



University of
Salford
MANCHESTER

The impact of reduced working hours and furlough policies on workers' mental health at the onset of COVID-19 pandemic: a longitudinal study

Wang, S, Kamerāde, D, Bessa, I, Burchell, B, Gifford, J, Green, M and Rubery, J
<http://dx.doi.org/10.1017/S0047279422000599>

Title	The impact of reduced working hours and furlough policies on workers' mental health at the onset of COVID-19 pandemic: a longitudinal study
Authors	Wang, S, Kamerāde, D, Bessa, I, Burchell, B, Gifford, J, Green, M and Rubery, J
Publication title	Journal of Social Policy
Publisher	Cambridge University Press
Type	Article
USIR URL	This version is available at: http://usir.salford.ac.uk/id/eprint/64354/
Published Date	2022

USIR is a digital collection of the research output of the University of Salford. Where copyright permits, full text material held in the repository is made freely available online and can be read, downloaded and copied for non-commercial private study or research purposes. Please check the manuscript for any further copyright restrictions.

For more information, including our policy and submission procedure, please contact the Repository Team at: library-research@salford.ac.uk.

The Impact of Reduced Working Hours and Furlough Policies on Workers' Mental Health at the Onset of COVID-19 Pandemic: A Longitudinal Study

SENHU WANG* , **DAIGA KAMERĀDE**** , **IOULIA BESSA***** , **BRENDAN BURCHELL****** , **JONNY GIFFORD******* , **MELANIE GREEN*******  **AND JILL RUBERY******* 

*Assistant Professor, Department of Sociology, National University of Singapore, 11 Arts Link, 117573, National University of Singapore, Singapore
email: socsw@nus.edu.sg

**Reader in Work and Well-being, School of Health and Society, University of Salford, Allerton, Frederick Road, Salford, Manchester M6 6PU, UK; Research Associate at the Centre for Business Research, University of Cambridge, UK
email: d.kamerade2@salford.ac.uk

***Associate Professor, Leeds University Business, University of Leeds, Maurice Keyworth Building, University of Leeds, Leeds, LS2 9JT, UK
email: I.Bessa@leeds.ac.uk

****Professor in Social Sciences, Department of Sociology, 16 Mill Lane, University of Cambridge, Cambridge CB2 1SB, UK
email: bb101@cam.ac.uk

*****Senior Advisor in Organizational Behavior, Chartered Institute for Personnel Development, 151 The Broadway, Wimbledon, London SW19 1JQ, UK, UK
email: Jonny.Gifford@cipd.co.uk

*****Research Advisor, CIPD, Chartered Institute for Personnel Development, 151 The Broadway, Wimbledon, London SW19 1JQ, UK, UK
email: Melanie.Green@cipd.co.uk

*****Professor and the Directors of Work and Equalities Institute, Alliance Manchester Business School, University of Manchester, Oxford Rd, University of Manchester, UK, M13 9 PL, UK
email: jill.rubery@manchester.ac.uk

Corresponding author, email: socsw@nus.edu.sg

Abstract

Although reduced working time and furlough policy initiatives are widely regarded as important for economic and business reasons, little is known about their impacts on workers' mental health at the onset of COVID-19 pandemic. Using data from the UK Household Longitudinal Panel Study data from 2018 to February 2020 and April 2020 and change score analysis, this study aims to compare mental health changes between those who worked reduced hours, were furloughed and left/lost paid work. The results suggest that at the onset of COVID-19 reduced working time and furlough can protect workers' mental health, but only for men not for women. The gender differences remain significant even after controlling for housework and childcare responsibilities at the onset of COVID-19. These results highlight the

importance of distributing paid work more equitably and formulating gender-sensitive labour market policies in protection of workers' mental health.

Keywords: COVID-19 pandemic; working time reduction; furlough; unemployment; gender

Introduction

At the onset of the COVID-19 pandemic, the social/physical distancing measures introduced to contain the virus have exerted a dramatically damaging effect on labour markets and business activities globally. In the UK, the economic impact of COVID-19 was particularly strong in April and early May 2020. For example, data from the Office of National Statistics show that the total weekly hours worked in the UK has declined from 1,052 million hours in February 2020 to a historical low level 841 million hours in April 2020, and then gradually increased to around 1,000 million hours in 2021 (ONS, 2022). Similarly, the use of Coronavirus Job Retention Scheme (furloughing workers 80% of their wages) also peaked at the April and early May 2020 with nearly 9 million jobs being on furlough (i.e. 78% of the labour force in companies that had closed), but this figure has declined to around one million in 2021 (House of Commons Library, 2021). Partly due to these employment protection policies, the unemployment rate had only slightly increased from 3.8% in 2019 to 5.1% at the end of 2020, and then gradually declined to the pre-pandemic level in 2021 (ONS, 2022). In addition, the proportion of homeworking initially mandated by the government increased from about 5% in 2019 to 37% in April 2020, and it remains throughout 2021 (Bank of England, 2021).

In response to this global health and economic crisis, many countries have adopted unprecedented large-scale fiscal packages to support workers' incomes and businesses and to moderate the rise in unemployment, prevent business closures, mitigate fall in consumption, and/or increase economic activity by government expenditure (ILO, 2020). The support packages differed in their purpose, target groups and their effects on unemployment levels. In the USA Federal state initiatives such as Coronavirus Aid, Relief, and Economic Security (CARES) Act focused mainly on providing emergency support to the unemployed, not on preventing redundancies (Financial Times, 2020). In Europe, by contrast, the majority of state policy measures were focused on reducing job losses, with considerably less dramatic rises in the unemployment levels (Eurofound, 2020), with all EU Member States and the UK offering such schemes by September 2020.

This paper focuses on mental health effects of some of these labour market policies at the onset of COVID-19 pandemic. We pay particular attention to the onset of COVID-19 because the rapidly rising infection rate and large-scale lockdown policies during this period have brought about the largest and the

most unanticipated shock to our economic and psychological lives compared with later pandemic stages. Overall, this study makes a twofold theoretical and empirical contribution. Firstly, it reduces the evidence gap on mental health effects of fiscal support packages and labour market measures, by examining longitudinally the comparative mental health effects of two widely used job protection measures: furlough (that is, temporary paid leave of absence from work) and reduced working time (that is, reducing employees working hours without subsidizing the lost income), and the effects of unemployment on working age individuals' mental health at the onset of the COVID-19 pandemic in the UK. Secondly, we argue that these policy initiatives aimed at preventing job losses during the pandemic are important not only for economic and business reasons, but they also significantly affect workers' mental health. This is particularly important during a mental health crisis fuelled by the pandemic (Pierce et al., 2020) when the risk of losing one's job is accompanied with other major stressors, such as COVID-19 health anxiety (Trougakos et al., 2020), changes in work-life interface (Vaziri et al., 2020), and public health measures restricting one's personal freedom (e.g. stay-at-home orders).

This paper examines how transitions in employment status, work hours and involvement in the UK furlough job retention scheme at the onset of the COVID-19 pandemic period are related to changes in female and male workers' mental health. We pose the following as a research question: In the COVID-19 context, how are being out of paid work, working reduced working hours, continuing to work part-time, and being furloughed related to changes in working age individuals' mental health? How do these effects compare to the mental health effects of continuing to work full-time?

Unemployment, furlough, short hours working and mental health

Psychological research on work and mental health has a long tradition of revealing negative mental health effects of unemployment (see the review by Wood and Burchell, 2018), comparing mostly on the comparisons between being employed and being unemployed. Research shows that at the onset of the COVID-19 unemployment negatively impacted mental health (Li and Wang, 2020). However, during the COVID-19 pandemic the labour market policy measures initiated by many countries have created another new group – the furloughed employees that continued to be paid their full or partial wages without working¹ for their main employer. These measures have also expanded the number of employees whose working hours were reduced. The theoretical perspectives discussed below suggest distinct mental health implications of belonging to one of these four employment status groups – out of paid work, working reduced hours, being furloughed, and continuing to work full-time during the COVID-19 pandemic, an issue that has been so far neglected in the research.

A large body of research, collected well before the COVID-19 pandemic, shows that unemployment brings multiple negative short and longer-term individual and societal consequences, contributing to poverty and social inequality. These include social exclusion, financial losses, lower living standards, and a decline in the well-being, physical and mental health of unemployed people and their families (McKee-Ryan et al., 2005; Paul and Moser, 2009; Wood and Burchell, 2018). Although some people with worse mental health are more likely to become unemployed, robust longitudinal studies and meta-analyses also suggest that becoming unemployed also leads to a decline in mental health (Jefferis et al., 2011; McKee-Ryan et al., 2005; Paul and Moser, 2009; Wanberg, 2012). The effect sizes are larger than most other common stress factors such as divorce, and (unlike many other stressors) the effects of unemployment hardly wear off if an individual remains unemployed for longer periods of time (Burchell, 2011). A meta-analysis suggests that in Western countries unemployment affects both men and women, but the effect tends to be stronger for men and for blue-collar workers (Paul and Moser, 2009). There are, of course, some individual differences (McKee-Ryan et al., 2005) – nevertheless, many of the findings on the average effects of unemployment on mental health have been replicated so widely across time and across countries that they can be stated with little controversy (Paul and Moser, 2009). Therefore, we can hypothesise that *(H1). Leaving or losing paid work at the onset of the pandemic is associated with worse mental health in comparison to continuing being employed, either in a full-time or part-time job.*

The theoretical reasoning that explains the dependency of mental health on employment for mental health is slightly more controversial than the empirical evidence. Marie Jahoda's socio-environmental model of employment (Jahoda, 1982) is the most influential of the theories, even in contemporary debates (Selenko et al., 2011). Jahoda claimed that in addition to the manifest reason for working – wage – it was the accidental or latent consequences of working that were associated with the psychological benefits of working for mental health. According to her, employment is more than a source of income, supplying several latent socio-psychological benefits such as providing time structure, collective purpose and social contacts, identity and activity. The loss of these benefits due to unemployment damages both well-being and mental health. Some studies suggest the loss of latent benefits is the most important (Winkelmann and Winkelmann, 1998); others find that income has the largest negative impact (Ervasti and Venetoklis, 2010; Paul and Batinic, 2010).

Many other more recent psychological models can be seen as refinements of Jahoda – for instance, by adding to the list of psychological benefits (Warr, 1987), making more nuanced differentiations between good jobs and bad jobs

(Warr, 1999), adding individual differences in psychological and economic needs (Nordenmark and Strandh, 1999), or proposing to expand understanding of workers' well-being to reflect the broad importance of work in human life (Budd and Spencer, 2015). Fryer (1986, 1992) emphasises the importance of employment in empowering individuals to plan their lives, with the unemployed and workers in precarious jobs being deprived of this agency.

The current limitation of this line of theoretical reasoning and body of evidence is that it does not reflect more contemporary policy developments, especially furlough introduced during the COVID-19 pandemic. Recent research by Kameråde et al. (2019), performed in the UK and replicated in all EU countries (Kameråde et al., 2021) suggested that the employment threshold for good mental health was about one day a week – above that, there was little difference to individuals' wellbeing regardless of whether they worked eight hours or 48 hours a week – the mental health varied little, and in all categories the mental health was markedly better than those with zero hours a week, either due to unemployment or to economic inactivity.

These findings might be highly relevant to the immense labour market changes during the COVID-19 pandemic. Kameråde et al. (2019) findings suggest that avoiding exclusion from paid work should be a top priority as a labour market policy. They also suggest that there may be a plausible way of doing this with relatively little damage to the mental health levels of the nation, through short-time working. In contrast to being unemployed, working reduced hours still provides the workers with some, albeit reduced, access to both manifest and latent benefits of paid work. We therefore could hypothesise that

(H2). Shorter working time introduced at the onset of the COVID-19 pandemic was associated with better mental health than leaving or losing paid work.

The experience of being paid but having no work for several months (i.e. being furloughed) is a novel phenomenon for which we have no knowledge base, except for the somewhat relevant McKenna and Fryer's (Fryer and McKenna, 1987; McKenna and Fryer, 1984) small scale study of the temporary laid off male factory workers. This study found that compared to the men made unemployed, temporarily laid-off men had significantly better mental health. However, COVID-19 pandemic furlough was different in three ways. First, the laid off men in McKenna and Fryer's study knew that they were laid off for seven weeks, while furloughed workers were uncertain about the length of their furlough as the end date for the scheme changed several times, often with a very short notice period. While many European schemes required employers receiving support not to make people redundant before a certain date, the UK furlough scheme was not limited by such constraints. Consequently, despite the protection offered by the scheme, half of the employees being furloughed felt that the

scheme was not contributing adequately to job security, were concerned whether they would actually return to work after the furlough period or whether they would be made redundant (CIPD, 2020). Second, the laid-off men signed up as unemployed and received welfare benefits, while furloughed workers continued to be paid at least 80% of their salary. So being furloughed still provided the workers with the manifest benefit of income but limited access to most of latent benefits of working, such as social contacts, time structure, and it also was associated with some job insecurity. Third, the laid-off men engaged in a wide variety of activities in their newfound spare time such as travel, sport, and socializing. Many of these activities were banned during the COVID-19 lockdowns and many furloughed workers (more so women than men) had childminding and home educating forced upon them. Therefore, we hypothesise that *(H3). Furlough introduced at the onset of the COVID-19 pandemic was associated with better mental health than losing or leaving paid work but poorer mental health than continuing to work full-time, part-time, or working reduced hours.*

Gender differences

In the UK there are still marked gender differences in labour market experience (Kameråde and Richardson, 2018) and the division of household responsibilities (Kan and Laurie, 2018). Thus, it is important to explore whether the mental health impacts of (un)employment experience at the onset of COVID-19 vary between men and women. Drawing on role conflict theory, we argue that men are more likely to benefit from furlough, shorter working hours and other forms of employment than women at the onset of COVID-19.

The role conflict theory argues that when individuals have multiple and overlapping social role responsibilities, compliance with one social role may make it difficult to comply with the other (Greenhaus and Beutell, 1985). This is especially the case when people have responsibilities at both work and family domains, which are thought to have different rules, thinking and behavioral patterns, and thus the role pressures from both domains are often mutually incompatible. At the onset of the COVID-19, virus containment measures, such as closing schools, restricting mixing of different households and government orders to work from home where possible, blurred the boundaries between work and family. Given the persistent gender inequalities in household division of labour, the blurred work-family boundaries could significantly increase women's housework burden and mental stress during the pandemic. For example, women were not only expected to continue to work, but also needed to raise and educate their children at home and care for elderly without institutional and community support (Power, 2020; Sevilla and Smith, 2020), as well as to provide emotional support to their partners and other family members

(Chung, 2020). During COVID-19 pandemic, the additional care work of women could worsen their mental health (Chandola et al., 2020; Wade et al., 2021).

Therefore, it is expected that furlough, reduced working time and other forms of employment may not be able to help maintain women's mental health level at the onset of the COVID-19 because they could exacerbate gender inequalities in the division of care responsibilities. Also, given women's lower labour market status (Wang et al., 2020), furlough and reduced working hours might have been more likely to induce job insecurity, job-related anxiety and stress in women than men and that could have overridden their protective benefits in terms of mental health. In contrast, men who had less involvement in additional care work created by the pandemic were less likely to experience inter-role conflicts and could obtain more mental health benefits from furlough, reduced working time and other forms of employment during COVID-19. Therefore, we hypothesise that

(H4). The positive mental health impacts of employment, reduced working hours and furlough at the onset of the COVID-19 pandemic were significantly more pronounced for men than for women.

Methods

Data and sample

We combined data from the wave 10 of Understanding Society: The UK Household Longitudinal Study/ (UKHLS), collected between 2018 and 2020, and the first wave of the Understanding Society COVID-19 study collected in April 2020 (University of Essex and ISER, 2020). UKHLS is a large nationally representative longitudinal panel survey based on a stratified random sample of approximately 40,000 households. Data are collected through face-to-face interviews and self-completion online questionnaires with an overall response rate of 62%. In April 2020, Understanding Society started a (mostly) monthly COVID-19 online survey complementing the annual main UKHLS interviews to examine the effects of the pandemic. 42,330 individuals from the UKHLS were asked to participate in the first survey in April 2020 and 41% responded (Burton et al., 2020).

The analytical sample for this study were individuals who were in working age (18-65) in wave 10 and who participated in both wave 10 and COVID-19 April 2020 survey, except all respondents who were interviewed for Wave 10 after February 2020, and economically inactive (e.g., the retired, full-time students, long-term disabled) in UKHLS wave 10 and those who were self-employed and remained out of work in both datasets. We also excluded the small number who experienced increases in their working hours, worked long

hours (> 48 hours per week) and furloughed respondents who reported working hours. After excluding a small number of missing cases (around 5%), the final analytic sample was 4,908 respondents. To adjust for the complex survey design and unequal probability of sampling and attrition, we used UKHLS COVID-19 survey weight in all analyses.

Variables

Changes in mental health - the key dependent variable – were measured using the General Health Questionnaire (GHQ-12), a validated scale widely used in the community or non-clinical settings to measure the levels of general psychiatric disorders (Goldberg and Williams, 1988). GHQ-12 included 12 questions about respondents' depressive symptoms, anxiety symptoms, sleeping problems confidence and overall happiness etc. They were measured on a four-point scale (0 'less than usual', 1 'no more than usual', 2 'rather more than usual', and 3 'much more than usual'). The answers to the 12 questions were then summated to obtain a GHQ-12 Likert score (0-36) which was reversed so that a higher score indicated better mental health and calculated GHQ-12 mental health change between Wave 10 and April 2020, where a positive score denoted improved mental health, whereas negative scores denoted worsened mental health.

Changes in employment status are our key independent variable. We combined information from questions about individuals' employment status before COVID-19 pandemic (UKHLS Wave 10 from 2018 to February 2020) and at the onset of COVID-19 pandemic (April 2020) and created five categories: 'Left/lost paid work', 'Furloughed under COVID-19 job retention scheme', 'Remained part-time employed (1-34 hours per week)', 'From full-time to part-time employed', and 'Remained full-time employed (35-48 hours per week)'. Detailed economic activities were only reported in UKHLS wave 10, whereas in COVID-19 study wave 1 we can only distinguish between employment, self-employment, and no paid work. We checked that those who were furloughed did not actually work any hours, as some research suggests some employees continued to work for the same employer while being on furlough (Adams-Prassl et al., 2020a), despite that violating the rules of furlough in place till July 2020¹.

We controlled for several demographic and socioeconomic factors identified in the COVID-19 survey dataset: age, whether living with a partner and presence of children in household ('No children', 'Children aged 0-4', 'Children aged 5-11', 'Children aged 12-15' and 'Children aged 16-18'). In addition, we also controlled for logged changes in household income before and at the onset of the COVID-19 pandemic and for UKHLS Wave 10 interview year to consider the period effects. Finally, to explore whether housework responsibilities can mediate gender differences in employment mental health benefits at the

onset of the pandemic, we also included housework hours per week at the onset of the COVID-19, changes in housework hours per week before and at the onset of the COVID-19 (a positive score indicates an increase in housework burden) and weekly hours spent on childcare and home schooling.

Analytic strategy

Using Chi-Squared test, independent samples T-test and paired samples T-test, we report the bivariate descriptive statistics of the main variables included in the study and sample characteristics. We compared mental health scores before and at the onset of the pandemic by the changes in employment status for the entire sample and separately for men and women.

To measure the dynamic impact of employment status changes due to COVID-19 pandemic on mental health we used change score analysis for men and women. Understanding Society as panel data offers a unique opportunity enabling observation and analysis of change and so that mental health outcomes are measured before and after a specific period, which in our case is before and at the onset of the COVID-19. To fit a change score model, we first calculated the difference in mental health between wave 10 and April 2020 as outcome and the difference in employment status as predictor variable. Next, we used Ordinary Least Squared regression analysis to investigate the relationship between changes in employment status and mental health while controlling for a wide range of demographic and socio-economic characteristics. As the measure of employment status is different before and at the onset of the COVID-19, we are not able to use fixed effects models to fully explore the within-individual variation. Instead, a less detailed employment status variable is tested with fixed effects model as a robustness check (see Table A4 in Appendix). Nevertheless, by maximizing the utilization of the available longitudinal data in the UK, using the change score model could facilitate a deeper understanding of the dynamic relationship between changing employment status and mental health, and reduce endogeneity problems.

Results

Descriptive statistics

Table 1 reports the descriptive statistics. It shows that both men and women experienced a decline in mental health, but it was significantly larger for women than men. In terms of changes in employment status, we find that around 7% of respondents who left/lost paid work at the onset of the Covid-19 and round 8-11% experienced a transition from full-time to part-time employment and reduced working hours. These patterns are similar for men and women. In addition, we find that men were more likely than women to remain in full-time employment, more likely to transition from employment to furlough and less

TABLE 1. Descriptive statistics

	All	Men	Women	X ² and T tests
Mental health score changes, M (SD)	-1.32 (0.14)	-0.79 (0.21)	-1.81 (0.17)	<i>p</i> < 0.001
Employment status changes, %				<i>p</i> < 0.001
Left/lost paid work, %	7.21	7.19	7.23	
<i>N</i>	354	142	212	
Furloughed, %	19.23	21.28	17.86	
<i>N</i>	944	420	524	
Remain part-time employed, %	19.13	5.52	28.29	
<i>N</i>	939	109	830	
From full-time to part-time employment, %	9.9	8.21	11.04	
<i>N</i>	486	162	324	
Remain full-time employed, %	44.52	57.8	35.58	
<i>N</i>	2185	1141	1044	
Gender, %				
Men, %	40.22	100	0	
<i>N</i>	1974			
Women, %	59.78	0	100	
<i>N</i>	2934	4908	4908	
Age, M (SD)	42.94 (13.41)	43.14 (13.53)	42.79 (13.32)	<i>p</i> = 0.416
Partnership, %				<i>p</i> = 0.870
Yes, %	77.51	82.73	73.99	
<i>N</i>	3804	1633	2171	
No, %	22.49	17.27	26.01	
<i>N</i>	1104	341	763	
Presence of children, %				<i>p</i> = 0.746
No children, %	55.73	55.57	55.83	
<i>N</i>	2735	1097	1638	
Children aged 0-4, %	12.53	13.58	11.83	
<i>N</i>	615	268	347	
Children aged 5-11, %	17.07	16.97	17.14	
<i>N</i>	838	335	503	
Children aged 12-15, %	9.01	8.87	9.1	
<i>N</i>	442	175	267	
Children aged 16-18, %	5.66	5.02	6.1	
<i>N</i>	278	99	179	
Housework hours during COVID-19, M (SD)	12.09 (9.55)	9.58 (7.18)	13.78 (10.23)	<i>p</i> < 0.001
Housework hour changes, M (SD)	3.42 (9.27)	3.30 (7.79)	3.50 (10.14)	<i>p</i> = 0.878
Time on childcare and home schooling, M (SD)	7.39 (18.35)	5.73 (14.05)	8.50 (20.68)	<i>p</i> < 0.001
Logged household income loss, M (SD)	-0.82 (0.03)	-0.77 (0.05)	-0.86 (0.04)	<i>p</i> = 0.139
Interview year, %				<i>p</i> = 0.854
2018, %	59.32	57.63	58.31	
<i>N</i>	1171	1691	2862	

TABLE 1. Continued

	All	Men	Women	X ² and T tests
2019, %	38.8	40.18	39.63	
N	766	1179	1945	
2020, %	1.87	2.18	2.06	
N	37	64	101	
Number of total observations	4,908	1,974	2,934	

Note. % = Proportions, M = Means, SD = Standard deviations.

likely to remain in part-time employment. Also, we find that the housework and childcare hours at the onset of the pandemic are significantly longer for women and for men, although the changes in housework hours before and at the onset of the pandemic are similar for men and women.

Table 2 compares mental health scores for men and women with different employment statuses before and at the onset of the COVID-19 pandemic. Overall, we find that a transition from employment to no paid work leads to a significant decline of mental health for both men and women. For men, transition from employment into other categories such as furlough or reduced working hours or remaining in full-time or part-time employment was associated with small, not statistically significant, mental health decline compared with job loss. In contrast, for women, furlough, reduced working hours, and/or remaining in full-time or part-time employment were still related to a significant mental health decline.

Table 3 shows results from the weighted ordinary least squares regression models predicting changes in GHQ-12 mental health scores for men and women between pre-March 2020 period and April 2020. In Model 1 (all workers), compared with those who left or lost paid work, those who remained in full-time employment, were furloughed and became part-time employed did not report significantly better mental health outcomes. Also in Model 1, we find that compared to men women's mental health significantly declined to a larger extent.

In Model 2 (men) compared to those who left/lost paid work, men who experienced any other employment status transitions, had significantly better mental health, providing strong support to hypotheses 1 and 2. Further analyses using the Wald test show that the coefficients of remaining in full-time and part-time employment, transition into furlough or part-time employment are not significantly different from each other. This suggests that furlough has a similar mental health protection effect compared with other forms of employment, partially supporting hypothesis 3. For women (Model 3), those who continued full- or part-time employment or transitioned into part-time employment or the furlough scheme have similar changes in mental health compared with those who

TABLE 2. GHQ-12 mental health scores for men and women with different employment statuses before and during the Covid-19

	Men			Women		
	Before COVID-19 pandemic	Onset of COVID-19 pandemic	Differences and T-tests	Before COVID-19 pandemic	Onset of COVID-19 pandemic	Differences and T-tests
Employment status changes						
Left/lost paid work	25.04	22.43	-2.61 $p < 0.001$	23.14	20.91	-2.23 $p < 0.001$
Furloughed	25.17	24.74	-0.43 $p = 0.337$	24.36	22.48	-1.88 $p < 0.001$
Remain part-time employed	25.41	25.29	-0.12 $p = 0.881$	24.29	22.15	-2.14 $p < 0.001$
From full-time to part-time employed	24.91	24.47	-0.44 $p = 0.681$	24.21	22.85	-1.36 $p < 0.001$
Remain full-time employed	25.46	24.62	-0.84 $p = 0.003$	24.47	22.92	-1.55 $p < 0.001$

TABLE 3. Weighted Ordinary Least Squares regression models predicting changes in GHQ-12 mental health scores for men and women

	Model 1 Pooled	Model 2 Men	Model 3 Women	Model 4	Model 5
Employment status changes (Ref. = Left/lost paid work)					
Furloughed	1.40+ (0.75)	3.25** (1.03)	-0.28 (1.03)	3.05** (1.03)	3.30** (1.06)
Remain PT employed	0.76 (0.82)	4.04* (1.79)	-0.85 (0.95)	3.69* (1.76)	3.92* (1.79)
From FT to PT employment	1.34 (0.84)	2.98** (1.24)	-0.10 (1.12)	2.85* (1.21)	2.94* (1.22)
Remain FT employed	1.26+ (0.72)	3.03** (1.10)	-0.32 (0.96)	2.80** (1.04)	2.88** (1.05)
Gender (Ref. = Men)	-0.97*** (0.26)			2.13+ (1.25)	2.52* (1.25)
Employment status changes × Gender					
Furloughed × Female				-3.14* (1.47)	-3.33* (1.46)
Remain PT employed × Female				-4.42* (1.98)	-4.74* (2.00)
From FT to PT employment × Female				-2.82+ (1.68)	-2.95+ (1.68)
Remain FT employed × Female				-2.90* (1.45)	-3.19* (1.43)
Control variables					
Socio-demographic characteristics	Yes	Yes	Yes	Yes	Yes
Housework and childcare responsibilities	No	No	No	No	Yes
UKHLS wave 10 interview year	Yes	Yes	Yes	Yes	Yes
Constant	-3.71** (1.44)	-7.03** (2.24)	-2.95+ (1.68)	-6.02*** (1.60)	-5.54*** (1.67)
Number of observations	4,908	1,974	2,934	4,908	4,908
R-squared	0.03	0.05	0.02	0.03	0.04

Note. PT = Part-time, FT = Full-time. Socio-demographic characteristics include age, partnership, presence of children, changes in household income. Housework and childcare responsibilities include housework hours during the COVID-19, housework hour changes, time on childcare and home schooling during the COVID-19. Robust standard errors in parentheses. ***p<0.001, **p<0.01, *p<0.05, + p<0.1 (two-tailed tests).

became unemployed. These results do not support hypotheses 1-3. Further Wald test results suggested that there were no significant differences between different categories of changes in employment. Model 4 fitted an interaction term between employment status and gender and shows that women are significantly less likely to obtain mental health benefits from furlough and other forms of employment than men, supporting hypothesis 4. Model 5 further controls for a wide range of housework and childcare responsibilities (including housework hours per week at the onset of the COVID-19, changes in housework hours per week before and at the onset of the COVID-19, time spent on childcare and

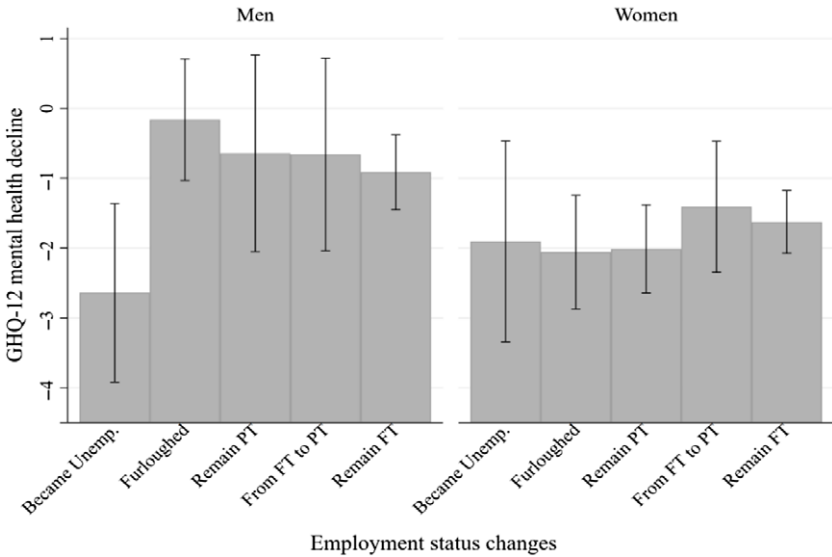


Figure 1. GHQ-12 mental health decline and employment status changes for men and women

home schooling), but shows that these variables did not mediate the significant interaction effects between gender and employment status. This suggests that the fact that women were significantly less likely to obtain mental health benefits from furlough and other forms of employment than men cannot be explained by their housework and childcare responsibilities before and at the onset of the pandemic.

Figure 1 visualises changes in mental health scores, adjusted for all variables in Models 2 and 3. It shows that men and women in all employment status change categories experienced a decline in their mental health at the onset of COVID-19 pandemic. However, among men, this decline was more pronounced for men who left/lost paid work than for men in other employment status categories. In contrast, for women, mental health decline was significant in all categories irrespective of the employment status and this decline was larger than for men, with exception of men who lost/left paid work.

Robustness checks

To explore the heterogeneity and ensure robustness of the results, we have conducted several robustness check analyses. First, we examined whether transition in home working status influences mental health changes for men and women. Consistent with our main findings, Table A1 shows that compared with those left/lost paid work, furlough and different forms of home working status can

significantly improve men's mental health but not women's mental health. Further interaction analyses also suggest that the mental health benefits of various forms of employment transitioning into or out of home working are significantly larger for men than women. Second, instead of controlling for interview year in the UKHLS wave 10 survey, we have calculated the number of months elapsed from UKHLS wave 10 to COVID study wave 1 and control for it in the models in Table A2. Reassuringly, we find that this does not make any differences, suggesting that our models are robust to alternative variable specification. Third, Table A3 explores whether keyworker status can help explain women's worse mental health status. However, the results show that keyworker status is not a significant predictor of mental health changes and its interaction with gender is not significant as well. This suggests that women's worse mental health at the onset of the pandemic cannot be attributed to their keyworker status. Fourth, in order to ensure a more robust causal inference, Table A4 uses fixed effects models to examine a less detailed measure of employment status because the measure of furlough is only available in the COVID-19 study. Consistent with our main findings, it shows that compared with no paid work, part-time and full-time employment can significantly improve men's mental health but not women's mental health.

Discussion and conclusions

This study examined how changes in employment status, working hours and involvement in furlough job retention scheme at the onset of the COVID-19 pandemic period are related to changes in workers' mental health. The results support our argument that the policy initiatives aimed at preventing job losses at the onset of the pandemic are important not only for economic and business reasons, but also have gender-differentiated mental health impacts.

The most important finding is that the effects of changes in employment status, working hours and furlough on mental health are different for men and women. Firstly, we found that the overall mental health of workers have declined during the first months of the COVID-19 pandemic. This decline was statistically significant for women regardless of their employment statuses. In contrast, for men the mental health decline was only statistically significant for those lost/left paid work, but not significant for those in various forms of employment such as furlough, shorter working hours, full-time or part-time employment. This suggests that various forms of employment can protect men's but not women's mental health at the onset of COVID-19. This finding echoes previous studies that identified an increase in mental distress between the pre-pandemic and pandemic periods in general population (Chandola et al., 2020), with the effects being stronger among women (Pierce et al., 2020; Proto and Quintana-Domeque, 2021).

Secondly, we found that changes in employment status, working hours and being furloughed had different effects on men's and women's mental health. In general, for male workers' mental health, the worse possible change in employment status during an economic downturn is to leave or lose paid work. That is, men who left paid work at the onset of the pandemic had significantly worsened mental health in comparison to men who continued being employed, either in full-time jobs, or working shorter working time or being furloughed. Further analyses show that the protection effects of these employment types are not significantly different from each other.

Thirdly, the results from this study did not support any of three hypotheses in relation to women. Although there is a minor trend of women in employment having a slightly higher mental health levels than women who lost or left paid work, these differences are not statistically significant. Women who remained in paid work had almost as large decline in mental health as women who left/lost paid work. Further analyses show that the mental health decline of women in paid work was significantly larger than their male counterparts, even after controlling for housework and childcare responsibilities before and at the onset of the COVID-19. In fact, the descriptive statistics shows that the changes in housework hours before and at the onset of the COVID-19 were not significantly different between men and women. Thus, women's mental health decline at the onset of COVID-19 should be attributed to other factors. One of such factors could be job insecurity (which we could not control for). Research suggests that women were more likely than men to lose jobs during the onset of the pandemic (Adams-Prassl et al., 2020b), therefore furlough might have been more likely to induce job insecurity, anxiety and stress in women than men – women might have been worried that being furlough is one step before the redundancy after the pandemic is over – and that could have overridden the protective benefits from furloughing that seem to have been experienced by men. Another factor might be increase in emotional labour that women had to carry out during the pandemic due to more frequent marital conflicts, increased stress, as well as domestic violence against women. (Akel et al., 2021; Wisyaningrum et al., 2021). This requires future research and policy makers to further explore the reasons for women's mental health decline at the onset of COVID-19 and unintended consequences of COVID-19 employment policies.

Overall, this study shows that while furlough and reduced working hours schemes seem to prevent a drop in mental health associated with the job loss, this is only true for men not for women. The gender differentiated impacts of reduced working time and furlough policies have important theoretical and policy implications. They contribute to the current theoretical debates about the future of work and to creating an alternative theoretical vision of how paid work could be organised by providing a nuanced gender-differentiated analysis at the

onset of COVID-19 pandemic (Kameråde et al. 2019). Also, given the enormous global costs of mental health (Fisher, 2021) such as individual misery amounting to 40% of all illness under age of 65 (Layard, 2013), lost productivity through disability and (pre-) and absenteeism (Isham et al., 2020), it is pivotal for policy makers to understand the gender-differentiated responsiveness in terms of mental health benefits, highlighting the importance of a more gender-sensitive labour market policy design. Future research should further examine public policy responsiveness for other socioeconomically disadvantaged groups such as lone parents (Lindsay et al., 2021).

Of course, mental health is not the only outcome that is important. While a drop in earnings may be unacceptable to many households on low and average earnings, the costs of subsidising those households during the recovery period are a lot lower than the cost of complete furloughing. By sharing the work around more equitably, the extreme outcome of unemployment for some should be minimised (Rubery, 2020). However, many of the sectors facing long term closure and possible shrinkage already have a large proportion of workers on part-time and zero-hours contracts so further work sharing in these sectors is unfeasible. A general work-sharing to maximise the number of jobs is more feasible in sectors that are stable and expanding.

Many other claims are being made for the benefits of a reduction in working time: a more equal balance of domestic and paid work between men and women, an increase in leisure time and quality of life, increased productivity per hour, reduced burnout and a lowering of harmful environmental impacts (Brauner and Tisch, 2020), and addressing the tendency to use working time as a proxy for employees' productivity (Jauch, 2020).

Most importantly, our findings reinforce Howcroft and Rubery's (2019), point 'if the gender bias that is embedded in the current social order is not tackled head-on, the future world of work is likely to exacerbate gender equality gaps'. Any future of work debates, models, policy and practice solutions focused on preventing rapid raises in unemployment levels during economic crises need to seriously consider gender roles, relations and norms. For example, government needs to subsidise or replace pay for workers who cannot work or must reduce hours because they must care for their children while other care options are not available.

This study focuses on mental health changes at the onset of the COVID-19, which is an important stage of the pandemic. Thus, policy implications of our study must be interpreted with caution because our results are based on short-term analyses. As the COVID-19 pandemic continues, it is important for future research to examine the long-term effects of reduced working time and furlough policies, but that was out of the scope of this paper. Gender gaps in mental health may increase with further deterioration in women's already poorer mental health.

For some over-worked and over-stressed employees, the loss of some or all hours of work could have been experienced positively in the first few weeks – other researchers have sometimes referred to a “honeymoon period” after redundancy. However, unlike some other shocks, such as divorce and widowhood that wear off and mental health returns to a baseline level after a period of a few months (Clark and Georgellis, 2013), economic shocks such as unemployment or chronic job insecurity do not (Burchell, 2011). Positive coping skills, such as physical exercise, do not affect this process (Perreault et al., 2020), but some compensatory activities, such as voluntary work, in the context of generous welfare benefits (Kamerāde and Bennett, 2018) or involvement in active labour market programmes (Wang et al., 2020) reduce the harmful effects of unemployment.

There are some limitations in this study. First, our category of “not in paid work before COVID-19” includes people who became unemployed and people who became economically inactive. This is because COVID-19 April 2020 survey did not identify their reasons for not working. We examined the composition of that group and their GHQ-12 scores by going back to the respondents aged 18-65 in the UKHLS wave 9 data and found that the mental health scores were similar for the unemployed and all groups of economically inactive. The exception was long-term sick and disabled who had poorer mental health: therefore we excluded them from our analytical sample. Moreover, several of these categories have rather fuzzy boundaries that have become even fuzzier during the COVID-19 pandemic – for instance, some early retired, home/family carers and those with long term illnesses or disabilities would gladly take a job if the right sort of work were available to them, but do not self-classify as unemployed for various reasons (e.g., eligibility for benefits, identity). Lastly, given the heterogeneity of employment, future research should also pay more attention to the mental health impacts of job quality (e.g. skill discretion, work-life balance, contract type) during the COVID-19 (Li and Wang, 2022; Wang et al., 2022).

To conclude, the labour market policy initiatives aimed at preventing job losses at the onset of the pandemic are important not only for economic and business reasons, they also significantly affect workers’ mental health. However, their mental health benefits apply only for male, not female workers.

Competing interests

The author(s) declare none

Note

- 1 Some employers allowed employees to work elsewhere while on furlough, but we would expect the vast majority of those furloughed to not be working in any capacity.

References

- Adams-Prassl, A., Boneva, T., Golin, M. and Rauh, C. (2020a). *Furloughing*. Cambridge Working Papers in Economics CWPE2079. Retrieved 15.08 from <http://www.econ.cam.ac.uk/research-files/repec/cam/pdf/cwpe2079.pdf>
- Adams-Prassl, A., Boneva, T., Golin, M. and Rauh, C. (2020b). Inequality in the impact of the coronavirus shock: Evidence from real time surveys. *Journal of Public Economics*, 189, 104245.
- Akel, M., Berro, J., Rahme, C., Haddad, C., Obeid, S. and Hallit, S. (2021). Violence against women during COVID-19 pandemic. *Journal of interpersonal violence*, 0886260521997953.
- Bank of England. (2021). *Latest results from the Decision Maker Panel survey – 2021 Q1*. Retrieved 08.04 from <https://www.bankofengland.co.uk/agents-summary/2021/2021-q1/latest-results-from-the-decision-maker-panel-survey-2021-q1>
- Brauner, C. and Tisch, A. (2020). Menschengerechte Arbeitszeiten–Grundlagen, Kriterien und Gestaltungsmöglichkeiten. In *Fehlzeiten-Report 2020* (pp. 203–215). Springer.
- Budd, J. W. and Spencer, D. A. (2015). Worker well-being and the importance of work: Bridging the gap. *European Journal of Industrial Relations*, 21(2), 181–196.
- Burchell, B. (2011). A temporal comparison of the effects of unemployment and job insecurity on wellbeing. *Sociological Research Online*, 16(1), 66–78.
- Burton, J., Lynn, P. and Benzeval, M. (2020). How Understanding Society: The UK household longitudinal study adapted to the COVID-19 pandemic. Survey Research Methods, Chandola, T., Kumari, M., Booker, C. L. and Benzeval, M. J. (2020). The mental health impact of COVID-19 and pandemic related stressors among adults in the UK. *medRxiv*.
- Chung, H. (2020). Return of the 1950s housewife? How to stop coronavirus lockdown reinforcing sexist gender roles. *The Conversation*, 20.
- CIPD. (2020). *Impact of COVID-19 on working lives*. Retrieved 04/08 from <http://www.cipd.co.uk/knowledge/work/trends/goodwork/COVID-impact>
- Clark, A. E. and Georgellis, Y. (2013). Back to baseline in Britain: adaptation in the British household panel survey. *Economica*, 80(319), 496–512.
- Ervasti, H. and Venetoklis, T. (2010). Unemployment and subjective well-being: an empirical test of deprivation theory, incentive paradigm and financial strain approach. *Acta Sociologica*, 53(2), 119–139.
- Eurofound. (2020). *COVID-19: Policy responses across Europe*. Publications Office of the European Union. Retrieved 23.09 from https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef20064en.pdf
- Facing the pandemic*. OSE, ETUI. <https://www.etui.org/sites/default/files/2021-01/06-Chapter4-The%20Covid%E2%80%9919%20crisis%20and%20gender%20equality.pdf>
- Financial Times. (2020, 17.05). Why the jobless surge is greater in the US than in Europe. *Financial Times*.
- Fisher, M. (2021). Moving Social Policy from Mental Illness to Public Wellbeing. *Journal of Social Policy*, 1–15. <https://doi.org/10.1017/S0047279421000866>
- Fryer, D. (1986). Employment deprivation and personal agency during unemployment: A critical discussion of Jahoda's explanation of the psychological effects of unemployment. *Social Behaviour*, 1(1), 3–23.
- Fryer, D. (1992). Psychological or material deprivation: why does unemployment have mental health consequences? In E. McLaughlin (Ed.), *Understanding Unemployment: New Perspectives on Active Labour Market Policies* (pp. 103–125). Routledge.
- Fryer, D. M. and McKenna, S. (1987). The laying off of hands: Unemployment and the experience of time. In S. Fineman (Ed.), *Unemployment: Personal and social consequences* (pp. 47–53). Tavistock.
- Goldberg, D. and Williams, P. (1988). *A user's guide to the General Health Questionnaire*. NFER-Nelson.
- Greenhaus, J. H. and Beutell, N. J. (1985). Sources of Conflict Between Work and Family Roles. *Academy of management review*, 10, 76–88.

- House of Commons Library. (2021). *Coronavirus Job Retention Scheme: statistic*. Retrieved 08.04 from <https://researchbriefings.files.parliament.uk/documents/CBP-9152/CBP-9152.pdf>
- Howcroft, D. and Rubery, J. (2019). 'Bias in, Bias out': gender equality and the future of work debate. *Labour & Industry: a journal of the social and economic relations of work*, 29(2), 213–227.
- Isham, A., Mair, S. and Jackson, T. (2020). *Wellbeing and productivity: a review of the literature*. University of Surrey.
- Jahoda, M. (1982). *Employment and Unemployment: A Social-Psychological Analysis*. Cambridge University Press.
- Jauch, M. (2020). The rat race and working time regulation. *Politics, Philosophy & Economics*, 19(3), 293–314.
- Jefferis, B. J., Nazareth, I., Marston, L., Moreno-Kustner, B., Bellan, J., Svab, I., Rotar, D., Geerlings, M. I., Xavier, M., Goncalves-Pereira, M., Vicente, B., Saldivia, S., Aluoja, A., Kalda, R. and King, M. (2011). Associations between unemployment and major depressive disorder: Evidence from an international, prospective study (the predict cohort). *Social Science & Medicine*, 73(11), 1627–1634. <https://doi.org/10.1016/j.socscimed.2011.09.029>
- Kameråde, D. and Bennett, M. R. (2018). Rewarding work: cross-national differences in benefits, volunteering during unemployment, well-being and mental health. *Work, Employment and Society*, 32(1), 38–56. <https://doi.org/https://doi.org/10.1177/0950017016686030>
- Kameråde, D., Buchell, B., Wang, S., Balderson, U. and Coutts, A. (2021). *Employment and mental health: towards a shorter standard working week* Insights 2021 /Understanding Society Survey, Online.
- Kameråde, D. and Richardson, H. (2018). Gender segregation, underemployment and subjective well-being in the UK labour market. *Human Relations*, 71(2), 285–309. <https://doi.org/https://doi.org/10.1177/0018726717713829>
- Kameråde, D., Wang, S., Burchell, B., Balderson, S. U. and Coutts, A. (2019). A shorter working week for everyone: How much paid work is needed for mental health and well-being? *Social Science & Medicine*, 241. <https://doi.org/https://doi.org/10.1016/j.socscimed.2019.06.006>
- Kan, M. Y. and Laurie, H. (2018). Who is doing the housework in multicultural Britain? *Sociology*, 52(1), 55–74.
- Layard, R. (2013). Mental health: the new frontier for labour economics. *IZA Journal of Labor Policy*, 2(1), 1–16.
- Li, L. Z. and Wang, S. (2020). Prevalence and predictors of general psychiatric disorders and loneliness during COVID-19 in the United Kingdom. *Psychiatry research*, 291, 113267.
- Li, L. Z. and Wang, S. (2022). Do work-family initiatives improve employee mental health? Longitudinal evidence from a nationally representative cohort. *Journal of Affective Disorders*, 297, 407–414.
- Lindsay, S., Ahmed, H. and Apostolopoulos, D. (2021). Facilitators for coping with the COVID-19 pandemic: Online qualitative interviews comparing youth with and without disabilities. *Disability and Health Journal*, 101113.
- McKee-Ryan, F., Song, Z., Wanberg, C. R. and Kinicki, A. J. (2005). Psychological and physical well-being during unemployment: a meta-analytic study. *Journal of Applied Psychology*, 90(1), 53.
- McKenna, S. and Fryer, D. (1984). Perceived health during lay off and early unemployment. *Occupational health: a journal for occupational health nurses*, 36(5), 201.
- Nordenmark, M. and Strandh, M. (1999). Towards a sociological understanding of mental well-being among the unemployed: the role of economic and psychosocial factors. *Sociology*, 33(3), 577–597.

- ONS. (2022). *Labour market overview, UK: March 2022*. Retrieved 08.04 from <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/uklabourmarket/march2022>
- Paul, K. I. and Batinic, B. (2010). The need for work: Jahoda's latent functions of employment in a representative sample of the German population. *Journal of Organizational Behavior*, 31(1), 45–64.
- Paul, K. I. and Moser, K. (2009). Unemployment impairs mental health: meta-analyses. *Journal of Vocational Behavior*, 74(3), 264–282. <https://doi.org/10.1016/j.jvb.2009.01.001>
- Perreault, M., Power, N., Touré, E. H. and Caron, J. (2020). Transitional Employment and Psychological Distress: a Longitudinal Study. *Psychiatric Quarterly*, 1–13.
- Pierce, M., Hope, H., Ford, T., Hatch, S., Hotopf, M., John, A., Kontopantelis, E., Webb, R., Wessely, S., McManus, S. and Abel, K. M. (2020). Mental health before and during the COVID-19 pandemic: a longitudinal probability sample survey of the UK population. *The Lancet Psychiatry*, 7(10), 883–892. [https://doi.org/10.1016/S2215-0366\(20\)30308-4](https://doi.org/10.1016/S2215-0366(20)30308-4)
- Power, K. (2020, 2020/12/10). The COVID-19 pandemic has increased the care burden of women and families. *Sustainability: Science, Practice and Policy*, 16(1), 67–73. <https://doi.org/10.1080/15487733.2020.1776561>
- Proto, E. and Quintana-Domeque, C. (2021). COVID-19 and mental health deterioration by ethnicity and gender in the UK. *Plos one*, 16(1), e0244419.
- Rubery, J. (2020, 04.08). Sharing the load: How work sharing can reduce unemployment, improve gender equality, and benefit mental health. <http://blog.policy.manchester.ac.uk/health/2020/08/sharing-the-load-how-work-sharing-can-reduce-unemployment-improve-gender-equality-and-benefit-mental-health/>
- Selenko, E., Batinic, B. and Paul, K. (2011). Does latent deprivation lead to psychological distress? Investigating Jahoda's model in a four-wave study. *Journal of Occupational and Organizational Psychology*, 84(4), 723–740.
- Sevilla, A. and Smith, S. (2020). Baby steps: the gender division of childcare during the COVID-19 pandemic. *Oxford Review of Economic Policy*, 36(Supplement_1), S169–S186. <https://doi.org/10.1093/oxrep/graao27>
- Trougakos, J. P., Chawla, N. and McCarthy, J. M. (2020). Working in a pandemic: Exploring the impact of COVID-19 health anxiety on work, family, and health outcomes. *Journal of Applied Psychology*, 105(11), 1234–1245. <https://doi.org/10.1037/apl0000739>
- University of Essex and ISER. (2020). *Understanding Society: COVID-19 Study, 2020*. [data collection] (SN:8644-7; Version 7th Edition) UK Data Service. <https://doi.org/http://doi.org/10.5255/UKDA-SN-8644-3>
- Vaziri, H., Casper, W. J., Wayne, J. H. and Matthews, R. A. (2020). Changes to the work–family interface during the COVID-19 pandemic: Examining predictors and implications using latent transition analysis. *Journal of Applied Psychology*, 105(10), 1073–1087. <https://doi.org/10.1037/apl0000819>
- Wade, M., Prime, H., Johnson, D., May, S. S., Jenkins, J. M. and Browne, D. T. (2021). The disparate impact of COVID-19 on the mental health of female and male caregivers. *Social Science & Medicine*, 113801.
- Wanberg, C. R. (2012). The individual experience of unemployment. *Annual Review of Psychology*, 63(1), 369–396. <https://doi.org/doi:10.1146/annurev-psych-120710-100500>
- Wang, S., Coutts, A., Burchell, B., Kameråde, D. and Balderson, U. (2020). Can Active Labour Market Programmes emulate the mental health benefits of regular paid employment? Longitudinal evidence from the United Kingdom. *Work, Employment and Society*. <https://doi.org/https://doi.org/10.1177/0950017020946664>
- Wang, S., Kameråde, D., Burchell, B., Coutts, A. and Balderson, S. U. (2022). What matters more for employees' mental health: job quality or job quantity? *Cambridge Journal of Economics*, 46(2), 251–274.
- Warr, P. (1987). *Work, unemployment, and mental health*. Oxford University Press.

Warr, P. B. (1999). Well-being and the workplace. In D. Kahneman, Diener, E., Schwarz, N. (Ed.), *Well-being: The Foundations of Hedonic Psychology* (pp. 392–412). Russell Sage Foundation.

Winkelmann, L. and Winkelmann, R. (1998). Why are the unemployed so unhappy? Evidence from panel data. *Economica*, 65(257), 1–15.

Wisyaningrum, S., Epifani, I. and Ediati, A. (2021). Surviving Marital Relationship During the COVID-19 Pandemic: A Systematic Review on Marital Conflict. International Conference on Psychological Studies (ICPSYCHE 2020),

Wood, A. J. and Burchell, B. (2018). Unemployment and Well-being. In A. Lewis (Ed.), *The Cambridge Handbook of Psychology and Economic Behaviour* (pp. 234–259). Cambridge University Press.

Appendix

TABLE A1. Weighted Ordinary Least Squares regression models predicting the effects of working from home transitions on changes in GHQ-12 mental health scores for men and women

	Model 1 Pooled	Model 2 Men	Model 3 Women	Model 4	Model 5
Employment status changes (Ref. = Left/ lost paid work)					
Furloughed	1.37+ (0.75)	3.22** (1.04)	-0.24 (1.03)	2.98** (1.03)	3.23** (1.06)
Remain not WFH	1.57* (0.76)	3.53** (1.09)	-0.05 (1.01)	3.28** (1.08)	3.33** (1.09)
Transition into WFH	0.66 (0.76)	2.84* (1.10)	-1.11 (0.99)	2.56* (1.05)	2.68* (1.07)
Remain WFH	0.99 (0.82)	2.71+ (1.41)	-0.47 (0.98)	2.46+ (1.31)	2.59* (1.30)
Gender (Ref. = Men)	-0.87* (0.39)			2.05 (1.25)	2.48* (1.24)
Employment status changes × Gender					
Furloughed × Female				-3.04* (1.47)	-3.21* (1.46)
Remain not WFH × Female				-3.23* (1.50)	-3.43* (1.48)
Transition into WFH × Female				-3.49* (1.45)	-3.72** (1.44)
Remain WFH × Female				-2.75+ (1.65)	-2.97+ (1.62)
Control variables					
Socio-demographic characteristics	Yes	Yes	Yes	Yes	Yes
Housework and childcare responsibilities	No	No	No	No	Yes

TABLE A1. Continued

	Model 1 Pooled	Model 2 Men	Model 3 Women	Model 4	Model 5
UKHLS wave 10 interview year	Yes	Yes	Yes	Yes	Yes
Constant	-3.48* (1.44)	-7.13** (2.18)	-3.00+ (1.68)	-6.01*** (1.59)	-5.55*** (1.65)
Number of observations	4,908	1,974	2,934	4,908	4,908
R-squared	0.03	0.05	0.02	0.04	0.04

Note. WFH = Working from home. Socio-demographic characteristics include age, partnership, presence of children, changes in household income. Housework and childcare responsibilities include housework hours during the COVID-19, housework hour changes, time on childcare and home schooling during the COVID-19. Robust standard errors in parentheses. ***p<0.001, **p<0.01, *p<0.05, + p<0.1 (two-tailed tests).

TABLE A2. Weighted Ordinary Least Squares regression models predicting changes in GHQ-12 mental health scores for men and women controlling for the number of months elapsed from UKHLS wave 10 to COVID study wave 1.

	Model 1 Pooled	Model 2 Men	Model 3 Women	Model 4	Model 5
Employment status changes (Ref. = Left/ lost paid work)					
Furloughed	1.41+ (0.76)	3.23** (1.06)	-0.29 (1.03)	3.02** (1.06)	3.27** (1.09)
Remain PT employed	0.81 (0.84)	4.02* (1.83)	-0.84 (0.97)	3.62* (1.78)	3.85* (1.82)
From FT to PT employment	1.33 (0.85)	3.06* (1.27)	-0.13 (1.12)	2.84* (1.25)	2.93* (1.26)
Remain FT employed	1.26+ (0.74)	3.03** (1.12)	-0.34 (0.97)	2.76* (1.07)	2.85** (1.08)
Gender (Ref. = Men)	-0.73+ (0.42)			2.06 (1.27)	2.46+ (1.28)
Employment status changes × Gender					
Furloughed × Female				-3.05* (1.49)	-3.24* (1.49)
Remain PT employed × Female				-4.26* (2.00)	-4.59* (2.03)
From FT to PT employment × Female				-2.81 (1.71)	-2.94+ (1.70)
Remain FT employed × Female				-2.83+ (1.47)	-3.13* (1.44)

TABLE A2. Continued

	Model 1 Pooled	Model 2 Men	Model 3 Women	Model 4	Model 5
Control variables					
Socio-demographic characteristics	Yes	Yes	Yes	Yes	Yes
Housework and childcare responsibilities	No	No	No	No	Yes
Number of months elapsed from UKHLS wave 10 to COVID study wave 1	Yes	Yes	Yes	Yes	Yes
Constant	-3.55** (1.35)	-5.87** (1.85)	-3.24+ (1.73)	-5.68*** (1.49)	-5.24*** (1.53)
Number of observations	4,908	1,974	2,934	4,908	4,908
R-squared	0.03	0.05	0.02	0.03	0.04

Note. PT = Part-time, FT = Full-time. Socio-demographic characteristics include age, partnership, presence of children, changes in household income. Housework and childcare responsibilities include housework hours during the COVID-19, housework hour changes, time on childcare and home schooling during the COVID-19. Robust standard errors in parentheses. ***p<0.001, **p<0.01, *p<0.05, + p<0.1 (two-tailed tests).

TABLE A3. Weighted Ordinary Least Squares regression models examining effects of keyworker status on changes in GHQ-12 mental health scores.

	Model 1	Model 2
Keyworker status (Ref. = Yes)	-0.11 (0.28)	0.22 (0.45)
Gender (Ref. = Men)	-1.15*** (0.27)	-0.81* (0.40)
Keyworker status × Gender No × Female		-0.61 (0.55)
Control variables		
Socio-demographic characteristics	Yes	Yes
Number of months elapsed from UKHLS wave 10 to COVID study wave 1	Yes	Yes
Constant	-3.55** (1.35)	-5.87** (1.85)
Number of observations	4,908	4,908
R-squared	0.02	0.02

Note. Socio-demographic characteristics include age, partnership, presence of children, changes in household income. Robust standard errors in parentheses. ***p<0.001, **p<0.01, *p<0.05, + p<0.1 (two-tailed tests).

TABLE A4. Fixed effects models examining the effects of employment status on mental health for men and women.

	Model 1 Pooled	Model 2 Men	Model 3 Women	Model 4
Employment status (Ref. = No paid work)				
PT employed	0.62 (0.53)	2.53* (1.15)	0.09 (0.60)	2.43* (1.17)
FT employed	0.45 (0.55)	2.80** (1.08)	-0.35 (0.65)	2.30* (1.07)
Employment status × Gender (Ref. = Men)				
PT employed × Female				-2.29+ (1.30)
FT employed × Female				-2.46* (1.23)
Constant	26.81*** (7.50)	29.39* (11.47)	23.94* (9.74)	26.51*** (7.49)
Number of observations	15,084	5,922	9,160	15,082
Number of person-wave observations	17,197	6,653	10,540	17,193
R-squared	0.04	0.02	0.06	0.04

Note. PT = Part-time, FT = Full-time. All models control for age, partnership, presence of children, logged household income, housework hours and wave dummies. Robust standard errors in parentheses. ***p<0.001, **p<0.01, *p<0.05, + p<0.1 (two-tailed tests).