Woodland, L.; Wessely, S.; Greenberg, N.; Rubin, G.J. The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *Lancet* **2020**, *395*, 912–920. [\[CrossRef\]](#)
11. Naylor, M.D.; Hirschman, K.B.; McCauley, K. Meeting the transitional care needs of older adults with COVID-19. *J. Aging Soc. Policy* **2020**, *32*, 387–395. [\[CrossRef\]](#)
12. Eurostat Ageing Europe—Statistics on Population Developments: Statistics Explained (europa.eu) Last Modified on 8 April 2021. Available online: https://ec.europa.eu/eurostat/statistics-explained/index.php/Ageing_Europe_-_statistics_on_population_developments (accessed on 28 June 2021).
13. Casanova, G.; Tur-Sinai, A.; Lamura, G. Innovating long-term care provision in Mediterranean welfare states: A comparison between Italy and Israel. *J. Aging Soc. Policy* **2020**, *32*, 55–82. [\[CrossRef\]](#)
14. Suanet, B.; Van Groenou, M.B.; Van Tilburg, T.G. Informal and formal home-care use among older adults in Europe: Can cross-national differences be explained by societal context and composition? *Ageing Soc.* **2012**, *32*, 491–515. [\[CrossRef\]](#)
15. Dupraz, J.; Henchoz, Y.; Santos-Eggimann, B. Formal home care use by older adults: Trajectories and determinants in the Lc65+ cohort. *BMC Health Serv. Res.* **2020**, *20*, 1–12. [\[CrossRef\]](#) [\[PubMed\]](#)
16. Chan, E.Y.Y.; Gobat, N.; Kim, J.H.; A Newnham, E.; Huang, Z.; Hung, H.; Dubois, C.; Hung, K.K.C.; Wong, E.L.Y.; Wong, S.Y.S. Informal home care providers: The forgotten health-care workers during the COVID-19 pandemic. *Lancet* **2020**, *395*, 1957–1959. [\[CrossRef\]](#)
17. Phillips, D.; Paul, G.; Fahy, M.; Dowling-Hetherington, L.; Kroll, T.; Moloney, B.; Duffy, C.; Fealy, G.; Lafferty, A. The invisible workforce during the COVID-19 pandemic: Family carers at the frontline. *HRB Open Res.* **2020**, *3*, 24. [\[CrossRef\]](#) [\[PubMed\]](#)
18. European Commission. *The 2021 Ageing Report. Economic & Budgetary Projections for the EU Member States 2019–2070*; Institutional Paper 148; Publications Office of the European Union: Luxembourg, 2021; Available online: https://ec.europa.eu/info/publications/2021-ageing-report-economic-and-budgetary-projections-eu-member-states-2019-2070_en (accessed on 28 June 2021).
19. Roth, D.L.; Fredman, L.; Haley, W.E. Informal caregiving and its impact on health: A reappraisal from population-based studies. *Gerontologist* **2015**, *55*, 309–331. [\[CrossRef\]](#)
20. Organisation for Economic Co-operation and Development. *Care Needed: Improving the Lives of People with Dementia*, OECD Health Policy Studies; OECD Publishing: Paris, France, 2018.
21. Williams, F.; Moghaddam, N.; Ramsden, S.; De Boos, D. Interventions for reducing levels of burden amongst informal carers of persons with dementia in the community. A systematic review and meta-analysis of randomised controlled trials. *Ageing Ment. Health* **2019**, *23*, 1629–1642. [\[CrossRef\]](#)
22. van Groenou, M.I.B.; De Boer, A. Providing informal care in a changing society. *Eur. J. Ageing* **2016**, *13*, 271–279. [\[CrossRef\]](#)
23. Hengelaar, A.H.; van Hartingsveldt, M.; Wittenberg, Y.; van Etten-Jamaludin, F.; Kwekkeboom, R.; Satink, T. Exploring the collaboration between formal and informal care from the professional perspective—A thematic synthesis. *Health Soc. Care Community* **2018**, *26*, 474–485. [\[CrossRef\]](#)
24. Phillips, S.S.; Ragas, D.M.; Tom, L.S.; Hajjar, N.; Dong, X.; Simon, M.A. Voices of informal caregivers and community stakeholders: Whether and how to develop an informal caregiver training program. *J. Community Health* **2016**, *41*, 550–556. [\[CrossRef\]](#)

25. Zigante, V. *Informal Care in Europe—Exploring Formalisation, Availability and Quality*; Publications Office of the European Union: Brussels, Belgium, 2018; ISBN 978-92-79-86583-1. [[CrossRef](#)]
26. Colombo, F.; Frits, T. *OECD Health Policy Studies Help Wanted? Providing and Paying for Long-Term Care*; Organisation for Economic Co-Operation and Development: Paris, France, 2011.
27. Tur-Sinai, A.; Casanova, G.; Lamura, G. Changes in the provision of family care to frail older people in familistic welfare states: Lessons from Israel and Italy. *J. Aging Health* **2020**, *32*, 972–986. [[CrossRef](#)]
28. Tur-Sinai, A.; Teti, A.; Rommel, A.; Hlebec, V.; Lamura, G. How many older informal caregivers are there in Europe? Estimates from three European surveys in comparison. *Int. J. Environ. Res. Public Health* **2020**, *17*, 9531. [[CrossRef](#)]
29. Vahia, I.V.; Blazer, D.G.; Smith, G.S.; Karp, J.F.; Steffens, D.C.; Forester, B.P.; Reynolds, C.F. COVID-19, mental health and aging: A need for new knowledge to bridge science and service. *Am. J. Geriatr. Psychiatry* **2020**, *28*, 695–697. [[CrossRef](#)] [[PubMed](#)]
30. Carers, U.K. Caring behind closed doors. In *Forgotten Families in the Coronavirus Outbreak*; Carers UK: London, UK, 2020.
31. Walsh, K.; Scharf, T.; Keating, N. Social exclusion of older persons: A scoping review and conceptual framework. *Eur. J. Ageing* **2017**, *14*, 81–98. [[CrossRef](#)] [[PubMed](#)]
32. Torres, S. Social exclusion in old age: Domain-specific contributions to a debate. *Int. J. Ageing Later Life* **2018**, *12*, 7–24. [[CrossRef](#)]
33. Madhav, N.; Oppenheim, B.; Gallivan, M.; Mulembakani, P.; Rubin, E.; Wolfe, N. Pandemics: Risks, impacts, and mitigation. In *Disease Control Priorities: Improving Health and Reducing Poverty*, 3rd ed.; The International Bank for Reconstruction and Development/The World Bank: Washington, DC, USA, 2017.
34. Sumner, A.; Hoy, C.; Ortiz-Juarez, E. *Estimates of the Impact of COVID-19 on Global Poverty*; UNU-WIDER: Helsinki, Finland, 2020; pp. 800–809.
35. Tur-Sinai, A.; Shuldiner, J.; Bentur, N. Sociodemographic inequality in joint-pain medication use among community-dwelling older adults in Israel. *Health Soc. Care Community* **2019**, *27*, 1167–1174. [[CrossRef](#)]
36. Katz, R.; Lowenstein, A.; Halperin, D.; Tur-Sinai, A. Generational Solidarity in Europe and Israel. *Can. J. Aging* **2015**, *34*, 342–355. [[CrossRef](#)] [[PubMed](#)]
37. Tur-Sinai, A.; Soskolne, V. *Socioeconomic Status and Health Behaviors as Predictors of Changes in Self-Rated Health among Older Persons in Israel*; Health and Social Care in the Community; Wiley: Hoboken, NJ, USA, 2020. [[CrossRef](#)]
38. Carmel, S.; Tur-Sinai, A. Cognitive decline among European retirees: Impact of early retirement, nation-related and personal characteristics: A longitudinal study. *Ageing Soc.* **2021**. [[CrossRef](#)]
39. Scherpenzeel, A.; Axt, K.; Bergmann, M.; Douhou, S.; Oepen, A.; Sand, G.; Schuller, K.; Stuck, S.; Wagner, M.; Borsch-Supan, A. Collecting survey data among the 50+ population during the COVID-19 outbreak: The Survey of Health, Ageing and Retirement in Europe (SHARE). *Surv. Res. Methods* **2020**, *14*, 217–221.
40. Health and Retirement Study (HRS). *2020 HRS COVID-19 Project—Data Description and Usage*; HRS: Ann Arbor, MI, USA, 2021.
41. Esping-Andersen, G. *Social Foundations of Postindustrial Economies*; OUP Oxford: Oxford, UK, 1999.
42. Miller, E.A. Protecting and improving the lives of older adults in the COVID-19 era. *J. Aging Soc. Policy* **2020**, *32*, 297–309. [[CrossRef](#)]
43. Hoffman, G.J.; Webster, N.J.; Bynum, J.P.W. A framework for aging-friendly services and supports in the age of COVID-19. *J. Aging Soc. Policy* **2020**, *32*, 450–459. [[CrossRef](#)]
44. Kim HH, S.; Jung, J.H. Social isolation and psychological distress during the COVID-19 pandemic: A cross-national analysis. *Gerontologist* **2021**, *61*, 103–113. [[CrossRef](#)]