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COVID-19 and older workers' mental health: data from 27 countries

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Abstract

Aim: The COVID-19 pandemic has brought radical changes to the vocational landscape, especially in its first wave. Many workers successfully established a new workspace in their home, but this transition to remote work has reduced opportunities for informal social interactions while requiring the learning of new skills and creating new work–home interference. The aim of this study was to identify how changes in working conditions caused by the first wave of the COVID-19 pandemic are related to the mental health of older workers from 27 countries.

Method: Our study was based on Wave 8 of the Survey of Health, Ageing and Retirement in Europe, targeted to the COVID-19 living situation of people aged 50 years and older.

Results: Our findings suggest that older people forced by the pandemic into at-home and "hybrid" working evaluated their mental health as poorer than those who continued to work at their usual workplace did. Respondents whose working hours changed, whether they increased or decreased, also reported poorer mental health than those with no changes did. However, these results were gender dependent.

Discussion: Both modes of remote working were more of a burden for women than for men, and current physical health status was more important in predicting women's mental health than men's.

Conclusions: Transition to remote working and dealing with work-home interference is highly relevant to understanding changes in older workers' mental health.

COVID-19; older workers; mental health; remote working; working hours

INTRODUCTION

Incorporated within our overall health and well-being, mental health constitutes an essential human entitlement. Possessing sound mental well-being enhances our capacity to establish connections, operate effectively, manage challenges, and flourish [1]. The COVID-19 pandemic has generated a worldwide mental health crisis, triggering immediate and lasting

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stressors while eroding the mental well-being of countless individuals. Many researchers point that there are common psychological reactions to the COVID-19 pandemic, such as symptoms of depression and anxiety, self-reported stress, irritability, poor concentration, indecisiveness, deteriorating performance at work, and sleep disturbances [2–4]. These negative psychological outcomes affect women to a greater degree than men [5,6]. The COVID-19 pandemic have one more consequence. The number of people currently working remotely is unprecedented. There is a substantial literature on the different forms of remote working and its potential benefits [7,8], but a lack of research on the consequences of transitioning to work from home to avoid illness, especially among older workers. Strategies and supports for getting people back to work were targeted mostly on younger adults, leaving older workers alone during a crisis [9]. Moreover, some previous studies lack contextual relevance [10], as until the COVID-19 outbreak, remote working was practiced only occasionally or infrequently and was largely voluntary [11], so earlier studies might underestimate the impact of compulsory changes in work mode. In addition, few studies were focused on older workers, which makes our study innovative and exploratory. Moreover, some researchers suggest that in case of older adults the health implications of job loss and modifications in work arrangements may be even larger during a pandemic and recession than in more safe circumstances [12,13]. The economic downturn connected to the COVID-19 pandemic hit employed individuals of ages 65+ years and women more harshly, than younger workers and men [14,15].

Another potential difficulty of remote working relates to work-home boundaries. An earlier study found that a high priority for older workers is an unstructured work environment, which they believed could support and promote a healthy work–life balance [16], yet working from home may result in blurred boundaries between work and leisure time or caregiving responsibilities [17,18]. Thus, the mental health of older workers may be influenced not only by their work per se, but also by changes in their vocational environment. However, little is known about this influence under the exceptional circumstances of a pandemic. Our study aims to fill this gap, taking into account COV-ID-19 pandemic-induced changes in employment status, work modes and working hours in the older population (50+). We expect that changes in working conditions (e.g., switching to remote work or extending working hours) will be negatively related to the mental health of older people.

MATERIAL AND METHODS

Study Population

We based our study on SHARE (Survey of Health, Ageing and Retirement in Europe), a multidisciplinary and cross-national longitudinal survey of individuals aged 50 and older (for detail see http://www.share-project. org/). For our analyses, we drew data from the SHARE COVID-19 dataset. Data were collected using computer-assisted telephone interviewing (CATI). Details of the survey's sampling frames, methodology, weighting strategies, and questionnaires have been reported elsewhere. Our working sample consisted of N = 51,203 older adults (57% women; M_{age} = 62.98, SD_{age} =8.40, range = 50-105; 17% were employed or self-employed when COVID-19 broke out; 58% worked at the usual work place; 18% worked at home only) from Belgium, Switzerland, Germany, Denmark, Spain, France, Italy, the Netherlands, Sweden, Czech Republic, Greece, Poland, Luxembourg, Hungary, Portugal, Croatia, Lithuania, Bulgaria, Cyprus, Finland, Latvia, Malta, Romania, Slovakia, Estonia, Slovenia and Israel.

Variables

The SHARE COVID-19 questionnaire asks four specific questions about mental health. Participants were asked about anxiety and depression. The answer was a binary choice (re-coded to 0=No and 1=Yes in subsequent analyses). Next, participants were asked about sleep (Yes=1; No=2, later re-coded to 0). The last mental health question was about loneliness, where possible responses were Often = 1 (re-coded to 2), Some of the time = 2 (re-coded to 1), or Hardly ever or never = 3 (re-coded to 0). Each of these four questions was followed by a question about frequency/intensity: has that been more so, less so, or about the same as before the COVID-19 outbreak? (where More = 1, re-coded to 2; Less = 2, re-coded to 0.5; and About the same = 3, re-coded to 1). The retrospective approach has been successfully used in other studies on workers mental health during the pandemic [21]. For the purpose of this study, a new variable was created – a general mental health index, according to following procedure: 1) each of four mental health questions were multiplied by its complementary question of intensity/frequency (similarly to Berwick et al. (1991)), resulting in four mental health indexes, 2) the four mental health indexes were summed up to obtain the general mental health index (α = .68), ranging from 0 to 10, and recoded so that the higher value reflected better mental health. At the same time, we are aware that diagnosing depression or anxiety using only one question might be unreliable but since our main purpose was to investigate a general trend in mental health changes, and other studies using the same data (e.g. Bertoni et al., 2021) has shown that all SHARE COV-ID-19 health indicators share the same direction pattern, we consider aggregation of health indices as justified. Since one of the purposes of the study was to examine the effect of work status due to the COVID-19 outbreak on older workers' mental health, we analyzed respondents' employment status as 1 = unemployed, 3 = employed (including self-employed workers and those working for the family business), and 2 = became unemployed (or had to close the business) due to the COVID-19 crisis. Another variable of interest for the present study was a change in working conditions (mode or hours) due to the COVID-19 pandemic. For this, we restricted our analysis to employed respondents. The mode of work comprised three categories: at home only = 1; at the usual workplace = 2; at home and at the usual workplace (hybrid work) = 3. The working hours variable was created by aggregating binary answers (re-coded to 0=No and 1=Yes) from two questions: Did your increase your working hours since the outbreak? And did your reduce your working hours since outbreak? This aggregation resulted in one variable comprising three categories: reduced working hours = 1, increased working hours = 2, no change in working hours = 3.

The relationship of our main independent variables (employment status and mode of work) with older workers' mental health was analyzed controlling for several covariates. First were the respondents' economic situation and respondents' subjective evaluation of household ability to make ends meet since the COVID-19 outbreak. The second covariate, taken into account only in employed respondents working at their usual workplace, was how safe they felt (in

terms of health) at the workplace (1 = very safe, 2 = somewhat safe, 3 = somewhat unsafe and 4 = very unsafe; re-coded in the analysis so that higher values reflected a greater sense of healthwise safety; M = 3.35, SD = .688). Another covariate we included was respondent self-assessed physical health. We created this variable by multiplying answers from two questions. The first one assessed respondents' health before the outbreak of COVID-19 (1 = excellent, 2 = very good, 3 = good, 4 = fair and 5 = poor, all re-coded insubsequent analyses so that higher values reflect better rates). The second question asked about respondents' current health, compared to that before the COVID-19 outbreak, with the following possible answers: 1 = improved (re-coded to 2); 2 = worsened (re-coded to 0.5); 3 = about the same (re-coded to 1). By multiplying these two variables, we obtained the physical health index, ranging from 0.5 to 10 (M = 2.86, SD = 1.17), with higher values reflecting better self-assessed physical health. The final two variables included in the analysis were respondents' gender and age (range, 50–105; *M* = 71.52, *SD* = 9.269). When analysis of variance was applied, tertials division for age was used, resulting in three relatively equinumerous age groups: 50-67, 68-75, and over 75.

All data were analyzed using SPSS version 26 (IBM Corp, Armonk, NY, USA). After testing for assumptions, we performed a series of multilevel linear regression analyses to test the effect of independent variables on mental health. For the reasons presented in the introduction, we carried out all regression analyses separately for men and women. Although we did not investigate cross-national differences in mental health, all regression analyses were run with country dummies controls. The institutional review board at Author's University [blinded] approved the usage of the SHARE data set. The specific data used for this study contained no unique identifiers, and the detailed process of data gathering have been reported elsewhere [19,20].

RESULTS

About 17.3% respondents were employed, 3.9% became unemployed due to the COVID-19 pan-

Archives of Psychiatry and Psychotherapy, 2024; 1: 77-88

demic, 78.6% were unemployed before the pandemic, and missing values accounted for 0.2%¹. Games-Howell post-hoc analysis revealed that employed respondents evaluated their mental health as better than did those who were unemployed or who became unemployed due to the pandemic. Other statistically significant differences were in gender, where men evaluated their mental health as better than women did, and age, where the youngest group reported the best mental health and the oldest group reported the poorest. Table 1 shows detailed descriptive statistics for the variables included in the analysis.

	Mental health score			
	N	М	SD	Welch's F
Whole sample	51680	8.20	2.30	_
Employment status				
Employed	8906	8.73ª	1.91	385.801
Unemployed	40216	8.09 ^b	2.36	p < .001
Became uneployed due to COVID-19	2039	8.08 ^b	2.42	
Gender				
Men	21602	8.67	1.99	1705.26
Women	29601	7.86	2.45	p < .001
Age, years				
50–67	18991	8.37ª	2.21	217.340
68–75	15806	8.32 ^b	2.23	p < .001
Over 75	16406	7.88°	2.43	

	Table 1.	Older adults'	mental health	as a factor	of employmer	nt status, gende	er, and age.
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Note: Different letters indicate significant differences between means, p < .001.

Next, we performed a multilevel linear regression analysis to explore associations between older adults' mental health and employment status, with "Unemployed before COVID-19 outbreak" as the reference group. We controlled for economic situation, physical health, age (as a continuous variable), and gender (model 1). The analysis showed that employed respondents were more likely to report better mental health, whereas those who became unemployed due to the COVID-19 crisis reported poorer mental health. Covariate analysis revealed that better mental health was accounted for by better physical health, better economic circumstances, and lower age. Although the direction of these relationships was similar for both genders, becoming unemployed during the pandemic accounted markedly more for the poorer mental health of older men. Table 2 shows the results of the multilevel linear regression for model 1.

¹ Missing values resulted from discrepancies between overall sample size and the sum of the sample size of the compared categories, and were mainly due to the response of *I don't know* or refusing to answer.

	Mental health score					
	Whole samp (M _{age} =71.52 SD _{age}	le =9.27)	Older m (M _{age} =71.72 SE	en) _{age} =8.78)	Older women (M _{ane} =71.37 SD _{ane} =9.61)	
R ²	0.161		0.131		0.138	
	B (95% CI)	р	B (95% CI)	р	B (95% CI)	р
Employment status						
Employed ^a	0.012 (0.001; 0.023)	.037	0.011 (-0.008; 0.030)	.246	0.013 (-0.001; 0.027)	.071
Became unemployed ^a	-0.020 (-0.030; -0.010)	<.001	-0.040 (-0.057; -0.023)	<.001	-0.011 (-0.024; 0.001)	.086
Physical health	0.275 (0.264; 0.286)	<.001	0.274 (0.256; 0.291)	<.001	0.283 (0.269; 0.296)	<.001
Economic situation	0.156 (0.144; 0.168)	<.001	0.153 (0.133; 0.174)	<.001	0.160 (0.145; 0.175)	<.001
Age	-0.031 (-0.042; -0.019)	<.001	-0.053 (-0.072; -0.033)	<.001	-0.019 (-0.034; -0.004)	.012
Gender ^b	0.152 (0.142; 0.162)	<.001	_	—	—	—

 Table 2. Results from the multilevel linear regression analysis examining associations between employment status and older adults' mental health, controlling for covariates, with gender specification.

Note: CI = confidence interval. All analyses also control for country dummies (not shown). Reference categories: a, unemployed before COVID-19 outbreak; b, women. Source: SHARE Wave 8.

Because work experiences are likely very unique for adults who are working well into their advance age, we have also analyzed the differences among included variables in extreme age groups (≤60 vs. 70+). Results of multilevel linear regression analysis has shown that there are only a slight differences in beta values between the extreme groups, suggesting that age is not the main differentiating factor, allowing us to focus on the main trend described above. Details are presented in Table 2A in the supplementary materials.

The next analysis focused on associations between the mode of work and older work-

ers' mental health. About 18% of respondents worked at home, 58% worked at their usual workplace, 15.8% carried out hybrid work, and missing values accounted for 8.2%². Games-Howell post-hoc analysis revealed that in-home workers evaluated their mental health as poorer than those working at their usual workplace did. Those who carried out hybrid work did not differ from the other two groups in their evaluation of their mental health. Respondents who experienced changes in working hours, whether their hours increased or decreased, evaluated their mental health as poorer than those whose working hours did not change (Table 3).

² Missing values were due to respondents answering that their work did not apply to any of the three categories listed (answer: *other work arrangement*, not explained) or refusing to answer.

	Mental health score			
	N	М	SD	Welch's F
Work mode				
At home	1607	8.60ª	1.98	9.646
At workplace	5166	8.83 ^b	1.81	p <.001
Hybrid	1412	8.70 ^{a,b}	1.93	
Working hours				
Reduced	1805	8.47ª	2.06	43.932
Increased	1004	8.40ª	2.09	p <.001
No change	6095	8.87 ^b	1.80	

Table 3. Effect of organizational work arrangements, gender, and age on older workers' mental health.

Note: Different letters indicate significant differences between means, p < .001.

The next step of the analysis included a multilevel linear regression that investigated associations between older workers' mental health and work mode (model 2), controlling for economic situation, physical health, age, and gender (Table 4). Both modes of work, when due to the pandemic, accounted for older workers' poorer mental health, with working at home affecting women more than men. Surprisingly, age no longer accounted for mental health score, but associations of mental health with economic situation and physical health remained significant. Additional analysis including the extreme age groups (≤60 vs. 70+) has suggested that changes in work mode are more severe for younger than older adults. Details are presented in Table 4A in the supplementary materials.

Table 4. Results from the multilevel linear regression analysis examining the association between mode of work and mental health, controlling for covariates, with gender specification.

	Mental health score						
	Whole sample (M _{age} =62.49 SD _{age} =5.47 N=8943)		Older men (M _{age} =63.54 SD _{age} =5.57 N= 4167)		Older women (M _{age} =61.57 SD _{age} =5.22 N=4776)		
R ²	.108		.076	.076		.086	
	B (95% CI)	р	B (95% CI)	р	B (95% CI)	р	
Work mode							
At home ^a	-0.040 (-0.065; -0.014)	.002	-0.040 (-0.081; 0.000)	.052	-0.043 (-0.077; -0.008)	.015	
Hybrid ^a	-0.037 (-0.063; -0.012)	.004	-0.037 (-0.077; 0.003)	.068	-0.042 (-0.076; -0.008)	.014	
Economic situation	0.130 (0.101; 0.159)	<.001	0.165 (0.118; 0.211)	<.001	0.113 (0.075; 0.150)	<.001	
Physical health	0.211 (0.186; 0.237)	<.001	0.198 (0.158; 0.239)	<.001	0.226 (0.192; 0.261)	<.001	
Age	-0.005 (-0.031; 0.021)	.722	0.001 (-0.040; 0.042)	.966	-0.010 (-0.045; 0.024)	.549	
Gender ^b	0.174 (0.149; 0.199)	<.001	—	_	—	_	

Note: CI = confidence interval. All analyses also controlled for country dummies (not shown). Reference categories: a, regular workplace; b, women. Source: SHARE Wave 8.

Archives of Psychiatry and Psychotherapy, 2024; 1: 77-88

Model 3 implemented multilevel linear regression to investigate associations between older workers' mental health and changes in working hours, controlling for workers' sense of health security at their workplace, economic situation, physical health, age, and gender (Table 5). Any change (reduction or increase) in working hours was negatively associated with respondents' mental health, with women being more affected by decreases in working hours than men, and younger adults being slightly more affected that older adults (Table 5A in supplementary materials). The sense of health security in workplace also significantly accounted for older workers' mental health, as did the respondents' economic situation and physical health. In model 3, like in model 2 but not model 1, age was not a significant predictor of older workers' mental health.

Table 5. Results from the multilevel linear regression analysis examining the association between changes in working hours
and mental health, controlling for covariates, with gender specification.

	Mental health score					
	Whole samp (M _{age} = 62.49 SD _{age}	le _e = 5.47	Older men ($M_{age} = 63.54 \text{ SD}_{ag}$	_e = 5.57	Older wome $(M_{age} = 61.57 \text{ SD}_{ag}$	n _e = 5.22
R ²	.127		.088		.110	
	B (95% CI)	р	B (95% CI)	р	B (95% CI)	р
Working hours						
Reduced ^a	- 0.054 (-0.081; -0.026)	<.001	-0.043 (-0.086; 0.000)	.051	-0.066 (-0.104; -0.029)	<.001
Increased ^a	-0.055 (-0.083; -0.028)	<.001	-0.063 (-0.106; -0.021)	.004	-0.053 (-0.090; -0.015)	.005
Sense of health security in workplace	0.143 (0.115; 0.171)	<.001	0.142 (0.098; 0.185)	<.001	0.149 (0.112; 0.187)	<.001
Economic situation	0.120 (0.088; 0.152)	<.001	0.137 (0.085; 0.189)	<.001	0.112 (0.069; 0.155)	<.001
Physical health	0.178 (0.149; 0.207)	<.001	0.164 (0.120; 0.210)	<.001	0.193 (0.154; 0.234)	<.001
Age	-0.022 (-0.052; 0.007)	.141	-0.028 (-0.073; 0.017)	.226	-0.022 (-0.061; 0.017)	.268
Gender ^b	0.159 (0.131; 0.187)	<.001	—	—	—	—

Note: CI = confidence interval. All analyses also controlled for country dummies (not shown). Reference categories: a, unchanged; b, women. Source: SHARE Wave 8.

DISCUSSION

The aim of this study was to investigate how changes in working conditions caused by the COVID-19 pandemic influence the mental health of older adults from 27 countries. In general, adults who remained employed during the pandemic had significantly better mental health than those who were unemployed and those who lost their jobs as a result of the pandemic. Older men evaluated their mental health as significantly better than older women did. Our findings are in line with those from previous studies [6,12,23,24]. In our study, the older the participants, the poorer their subjective mental health and the greater the impact of their physical condition on mental health. Moreover, younger workers (50-65 years old) experience the negative effects of the pandemic slightly more than older ones (75+). This may be associated with a lower sense of health security and greater workload, which may affect their mental health, especially in women [14,25]. Our findings indicate also that losing a job due Covid-19 makes the situation worse, especially for older men. This result support data shown in other studies [12], suggesting that disruption to either the economic security or social environment of work, as experienced with income reduction and remote working, were connected with decrease in mental health indicators to a lesser degree than losing a job. Therefore, having a job might act as a buffer against negative circumstances and keep aging workers in relatively good mental health, regardless of their experience of the COVID-19 crisis.

We found that, both modes of remote working were more of a burden for women than for men, and current physical health status was more important in predicting women's mental health than men's. Remote work partially satisfies the need for social contact, but in older women, this mode of professional activity can be overwhelming, because they may experience strong workfamily conflict due to blurring of boundaries between work and home, role confusion, and new housework demands [10,15,26]. We found that changes in work arrangements (like switching to home-office) influenced older women more than older men. Any change in working hours has a negative effect on older workers' mental health, but those changes are gender dependent: a reduction in working hours due to the pandemic affected women's mental health more than men's, but an increase affected both genders about the same. In the light of the privation model older workers with unchanged work arrangements have better mental health because they experience unwavering in economic situation, social relationships, and daily routines [12,30,31]. Unexpected or unwanted changes to work arrangements, such as reduced working hours, may disrupt the mental health benefits of employment [12]. This consequences might be especially severe for older women, because they have already lower retirement security and face more age discrimination in work but have a larger benefit from working longer [32,33], which was even less possible during the pandemic. The observed relationships also occur regardless of workers' age.

In summary, mental health in older men is affected by becoming unemployed due to the pandemic, but not from having to work at home or doing hybrid work. In older women, mental health is worsens with work-related organizational changes, especially decreased working hours. However, the gender differences are small and the direction of all observed relationships is the same regardless of gender.

Limitations and Future Research

The study had several limitations that should be addressed in future studies. First, the data we used have a cross-sectional nature. This made it impossible to establish causality in this study. Therefore, the idea of linkage between included variables must be handled with great care. Second, the physical and mental health variables were self-reported. As such, they might be susceptible to self-enhancing bias and sensitive to cultural norms and differences in definitions. Additionally, we are aware that retrospective information about mental condition before the COVID-19 outbreak might have low accuracy, however the pandemic situation appeared unexpectedly and caused unforeseen consequences. Therefore, despite this limitation, we believe that the information collected is not more biased than other self-report studies. Moreover, the study analyzed only a some aspects of mental health, therefore our conclusion are limited. Third, some correlations level and differences between groups are low and could be considered more as a trend. Moreover, the majority of the older adults included in our analysis declared being unemployed before the COVID-19 pandemic. Considering their age (M_{employed} = 54.97 vs M_{unem-} $p_{ployed} = 64.55$; t= - 100.73 p<.001), one might assume that those older adults are not working because they are retired. However, we cannot say this with absolute certainty, because pension systems in different countries have different legal regulations governing the age limits for maintaining professional activity. Therefore, we we used people who were unemployed before the Corona outbreak as a reference group. And last thing, we took country-level differences into account by adjusting for country dummies, but did not investigate cross-national differences in

Archives of Psychiatry and Psychotherapy, 2024; 1: 77-88

85

the relationship between older workers' mental health and changes in work mode experienced due to the COVID-19 pandemic.

We believe that an unusual situation such as the COVID-19 pandemic, and the resulting changes in work mode, can be used to improve current working conditions. Our finding of the gender dependency of a smooth transition to remote working and dealing with work-home interference is highly relevant to understanding changes in older workers' mental health. Our study enhances understanding of the secondary and potentially long-term effects of the COV-ID-19 pandemic on mental health and well-being among European older workers. The present study lays the groundwork for further investigations that could help us better understand other aspects of remote working that might further protect the mental health of older workers.

DECLARATIONS

The authors have no relevant financial or non-financial interests to disclose.

Approval was obtained from the institutional review board at Author's University [Research Quality Assessment Committee at the Institute of Psychology of the Opole University]. The procedures used in this study adhere to the tenets of the Declaration of Helsinki.

Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Research Data Availability

This paper uses data from SHARE Waves 8 COVID-19 Survey 1 (doi: 10.6103/SHARE.w8ca.800).

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Author contributions

All authors contributed to the study conception and design. [GP] is responsible for results section. The first draft of the manuscript was written by [KS] and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Ethics approval

Approval was obtained from the institutional review board at Author's University [blinded]. The procedures used in this study adhere to the tenets of the Declaration of Helsinki.

REFERENCES

- WHO. World mental health report. Transforming mental health for all. [Internet]. Geneva: World Health Organization; 2022 Jun p. 296. Available from: https://www.who.int/ publications/i/item/9789240049338
- Beaglehole B, Mulder RT, Frampton CM, Boden JM, Newton-Howes G, Bell CJ. Psychological distress and psychiatric disorder after natural disasters: systematic review and metaanalysis. Br J Psychiatry. 2018 Dec;213(6):716–22.
- Liu S, Yang L, Zhang C, Xiang YT, Liu Z, Hu S, et al. Online mental health services in China during the COVID-19 outbreak. Lancet Psychiatry. 2020 Apr;7(4):e17–8.
- Rajkumar RP. COVID-19 and mental health: A review of the existing literature. Asian J Psychiatry. 2020 Aug;52:102066.
- Baiano C, Zappullo I, the LabNPEE Group the LabNPEE Group, Conson M. Tendency to Worry and Fear of Mental Health during Italy's COVID-19 Lockdown. Int J Environ Res Public Health. 2020 Aug 15;17(16):5928.
- Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, et al. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. The Lancet. 2020 Mar 14;395(10227):912–20.
- Grant CA, Wallace LM, Spurgeon PC. An exploration of the psychological factors affecting remote e-worker's job effectiveness, well-being and work-life balance. Empl Relat. 2013 Jan 1;35(5):527–46.
- Morganson VJ, Major DA, Oborn KL, Verive JM, Heelan MP. Comparing telework locations and traditional work arrangements: Differences in work-life balance support, job satisfaction, and inclusion. J Manag Psychol. 2010;
- Mutchler YL Jan E. Older Adults and the Economic Impact of the COVID-19 Pandemic. In: Older Adults and COVID-19. Routledge; 2021.
- Wang B, Liu Y, Qian J, Parker SK. Achieving effective remote working during the COVID-19 pandemic: A work design perspective. Appl Psychol. 2020;
- Kaduk A, Genadek K, Kelly EL, Moen P. Involuntary vs. voluntary flexible work: insights for scholars and stakeholders. Community Work Fam. 2019 Aug 8;22(4):412–42.
- Abrams LR, Finlay JM, Kobayashi LC. Job Transitions and Mental Health Outcomes Among U.S. Adults Aged 55 and

Archives of Psychiatry and Psychotherapy, 2024; 1: 77–88

Older During the COVID-19 Pandemic. Carr DS, editor. J Gerontol Ser B. 2021 Apr 10;gbab060.

- Noelke C, Beckfield J. Recessions, Job Loss, and Mortality Among Older US Adults. Am J Public Health. 2014 Nov;104(11):e126–34.
- Bui TTM, Button P, Picciotti EG. Early Evidence on the Impact of Coronavirus Disease 2019 (COVID-19) and the Recession on Older Workers. Kaskie B, editor. Public Policy Aging Rep. 2020 Oct 29;30(4):154–9.
- Oakman J, Kinsman N, Stuckey R, Graham M, Weale V. A rapid review of mental and physical health effects of working at home: how do we optimise health? BMC Public Health. 2020 Dec;20(1):1825.
- Hill EJ, Hawkins AJ, Ferris M, Weitzman M. Finding an Extra Day a Week: The Positive Influence of Perceived Job Flexibility on Work and Family Life Balance. Fam Relat. 2001;50(1):49–58.
- Douglas M, Katikireddi SV, Taulbut M, McKee M, McCartney G. Mitigating the wider health effects of covid-19 pandemic response. BMJ. 2020 Apr 27;m1557.
- Kanfer R, Lyndgaard SF, Tatel CE. For Whom the Pandemic Tolls: A Person-Centric Analysis of Older Workers. Work Aging Retire. 2020 Aug 21;
- Börsch-Supan A. Survey of Health, Ageing and Retirement in Europe (SHARE) Wave 8. COVID-19 Survey 1. SHARE– ERIC; 2022.
- Scherpenzeel A, Axt K, Bergmann M, Douhou S, Oepen A, Sand G, et al. 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 Jun 2;14(2):217–21.
- Izdebski Z, Mazur J. Changes in mental well-being of adult Poles in the early period of the COVID-19 pandemic with reference to their occupational activity and remote work. Int J Occup Med Environ Health. 2021 May 27;34(2):251–62.
- Berwick DM, Murphy JM, Goldman PA, Ware JE, Barsky AJ, Weinstein MC. Performance of a Five-Item Mental Health Screening Test. Med Care. 1991;29(2):169–76.
- Bertoni M, Cavapozzi D, Pasini G, Pavese C. Remote Working and Mental Health during the First Wave of COVID-19 Pandemic. 2021;

- Pieh C, Budimir S, Probst T. The effect of age, gender, income, work, and physical activity on mental health during coronavirus disease (COVID-19) lockdown in Austria. J Psychosom Res. 2020 Sep 1;136:110186.
- Montenovo L, Jiang X, Rojas FL, Schmutte I, Simon K, Weinberg B, et al. Determinants of Disparities in Covid-19 Job Losses [Internet]. Cambridge, MA: National Bureau of Economic Research; 2020 May [cited 2022 Mar 10] p. w27132. Report No.: Working Paper 27132. Available from: http:// www.nber.org/papers/w27132.pdf
- Wenham C, Smith J, Morgan R. COVID-19: the gendered impacts of the outbreak. The Lancet. 2020 Mar;395(10227):846–8.
- AARP AA of RP, NAC NA for C. Caregiving in the United States 2020 [Internet]. Washington, DC; 2020 May [cited 2021 Feb 15]. Available from: http://www.aarp.org/ppi/info-2020/caregiving-in-the-united-states.html
- Crespo L, Mira P. Caregiving to elderly parents and employment status of European mature women. Rev Econ Stat. 2014;96(4):693–709.
- Petrini M, Cirulli F, D'Amore A, Masella R, Venerosi A, Venerosi A. Health issues and informal caregiving in Europe and Italy. Ann Ist Super Sanita. 2019;55(1):41–50.
- Jahoda M. Employment and unemployment: a social-psychological analysis. Cambridge: Cambridge University Press; 1982. 112 p.
- Navarro-Abal Y, Climent-Rodríguez J, López-López M, Gómez-Salgado J. Psychological Coping with Job Loss. Empirical Study to Contribute to the Development of Unemployed People. Int J Environ Res Public Health. 2018 Aug 20;15(8):1787.
- Maestas N. The return to work and women's employment decisions. In: Goldin C, Katz LF, editors. Women Working Longer: Increased Employment at Older Ages [Internet]. Chicago: University of Chicago Press; 2018 [cited 2022 Mar 10]. p. 55–84. Available from: http://www.bibliovault.org/ BV.landing.epl?ISBN=9780226532646
- Neumark D, Burn I, Button P. Is It Harder for Older Workers to Find Jobs? New and Improved Evidence from a Field Experiment. J Polit Econ. 2019 Apr;127(2):922–70.

86

SUPPLEMENTARY MATERIALS

Table 2A. Results from the multilevel linear regression analysis examining associations between employment status and older	er
adults' mental health, controlling for covariates, in two extreme age groups.	

	Mental health score						
Age group	50-60		70=<				
	N = 3812		N = 19812				
	(M _{age} =57.85 SD _{age} =2	2.06)	(M _{ane} =78.55 SD _{ane} = 6.42)				
R ²	0.153		0.165				
	B (95% CI)	р	B (95% CI)	р			
Employment status							
Employed ^a	0.040 (0.005; 0.076)	.025	0.008 (-0.004; 0.022)	.013			
Became unemployed ^a	-0.042 (-0.075; -0.009)	.012	-0.010 (-0.023; 0.003)	.250			
Physical health	0.254 (0.222; 0.286)	<.001	0.281 (0.267; 0.295)	<.001			
Economic situation	0.188 (0.152; 0.225)	<.001	0.143 (0.127; 0.159)	<.001			
Age	-0.027 (-0.058; -0.003)	.080	-0.029 (-0.042; -0.016)	<.001			
Gender⁵	0.130 (0.099; 0.159)	<.001	0.151 (0.138; 0.164)	<001			

Note: CI = confidence interval. All analyses also control for country dummies (not shown). Reference categories: a, unemployed before COVID-19 outbreak; b, women. Source: SHARE Wave 8.

Table 4A. Results from the multilevel linear regression analysis examining the association between mode of work and mental	al
health, controlling for covariates, in two extreme age groups.	

	Mental health score					
Age group	50-60		70<=			
	N = 2213		N = 612			
	(M _{age} = 57.86 SD _{age} =	1.98)	$(M_{age} = 74.09 \text{ SD}_{age} = 4$	4.16)		
R ²	.115		.097			
	B (95% CI)	р	B (95% CI)	р		
Work mode						
At home ^a	-0.054 (-0.096; -0.012)	.011	-0.009 (-0.092; 0.074)	.835		
Hybridª	-0.035 (-0.077; 0.007)	.010	-0.041 (-0.119; 0.042)	.354		
Economic situation	0.125 (0.078; 0.172)	<.001	0.078 (-0.007; 0.163)	.072		
Physical health	233 (0.190; 0.275)	<.001	0.216 (0.132; 0.301)	<.001		
Age	-0.032 (-0.075;-0.010)	.13	-0.065 (-0.143; 0.013)	.101		
Gender ^b	0.161 (0.121; 0.201)	<0.001	0.186 (0.104; 0.267)	<0.001		

Note: CI = confidence interval. All analyses also controlled for country dummies (not shown). Reference categories: a, work at the usual workplace; b, women. Source: SHARE Wave 8.

	Mental health score					
Age group	60-70		70<=			
	N = 1777		N = 408			
	(M _{age} = 57,88 SD _{age} =	1.99)	$(M_{age} = 73.98 \text{ SD}_{age} =$	4.18)		
R ²	.135		.126			
	B (95% CI)	р	B (95% CI)	р		
Working hours						
Reduced ^a	-0.080 (-0.125; -0.034)	<.001	-0.095 (-0.192; 0.003)	.056		
Increased ^a	-0.058 (-0.102; -0.013)	.012	-0.059 (-0.155; 0.037)	.229		
Sense of health security in workplace	0.121 (0.076; 0.166)	<.001	0.121 (0.019; 0.224)	.020		
Economic situation	0.106 (0.054; 0.158)	<.001	0.109 (0.002; 0.217)	.047		
Physical health	0.209 (0.161; 0.257)	<.001	0.186 (0.082; 0.290)	.001		
Age	-0.034 (-0.081; - 0.013)	.157	-0.032 (-0.129; 0.064)	.509		
Gender ^b	0.151 (0.106; 0.196)	<0.001	0.168 (0.066; - 0.269)	0.001		

Table 5A.	Results from	the multilevel li	near regression	analysis e	examining the	association	between	changes in	working hours	s
		and mental l	health, controllir	ng for cova	iriates, in two	extreme age	e groups.			

Note: CI = confidence interval. All analyses also controlled for country dummies (not shown). Reference categories: no changes in working hours; b, women. Source: SHARE Wave 8.