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Working from Home and Mental Well-being in the EU at Different Stages of the COVID-19 Pandemic:

A Gendered Look at Key Mediators

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Abstract

This paper analyses the relationship between working from home (WFH) and mental well-being at different stages during the first two critical years of the COVID-19 pandemic, when governments repeatedly imposed lockdowns and enacted WFH mandates to contain the spread of the virus. Using data from a representative survey conducted at four different time periods in 2020 (first lockdown, subsequent gradual reopening), 2021 (further lockdown) and 2022 (restrictions widely lifted) in the 27 EU member states, it examines the potentially changing role of several mediators over time, such as work-family conflict, family-work conflict, stability, resilience, isolation, the importance of different support networks, workload, physical risk of contracting COVID-19 at work, and housing conditions. For the first lockdown, it also differentiates by previous WFH experience, in terms of WFH novices and experienced WFH workers. It differentiates by gender, in order to take the potential gendered nature and effect of COVID-19 measures into account. The results show that while there was no direct relationship between WFH and mental well-being, there are several important mediators whose relevance was specific not only to certain stages of the pandemic, but also to previous experience with WFH and gender. Stability is the only mediator that was relevant over the entire two-year pandemic period. Work-family conflict and family-work conflict were only relevant during the first lockdown, while resilience and isolation mattered especially when most of the EU economies had lifted most of their restrictions. Unlike established WFH workers, WFH novices had an advantage during the first lockdown, benefiting from lower family-work conflict and more helpful networks of family and friends. Moreover, our results differ by gender: for females who undertook WFH, important mediators were work-family conflict and family-work conflict. Both were related to adjustments they had to make in work and non-work hours in response to the enforced closure of schools and childcare facilities during the lockdowns, especially during the first. For males who undertook WFH, especially WFH novices, support from networks of family and friends was an important mediator.

Keywords: working from home, mental well-being, COVID-19, structural equation modelling

JEL classification: I10, I31, J81

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1. Introduction

During the COVID-19 pandemic, when many workplaces were obliged to close, working from home (WFH) became the norm for millions of workers. However, WFH can be seen as a double-edged sword. While it greatly enhances workers' flexibility and work autonomy (Bailey and Kurland, 2002) – which is recognised as improving both overall quality of life (including family life) (Gajendran and Harrison, 2007) and productivity (Bloom et al., 2015; Dutcher, 2012) – it can also adversely impact workers' mental health. Several empirical studies corroborate the negative health effects of WFH in terms of higher stress, depression and fatigue; but they also show that the intensity of WFH makes a difference (Kazekami, 2020; Song and Gao, 2020; Vander Elst et al., 2017; Windeler et al., 2017). The relationship between WFH and mental health is complex and is affected by many factors. The pre-pandemic literature shows that social isolation, extended working hours, unclear delineation and conflict between work and family, and lack of organisational support and interaction with colleagues are all important mediators associated with poorer mental health (Oakman et al., 2022).

However, the COVID-19 pandemic created an unprecedented context not only for the expansion of WFH, but also for the psychological impact of WFH. First, social distancing measures and repeated lockdowns put in place by governments to contain the spread of the virus forced many employees to work from home every day for an indefinite period, with little choice in the matter and often no time to prepare. Any form of mandatory WFH can lead to negative mental health outcomes. This was already indicated by the pre-pandemic literature (Kaduk et al., 2019), but has been further corroborated by the growing body of COVID-19-related literature, which largely finds that WFH has adverse effects on various mental health outcomes, such as well-being, stress, depression, fatigue and exhaustion (see Elbaz et al., 2022 and Hall et al., 2023 for overviews).

Second, the rapid spread and the severity of the COVID-19 pandemic increased fear of COVID-19. It has been shown that this led to adverse mental health outcomes, such as stress, anxiety and depression (Koçak et al., 2021; Şimşir et al., 2022) – mainly among essential and frontline workers who continued going in to work and interacting face to face more frequently, rendering them more exposed to viral transmission (Nabe-Nielsen et al., 2021; Rosemberg et al., 2021; Salari et al., 2020; Sarfraz et al., 2022; Wilbiks et al., 2021). By contrast, by providing a safe work option, WFH mitigated the fear of COVID-19 (Iversen et al. 2022; Kakar et al., 2023) and its negative impact on mental health (Choi et al., 2020).

The new COVID-19 context affects not only the psychological impact of WFH, but also the role that different mediators play in the relationship between WFH and health-related outcomes. The pandemic literature highlights important new mediators specific to the COVID-19 situation of repeated and lengthy WFH mandates. These came to be associated with worse mental health outcomes among those who worked from home either for longer or for a greater proportion of the week (Niu et al., 2021; Niebuhr et al., 2022); who were living and working in crowded or confined homes (Schifano et al., 2021); who had an aversion to WFH (Otsuka et al., 2021); or who felt more and more isolated and lonely due to long periods of WFH (Van Zoonen and Sivunen, 2022). And just as before the pandemic, work-family/family-work conflict or a weakening of the social support networks with co-workers had an adverse impact on the mental well-being of those who worked from home (Elbaz et al., 2022).

However, longitudinal studies are rare in this strand of literature, and so little is known about the relationship between WFH and mental health or the potentially changing role of different mediators during the two-year pandemic, when countries underwent repeated lockdowns of varying severity in response to new waves of COVID-19, but also when the context changed in 2021, when COVID-19 vaccines to protect against severe illness and death started to become available. Specifically, new waves of the virus prompted governments to repeatedly enact WFH mandates – often temporarily converted into WFH recommendations in the intervening periods – which forced workers to remain in, or return to, WFH for an extended and indefinite period. In this context, the scant longitudinal COVID-19 literature only focuses on short phases around specific pandemic events, such as the transition to WFH at the beginning of the pandemic or the effect of individual lockdowns, typically the first. For instance, people who switched to WFH during COVID-19 have been shown to have had worse mental health outcomes (Fiorenzato et al., 2022; Gueguen and Senik, 2023) and a greater number of mental health issues than pre-WFH (Xiao et al., 2021). The home-office environment, the presence of children at home and reduced communication with co-workers have all been mooted as the key mediators leading to lower mental health levels (Xiao et al., 2021). For many, WFH was a new experience, often associated with worse mental health outcomes among WFH novices (Ekpanyaskul and Padungtod, 2021), at least initially (Felstead and Reuschke, 2020). However, in this literature, the role of potential mediators remains unexplored. Furthermore, the scant empirical evidence does suggest that the mental health situation of those people who worked from home also changed during the pandemic – but in different ways, depending on the specific lockdown and its subsequent lifting (Somasundram et al., 2022; Wels et al., 2022; Wood et al., 2021). And the relevance of different mediators likewise changed (Wielgoszewska et al., 2022). In this context, the longitudinal study by Wood et al. (2021) is particularly instructive and is closest to our study. It uses data from two four-week diary studies conducted in 2020 in the UK among homeworking university employees – in spring 2020 (when the UK was in lockdown) and in autumn 2020 (when the restrictions had been relaxed somewhat). It shows that greater work-family conflict, family-work conflict and divergence from normal work patterns were associated with worse mental health outcomes, but only during the first lockdown. By contrast, job insecurity was only relevant during the subsequent, more relaxed phase and was also associated with worse mental health outcomes. Some mediators were of importance in both phases: loneliness – as an indicator of social isolation – was associated with poorer mental health outcomes (also in the study by Wielgoszewska et al., 2022), whereas greater job autonomy, social support and detachment from work were associated with better mental health outcomes. Other factors turn out to have been totally irrelevant, such as hours worked as a proxy for workload, technical/ICT constraints, or the fear of COVID-19.

Moreover, the context of the COVID-19 pandemic also changed from 2021, with the availability of COVID-19 vaccines that largely protected people from becoming seriously ill, having to go into hospital and dying. It has been shown that the vaccinations reduced fear of COVID-19 (Seddig et al., 2022) and mental distress – particularly in vaccinated individuals, but also in those who had not been vaccinated (Perez-Arce et al., 2021; Koltai et al., 2022). The importance of vaccinations in a WFH context is, however, limited (Bodner et al., 2022), indicating that fear of COVID-19 infection was not a key source of psychological distress among WFH workers, but was more relevant for essential and frontline workers.

Against this backdrop, this paper contributes to the growing literature on the effects of the COVID-19 pandemic on workers' mental health in three important ways. First, it is a longitudinal study – one of the very few. In contrast to the existing literature, which mainly looks at the first COVID-19 year, it takes a longer-term perspective and identifies the nexus between WFH and mental health – measured by the

WHO-5 Well-Being Index – at different stages during the first two critical years of the COVID-19 pandemic: (i) April to June 2020, when most EU member states were in their first lockdown; (ii) June to July 2020, when economies and societies were gradually reopening; (iii) February to March 2021, when countries were again in various stages of lockdown; and (iv) March to May 2022, when many EU countries had already greatly reduced restrictions after the final lockdown in winter 2021/22. Most importantly, it sheds light on the potentially changing importance of different mediators across different stages of the COVID-19 pandemic, when countries underwent repeated lockdowns of varying severity. This includes the second year of the COVID-19 pandemic, when vaccinations became widely available and many economies went through their very last lockdown. It tests various mediators, such as work-family conflict (WFC), family-work conflict (FWC), stability, resilience, isolation, the importance of different support networks (i.e. family and friends vs. institutional networks), workload, physical risk of contracting COVID-19 at work, and housing conditions.

Second, in the context of the first lockdown, experience of WFH prior to the pandemic is also considered, and a distinction is drawn between (i) *WFH novices* with no prior experience; and (ii) *established WFH workers* with at least some previous experience of WFH. This distinction is important, since being forced to engage in WFH by the WFH mandate without being prepared for it causes additional stress and poorer mental health among workers (Ekpanyaskul and Padungtod, 2021; Felstead and Reuschke, 2020). It helps us to establish any differences in the relevance of the various mediators across the two groups – something that has so far not received any attention in the literature.

Third, the paper also differentiates by gender. This is generally seen as an important factor contributing to stress, burnout and negative outcomes in WFH environments because of women's greater involvement in household and caregiving tasks. The pre-pandemic literature points to poorer mental health outcomes for women in WFH settings – mainly due to lower autonomy (Hornung and Glaser, 2009) and more work-family conflict (Borgman et al., 2019; Eddlestone and Mulki, 2017; Yucel and Chung, 2021). The COVID-19 pandemic aggravated the situation of women who were either already working from home or had to transit to WFH when the closure of schools and childcare facilities forced them to assume additional childcare responsibilities. In fact, several studies show that most of the extra household and childcare work caused by COVID-19 devolved upon women (Del Boca et al., 2020; Farré et al., 2022; Sevilla and Smith, 2020). During COVID-19, women were reported to have had poorer mental health outcomes than men (see, e.g., Gualano et al., 2023 for an overview; Oakman et al., 2022 for Australia; Xue and McMunn, 2021 for the UK). Moreover, women who switched to WFH at the beginning of the pandemic had higher psychological distress levels (Matthews et al., 2022) and a greater risk of developing new health problems (Xiao et al., 2021). The higher levels of psychological distress among homeworking women were associated with the amount of time spent on housework and childcare (Xue and McMunn, 2021), the greater number of hours worked and the lower degree of control they had over their working time (Griep et al., 2022).

Methodologically, the paper applies a structural equation modelling (SEM) approach – plus multigroup analysis across genders – to data from four rounds of Eurofound's e-survey Living, Working and COVID-19, which captures the economic and social effects of the COVID-19 crisis across the EU at four different points in time during the pandemic. The e-survey is a representative dataset involving a large sample of workers in the 27 EU member states (as of 2020), rather than the small samples widely used in this line of literature. The results are therefore representative of the average worker in the EU27. Our total sample consists of persons who were either employed or self-employed at the time of the survey, with varying sample sizes across the rounds.

Our findings suggest that – while there is no direct relationship between WFH and mental well-being – there are several important mediators, whose importance changes over the two years of the COVID-19 pandemic under consideration. Stability is the only mediator that is relevant over the entire two-year pandemic period. WFC and FWC were only relevant during the first lockdown, while resilience and isolation only mattered during the second year of the pandemic, especially when most EU economies had lifted their restrictions. Some mediators were only available in certain survey rounds, but also turned out to be relevant (such as support from networks of family and friends, or housing conditions). Conversely, institutional networks, workload and the physical risk of contracting COVID-19 were not relevant mediators. We also find that WFH novices had an advantage over established WFH workers during the first lockdown, benefiting as they did from lower FWC and more helpful networks of family and friends. Moreover, our results differ by gender, highlighting the fact that males and females who worked from home were affected differently by the measures implemented at different stages of the COVID-19 pandemic, such as lockdowns and reopening. For females who worked from home, important mediators were WFC and FWC, both of which were related to the adjustments they had to make in work and non-work hours in response to the enforced closure of schools and childcare facilities during the lockdowns – especially the first. For males who worked from home – and especially WFH novices – support from networks of family and friends was an important mediator.

The rest of the paper is structured as follows: Section 2 discusses the data source, while Section 3 describes variable definitions. Section 4 lays out the methodological approach to determine the direct and indirect effects (through mediators) of WFH on workers' mental well-being. The results are presented and discussed in Section 5 for both the total sample and separately by gender. Finally, Section 6 summarises our findings and sets out our conclusions.

2. Data

The data for this study come from various rounds of Eurofound's e-survey, Living, Working and COVID-19, which captures the economic and social effects of the COVID-19 crisis across the EU. The e-survey is particularly suited to this analysis, as it includes a set of questions that describe employees' mental well-being; several questions on WFH before and during the pandemic; rich information on working conditions that can be used to construct different mediators; and worker characteristics (for more details, see Section 3).

To date, five different rounds have been carried out: the first was conducted between 9 April and 11 June 2020, when most EU member states were in their first lockdown; the second round was between 22 June and 27 July, when economies and societies were gradually reopening; the third was conducted one year into the pandemic, between 15 February and 30 March 2021, when countries were still at various stages of lockdown; the fourth round was a panel-only survey, where panel respondents were recontacted to track developments since the beginning of the pandemic; and the fifth round was conducted between 24 March and 2 May 2022 and looked at how life had changed over the previous two years. However, since the panel survey has not yet been completed, it is not available to researchers and therefore does not form part of the analysis, which uses rounds 1, 2, 3 and 5.[1]

The survey was conducted via the SoSciSurvey platform and was open to respondents from all countries aged 18 and over. However, it was mainly promoted in the EU, so that the final dataset is only available for the 27 EU member states (as of 2020).[2] Respondents were mainly recruited using convenience sampling, specifically by online snowball sampling methods and social media advertisements.

The questionnaire is mainly based on questions from Eurofound's European Quality of Life Survey (EQLS) and the European Working Conditions Survey (EWCS), while other questions are new or have been adapted from other sources, such as the EU Statistics on Income and Living Conditions (EU-SILC). The questionnaire was developed in English, but the survey was made available and launched in 22 different languages.

The data were cleaned to remove partial interviews, interviews that were completed too quickly and that contained contradictory answers; they were then weighted by age crossed with gender (in 12 age-gender combinations), urbanisation level (urban and rural, based on respondents' own assessment) and education level (tertiary and non-tertiary). Probability weights are provided in the dataset and can be used for within- and cross-country analysis.

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1 In round 2, an additional panel element was introduced, and respondents who had left their email address in round 1 and who expressed an interest in participating in further survey rounds were invited to participate again in round 2 and subsequent rounds, via email with a link to the questionnaire.

2 In collaboration with the European Training Foundation (ETF), a pilot survey was also fielded in 10 neighbouring countries of the EU (Albania, Georgia, Jordan, Kosovo, Lebanon, Moldova, Morocco, North Macedonia, Tunisia and Palestine), using a shortened questionnaire.

The sample size after cleaning varies from round to round: 67,392 in round 1; 23,702 in round 2; 45,269 in round 3; and 36,891 in round 5. The final sample of the present study includes all 27 EU member states covered in the first, second, third and fifth rounds of the e-survey and includes those participants who were either employed or self-employed at the time of the survey[3] and for whom complete information was available: 38,314 in round 1; 10,928 in round 2; 21,271 in round 3; and 17,031 in round 5. In each of the four rounds analysed, females represented between 55% and 70% of the total sample.

[3] We excluded participants who were either unemployed or inactive at the time of the interview.

3. Measures

Working from home (WFH) is captured by various indicators which, depending on the available questions and indicators, differ across survey rounds. In all four rounds, WFH was measured by the location of work, using the following question: '*During the COVID-19 pandemic, where did you work?*' A person was considered to be working from home if the answer was 'Home'. In round 1, we could also distinguish those who had previous WFH experience: in response to the question '*Have you started to work from home as a result of the COVID-19 situation?*', a *WFH novice* would answer 'yes' (with 'no' as the reference category). In response to the question '*How frequently did you work from home before the outbreak of COVID-19?*', an established *WFH worker* would answer either (1) daily, (2) several times a week, (3) several times a month, or (4) less often, with (5) never as the reference category. Moreover, in rounds 2, 3 and 5 we can also observe the intensity of WFH, measured as the total number of hours worked from home and captured by the question(s): '*Last month, how many hours per week did you work on average? Out of these, how many hours did you work from home?*' We calculate the ratio between the total number of hours of WFH and the total number of hours worked, and use that as a measure of intensity in the analysis.

Mental well-being is measured by the five items of the WHO-5 Well-Being Index (WHO-5), which is a short and generic global rating scale that measures subjective mental well-being. Specifically, it measures how a respondent has been feeling over the previous two weeks, in terms of: '*I have felt cheerful and in good spirits*', '*I have felt calm and relaxed*', '*I have felt active and vigorous*', '*I woke up feeling fresh and rested*' and '*My daily life has been filled with things that interest me*'. All five measures use seven-point scale measures, ranging from 0 (at no time) to 6 (all of the time). All five measures are available for all survey rounds and show high internal consistency, with Cronbach's alpha above the minimum value standard of $\alpha = 0.70$ (Nunnally, 1978), namely $\alpha_1 = 0.881$, $\alpha_2 = 0.889$, $\alpha_3 = 0.900$ and $\alpha_5 = 0.899$.

Work-family conflict (WFC) is defined as the extent to which the demands of work interfere with family life. It was measured by the questions 'How often in the last 2 weeks (last month) have you felt too tired after work to do some of the household jobs which needed to be done?' and 'How often in the last 2 weeks (last month) have you found that your job prevented you from giving the time you want to your family?' Both questions used five-point scale measures, ranging from 1 (always) to 5 (never). We reversed the scales, so that a higher value indicated a higher level of conflict. The correlation between the two items was 0.826 for round 1, 0.861 for round 2, 0.857 for round 3 and 0.853 for round 5.

Family-work conflict (FWC) is defined as the extent to which the demands of time devoted to the family interfere with the performance of work-related responsibilities. It was measured using the following two questions: '*How often in the last 2 weeks (last month) have you found it difficult to concentrate on your job because of your family?*' and '*How often in the last 2 weeks (last month) have you found that your family responsibilities prevented you from giving the time you should to your job?*' Both questions used five-point scale measures, ranging from 1 (always) to 5 (never), which we again reversed so that a higher value indicated a higher level of conflict. The correlation between the two items was 0.725 for round 1, 0.711 for round 2, 0.700 for round 3 and 0.716 for round 5.

Stability was measured using three questions that refer to job, accommodation and income stability, namely: 'How likely or unlikely do you think it is that you might lose your job in the next 3 months?'; 'How likely or unlikely do you think it is that you will need to leave your accommodation within the next 6 months because you can no longer afford it?'; and 'Thinking of your household's total monthly income: is your household able to make ends meet?' The first two questions used five-point scale measures, ranging from 1 (very likely) to 5 (very unlikely), while the last question used a six-point scale, ranging from 1 (with great difficulty) to 6 (very easily). For the four rounds analysed, Cronbach's alpha was $\alpha_1 = 0.650$, $\alpha_2 = 0.558$, $\alpha_3 = 0.615$ and $\alpha_5 = 0.601$.

Resilience was measured as the extent to which respondents agreed or disagreed with the following two statements: 'I find it difficult to deal with important problems that come up in my life' and 'When things go wrong in my life, it generally takes me a long time to get back to normal.' Both questions used a five-point scale, ranging from 1 (strongly agree) to 5 (strongly disagree). For the four rounds analysed, the correlation between the two items was 0.727 for round 1, 0.740 for round 2, 0.756 for round 3 and 0.762 for round 5.

Isolation was measured as the extent to which respondents agreed or disagreed with the following two statements: '*I feel left out of society*' and '*Over the last two weeks, I have felt lonely.*' The two questions used five- and six-point scales, ranging from 1 (strongly agree) to 5 (strongly disagree) in the case of the first question, and from 1 (all of the time) to 6 (at no time) in the case of the second. We reversed the scales so that a higher value would indicate a higher level of feeling isolated. Since the second item is not available in the first survey round, we used the construct only for rounds 2, 3 and 5. The corresponding correlation between the two items was 0.692 for round 2, 0.950 for round 3 and 0.706 for round 5.

Networks and the social capital embedded in different networks were measured as the support respondents would get in different situations. It was based on six different scenarios following the initial question: '*From whom would you get support in each of the following situations? For each situation, choose the most important source of support*.' The six situations referred to (i) *'If you needed help around the house when ill'*; (ii) *'If you needed advice about a serious personal or family matter'*; (iii) *'If you needed help when looking for a job'*; (iv) *'If you were feeling a bit depressed and wanting someone to talk to'*; (v) *'If you needed help in looking after your children'*; and (vi) *'If you needed help with shopping.'* From the answer options, we constructed dummy variables, differentiating between two types of network: (1) *a network of friends and family*, where the most important source of support is either a member of the family/relative or a friend/neighbour, or someone else who is not family or a relative; and (2) *an institutional network*, where the most important source of support is a service provider, institution or organisation (with 'nobody' as the reference category). Information on network support was only covered in the first round of the survey. The corresponding Cronbach's alphas were $\alpha_1 = 0.657$ for networks of family/friends and $\alpha_1 = 0.460$ for institutional networks.

Workload was measured using the following three questions: 'Over the last 2 weeks, how often have you worked in your free time to meet work demands?'; 'During the COVID-19 pandemic have your working hours: (1) decreased a lot, (2) decreased a little, (3) stayed the same, (4) increased a little, (5) increased a lot?'; and whether, 'You [currently] have enough time to get the job done?' The first and the last question used five-point scales, ranging from 1 (always) to 5 (never). We reversed the scale for the first question, so that a higher value indicated a more frequent need to work in free time in order to meet work demands. All three questions were only asked in round 3, with a corresponding Cronbach's alpha of $\alpha_3 = 0.584$.

Physical risk was measured by the three questions: 'In your work, are you currently in direct physical contact with people (colleagues, customers, passengers, pupils, patients, etc.)?'; 'Do you think you are currently at risk of contracting the COVID-19 virus because of your job?'; and 'For your job, are you required to wear personal protective equipment to prevent the spread of COVID-19?' While the first question used a five-point scale, ranging from 1 (always) to 5 (never), the latter two questions used two value labels, 0 (no) and 1 (yes). We reversed the scale of the first question, so that a higher value indicated a higher level of physical contact with people. All three questions were only asked in round 2. Cronbach's alpha was $\alpha_2 = 0.649$.

Accommodation refers to the condition of the respondent's accommodation and was measured by how problematic respondents considered six issues to be regarding their accommodation: (i) '*Lack of space in the home*'; (ii) '*Poor insulation/energy efficiency*'; (iii) '*Poor internet connection*'; (iv) '*No access to balcony/terrace/garden*'; (v) '*Noise from neighbours*'; and (vi) '*Noise from traffic*'. All six measures used a five-point scale, ranging from 1 (not at all problematic) to 5 (extremely problematic). This issue was only addressed in round 5. Cronbach's alpha was $\alpha_5 = 0.669$.

Furthermore, in the analysis we included an additional set of controls: sex (in terms of female and other, with male as the reference category); the log of age and its square; the highest level of education (ISCED-11 based) classified into low (ISCED-0 to ISCED-02, as the reference), medium (ISCED-03 and ISCED-04) and high (ISCED-05 and above); the number of dependent children in the household; whether or not the partner lives in the same household (with single as the reference category); whether a person is self-employed or works part time (with full-time work as the reference category); lives in an urban region (defined as a medium to large town or a city or city suburb relative to the open countryside or a small village/town); and sector of economic activity (NACE rev. 2, 1-digit).[4] From the Oxford Coronavirus Government Response Tracker (ExCGRT) project, which collected information on policy measures to tackle COVID-19 over the years 2020 to 2022,[5] we also included three measures that were available for all countries in our sample. First, the Stringency Index, which captures the stringency of lockdown policies: this is a composite measure of various closure and containment measures and is available on a daily basis, with values ranging from 0 (no response) to 100 (most stringent response).[6] Second, the Economic Support Index, which is an overall measure of financial assistance to households in terms of income support or debt/contract relief for households: it is also available on a daily basis, with values ranging from 0 (no support) to 100 (maximum support). And third, the number of total COVID-19 cases per million inhabitants, taken from the 'Our World in Data' site;[7] this information is collected from the WHO Coronavirus Dashboard and is available on a daily basis.[8] All three measures were merged with the e-survey data by means of information on the exact date on which the interview took place, and are therefore reflective of the severity of the COVID-19 crisis and policy measures in place at the time of the interview.

In the analysis, we use probability weights, as provided in the dataset.

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4 The sector of economic activity was not covered in round 1 of the e-survey. Occupational information was not captured in any of the e-survey rounds.

5 See https://www.bsg.ox.ac.uk/research/covid-19-government-response-tracker.

6 The nine items are: school closures, workplace closures, cancellation of public events, restrictions on public gatherings, closures of public transport, stay-at-home requirements, public information campaigns, restrictions on internal movements and international travel controls.

7 Downloadable at: https://github.com/owid/covid-19-data/tree/master/public/data.

8 See: https://covid19.who.int/data.

4. Methodological approach

In the analysis, we proceed in two steps: first, we conduct exploratory and confirmatory factor analysis (CFA) to assess the properties of the different latent constructs. We use factor loadings to shed light on the dimensionality of each construct and to identify the most relevant items of each construct and calculate Cronbach's alpha (a measure of internal consistency or reliability) in order to determine how closely related the underlying items that comprise each construct are as a group. Items with low factor loading and/or which show little internal consistency with the other items in a group were removed from each construct.

Second, we then use 'purified' scales in our SEM approach to test the relationship between the variables in our model. In the model, WFH (and different variants thereof) was included as an exogenous variable. WFC, FWC, stability, resilience, isolation, networks of friends and family, institutional networks, workload, physical risk and housing conditions were treated as mediators. Mental well-being was treated as an endogenous outcome variable. All the mediators were used as composite measures, calculated from the underlying items of each construct and normalised to have a mean of zero and standard deviation of one to ease interpretation. Only the endogenous outcome variable was treated as a latent construct in the SEM estimations, with its own unique variances and error terms (assumed to be normally distributed) for each of the WHO-5 items. We used a parallel multiple mediation model, where indirect effects are included simultaneously; this allows us to compare the relative size of the effects, while eliminating the problem of estimation bias that occurs when multiple mediators that are intercorrelated are tested individually in simple mediation models (Preacher and Hayes, 2008). For statistical inference, we use bootstrapping – with 1,000 replacements – as recommended by Hayes (2013) to generate standard errors (and confidence intervals) of the products of model parameters; this takes better account of the irregularity of the sampling distribution of the indirect (product) term and therefore provides more accurate inferences about the indirect effects and the presence of mediation. Specifically, we test the following structural model:

$$M_{kijc} = \alpha_k + \beta_k WFH_{ijc} + \beta_{kz} X_{zijc} + \theta_{kj} + \omega_{kc} + \varepsilon_{kijc} \qquad \text{for all } k = 1 \; to \; K \tag{1}$$

$$WB_{ijc} = \alpha_0 + \gamma_1 WFH_{ijc} + \beta_z X_{zijc} + \sum_{k=1}^{K} \pi_k M_{kijc} + \theta_j + \omega_c + \epsilon_{ijt} \tag{2}$$

where M_{kijc} in equation (1) are the k different mediators (i.e. WFC, FWC, stability, resilience, isolation, networks of friends and family, institutional networks, workload, physical risk and housing conditions) of individual i in industry j and country c. As outlined above, the mediators differ across waves, due to changes in the questionnaire from round to round of the survey. WFH_{ijc} refers to different WFH indicators, such as: (i) *WFH* (based on the location of work: home); (ii) WFH *novice* versus *established* WFH worker (differentiated by previous WFH experience); and (iii) *WFH intensity* (measured as the ratio of the total number of hours spent working from home to the total number of hours worked within a certain time period). WB_{ijc} in equation (2) refers to the WHO-5 Well-Being Index. In both equations, X_{zijc} is a matrix of z additional individual characteristics (such as sex, the log of age and its square, the highest level of education, marital status, the number of dependent children in the household, whether or

not the partner lives in the same household, self-employed, part-time and urbanisation), while μ_o refers to industry fixed effects and ω_c to COVID-19-related policy measures and measures to deal with the severity of the health crisis (Stringency Index, Economic Support Index, total number of COVID-19 cases per million inhabitants). ε_{kijc} and ϵ_{ijt} are the error terms. We use the same specification and structure for each group in our joint multigroup analysis, but always exclude the relevant group variable (i.e. gender) from the list of additional control variables.

Owing to the linear nature of the constructs, we use the SEM approach, as implemented in Stata (version 15.1), which uses standard ordinary least squares (OLS) regressions for all dependent variables and fits SEMs via maximum likelihood.

As highlighted above, we apply probability weights, as provided in the dataset, to account for the sampling design and to make the results more representative of the population. However, as a result, the standard absolute and relative fit indices that are typically used to assess the model fit – such as the χ^2 Goodness-of-Fit Statistic, the Root Mean Square Error Approximation (RMSEA), the Comparative Fit Index (CFI) or the Tucker-Lewis Index (TLI) – are no longer feasible, since the maximum likelihood assumption of independent observations is violated. We instead use the Standardised Root Mean Square Residual (SRMR) and the Coefficient of Determination (CD) to establish the model fit.[9] The former measures how closely the model comes to reproducing each correlation, on average, with a recommended value of less than 0.08. The latter is an overall summary of how well the model fits, with a maximum value of 1.0. It should, however, be noted that the CD is sensitive to the inclusion of additional variables (Wang and Rhemtulla, 2021).

We would like to point out here that our analysis is subject to some limitations. First, it is correlational in nature. While the SEM approach indicates the possible direction of effects, the cross-sectional nature of our study does not allow us to draw conclusions about causal relationships between variables. Second, for the same reason, we also do not account for reverse causality (endogeneity) between the different variables – that is best handled using time series data. Since the panel-only survey was not yet available to researchers at the time of writing, analysis of it is left for future research. We do recognise that reverse-causal relationships could exist between our study variables, which potentially introduces bias to our estimates. Third, due to changing questionnaires, not all mediators are available in all survey rounds – something that makes comparison across time difficult.

[9] See Hu and Bentler (1999) for a discussion of cutoff values for the various measures, including the SRMR.

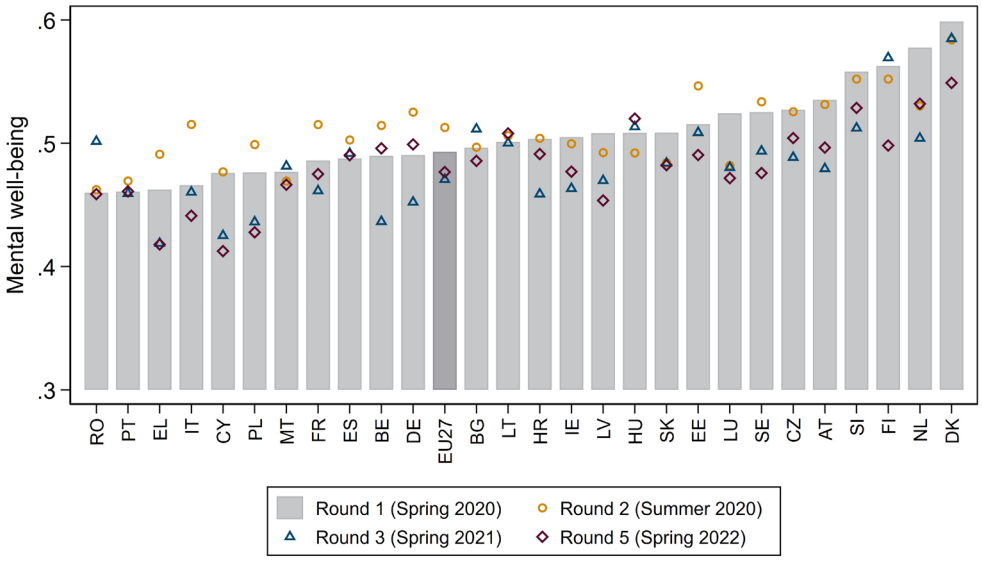
5. Results

Figure 1 below shows the weighted average mental well-being index of the final survey samples used in the analysis for each survey round and for each EU member state – plus an EU27 aggregate. To ease interpretation, the index has been standardised to lie between 0 and 1.

It points to a non-negligible heterogeneity in mental well-being across the EU member states during the first lockdown (round 1), which is also reflective of the country-specific context and policies taken. Mental well-being was lowest in Romania and the three Southern EU member states of Portugal, Greece and Italy. By contrast, mental well-being was highest in Denmark, followed by the Netherlands, Finland and Slovenia.

During the subsequent easing phase (round 2), it improved mainly in those member states that initially had lower mental well-being levels – most notably in Italy, which had been heavily hit by the first COVID-19 wave and was the first EU member state to impose restrictions and enter strict lockdown.

Figure 1 / Mental well-being across EU member states and survey rounds



Note: The weighted means of the mental well-being index – standardised to lie between 0 and 1 – are shown for the final samples used in the analysis. Round 1 was conducted in spring 2020 (between 9 April and 11 June 2020), round 2 in summer 2020 (between 22 June and 27 July), round 3 in spring 2021 (between 15 February and 30 March 2021) and round 5 in spring 2022 (between 24 March and 2 May 2022). Round 1 indices – represented by the grey bar – are in ascending order; the darker grey bar refers to the EU27 aggregate.
Source: Living, Working and COVID-19 (Eurofound), own calculations.

With very few exceptions, mental well-being deteriorated thereafter, as captured by rounds 3 and 5, when many member states were in another lockdown (round 3) and when many of them had already greatly moderated the restrictions following the final lockdown in winter 2021/22 (round 5). However, there is no clear pattern concerning the change between these two rounds. In some member states, mental well-being remained unchanged between rounds 3 and 5 (i.e. Portugal, Greece, Spain and Slovakia). Mental well-

being deteriorated further in about half of the remaining member states, while it improved in the other half. However, in only a few EU member states (i.e. Belgium, Germany, Hungary and Lithuania) has mental well-being returned to, or even surpassed, its original level at the time of the first lockdown (round 1).

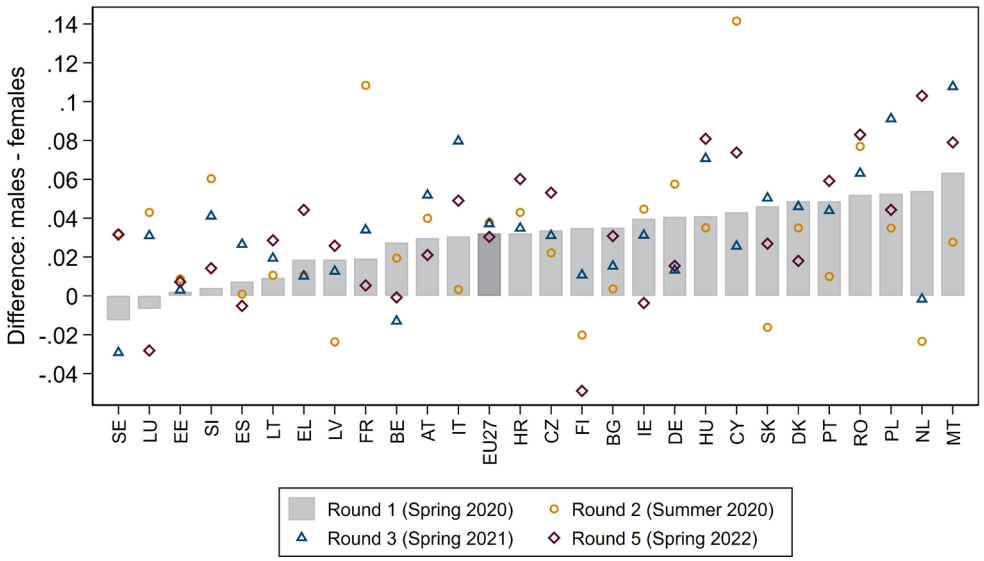
In the EU27, mental well-being improved slightly between rounds 3 and 5, but remained below the initial mental well-being level observed during round 1.

Figure 2 (below) shows the difference between males and females in the weighted (and standardised) average mental well-being index across EU member states – plus the EU27 aggregate – for each survey round. Positive differentials indicate better mental well-being in males than in females.

For the first lockdown phase (round 1), Figure 2 shows that – except for in Sweden and Luxembourg – mental well-being was always higher among males than among females. The discrepancy was particularly pronounced in Malta, the Netherlands, Poland and Romania.

During the subsequent COVID-19 phases (rounds 2 to 5), the mental well-being differential changed quite a bit in all member states. One notable exception is Estonia, where very little change is observable. However, by and large, it remained positive. There are a few exceptions, though. For instance, during the easing phase after the first lockdown (round 2), the mental well-being differential reversed in some member states (Latvia, Finland, Slovakia and the Netherlands), indicating that females had better mental well-being than males. But this was only temporary, and a return to a positive mental well-being differential was observable when many member states were in another lockdown (round 3).

Figure 2 / Gender mental well-being differential across EU member states and survey rounds



Note: The difference in the weighted means of the mental well-being index – standardised to lie between 0 and 1 – between males and females is shown for the final samples used in the analysis. Positive values indicate an advantage in mental well-being in males over females. Round 1 was conducted in spring 2020 (between 9 April and 11 June 2020), round 2 in summer 2020 (between 22 June and 27 July), round 3 in spring 2021 (between 15 February and 30 March 2021) and round 5 in spring 2022 (between 24 March and 2 May 2022). Round 1 indices – represented by the grey bar – are in ascending order; the darker grey bar refers to the EU27 aggregate.
Source: Living, Working and COVID-19 (Eurofound), own calculations.

The mental well-being differential was also positive in most member states when restrictions had largely been lifted, following the final lockdown (round 5). In many countries, the differential exceeded the original level of the first lockdown phase (round 1), especially in Greece, Hungary and the Netherlands. By contrast, in a few member states, the differential turned negative – e.g. Finland, Spain, Ireland and Belgium.

The broad variation in the gender mental well-being differential across member states and COVID-19 phases is barely reflected in the fairly stable EU27 differential, which increased slightly during the easing phase after the first lockdown (round 2) and in the subsequent lockdown phase (round 3), but then fell slightly below the initial level once restrictions were largely lifted following the final lockdown (round 5).

5.1. MEASUREMENT MODEL

The constructs in our model were measured using two to five indicators, depending on the availability of data across the rounds. To ensure comparability, the factor structure of all the constructs used in the study is the same across all survey rounds.

Table A.1 in the annex presents the means, standard deviations, alpha coefficients (or correlation coefficients in the case of two-item constructs) and intercorrelations of the key variables used in the analysis, separately for each survey round.[10] It shows that for mental well-being, all alpha values are around 0.9. For the remaining variables, the alpha values are close to the minimum value standard of α = 0.70 (Nunnally, 1978), except for institutional networks (α = 0.46), which suggests that this construct has relatively little internal consistency and that results should therefore be interpreted with caution.[11] The correlation coefficients show that WFH is positively and significantly related to WFC, stability and resilience across all rounds; also to networks of friends and family and institutional networks for round 1; and to workload for round 2. By contrast, it is negatively and significantly related to FWC and isolation across all rounds; also to physical risk for round 2; and to accommodation for round 5. Moreover, the correlation between the latent construct of mental well-being and all mediators used in the analysis – transformed into composite measures – is highest for resilience (ranging between 0.41 and 0.55) and isolation (ranging between -0.52 and -0.56) in all rounds. The remaining correlations range between -0.08 and 0.37, demonstrating adequate discriminant validity.

Table A.2 in the annex reports all the construct items with the corresponding standardised and unstandardised factor loadings. For constructs with only two variables, there is an empirical under-identification issue, since at least three variables are needed per latent construct to calculate all parameters (loadings and error variances) and standard errors. Hence, in this case, only the standardised factor loadings are reported: these are taken from a measurement model that includes all constructs at once, in order to make use of the degrees of freedom from other constructs. It shows that loadings for all items are statistically highly significant at the 1% level and are sizeable, predominantly lying above 0.5.

[10] For the sake of brevity, information is only reported for the key variables used in the model. The full tables, also including all individual control variables, are available from the author on request.

[11] We made several attempts to improve this construct's internal consistency, but neither the exclusion of items currently considered nor the inclusion of alternative items proved successful.

A multifactor confirmatory factor analysis model of the measurement model, with health as the only latent construct, showed good model fit across the survey rounds: SRMR = 0.032 and CD = 0.889 for round 1; SRMR = 0.032 and CD = 0.889 for round 2; SRMR = 0.026 and CD = 0.902 for round 3; and SRMR = 0.027 and CD = 0.902 for round 5.

However, before undertaking SEM estimations, the issue of invariance – specifically, *time invariance* – needs to be addressed. Since some of the same constructs (i.e. mediators and latent constructs) appear repeatedly in our analysis, we need to make sure that they are equivalent across the survey rounds, and therefore that they measure the same concepts and are equally interpretable. For this purpose, we use the methodology proposed by Raykov and Tisak (2004), which uses a covariance structure analysis method to examine time-invariance in reliability in multi-wave, multi-indicator models. It proceeds stepwise and first specifies a reference CFA model with time-invariant factor loadings across rounds (and zero means); this allows for free error-covariances across rounds. As a second step, equality of the covariances of error terms across rounds is introduced.

The restrictions could be evaluated using the χ^2 difference test, with a statistically significant decrease in χ^2 for the more constrained model, indicating non-invariance. However, since we use weights, χ^2 statistics are not available. Hence, in addition to the SRMR and the CD, we also perform adjusted Wald tests and report p-values from the null hypothesis of invariance of the covariance of error terms across time.

The invariance of the measures across the rounds was analysed as far as possible across the rounds (given the low number of items in some constructs). Specifically, factor invariance was tested across all four waves for mental well-being and stability. The other constructs are either composed of only two items (and are therefore subject to under-identification – e.g. WFC, FWC, resilience and isolation), or else were used only once and were therefore not tested for time invariance (such as networks of friends and family, institutional networks, workload, physical risk and the housing conditions).

For the latent construct mental well-being, the first step yields the following statistics: SRMR = 0.031 and CD = 0.893; the second step yields the following statistics: SRMR = 0.033 and CD = 0.894, indicating a slight increase in the SRMR. The respective p-value from the Wald test is equal to 0.0968, indicating that for health, the null hypothesis of invariance of the covariance of error terms across time is rejected, but only at the 10% level of statistical significance.

As concerns stability, the first step yields the following statistics: SRMR = 0.016 and CD = 0.648 and the second step the following statistics: SRMR = 0.021 and CD = 0.646, also indicating a slight increase in the SRMR. The respective p-value from the Wald test is equal to 0.1174, indicating that for stability the null hypothesis of invariance of the covariance of error terms across time cannot be rejected at conventional levels of statistical significance.

5.2. STRUCTURAL EQUATION MODELLING

The results of the empirical analysis are discussed in the next two sections. Section 5.2.1 reports the direct and indirect (mediated) effects of WFH on mental well-being for each survey round, while section 5.2.2 reports the direct and indirect (mediated) effects of WFH on mental well-being by gender, in the context of a multigroup analysis.

5.2.1. Direct and indirect effects of WFH on mental well-being

The direct and indirect effects of WFH on mental well-being using a bootstrap bias-corrected method with a 95% confidence interval are reported in Table 1 below. The results are presented for two different concepts of WFH. Columns (1)-(6) refer to results when WFH is defined as a binary variable in terms of whether or not a person worked from home during the pandemic; columns (1), (4), (5) and (6) refer to the findings for rounds 1, 2, 3 and 5, respectively, while columns (2) and (3) refer to round 1, when WFH is further distinguished by workers' previous experience of WFH, in terms of WFH novices (i.e. those without any previous experience of WFH) and established WFH workers (i.e. those with prior WFH experience). Columns (7)-(9) refer to the results for rounds 2, 3 and 5, respectively, when the frequency of WFH is used instead (defined as the ratio between the total number of hours working from home and the total number of hours worked). All mediators are used as composite measures and are normalised to have a mean of zero and standard deviation of one, to facilitate interpretation and allow meaningful comparison of coefficients.

The results show that WFH had no significant *direct* relationship with mental well-being in any of the four survey rounds, also controlling for all indirect effects.

As concerns *indirect* effects, the results point to several important mediators, but their importance changed over the two years of the COVID-19 pandemic under consideration. As concerns mediators that are observable in all survey rounds, an important role is attributable to stability (of job, accommodation and income), which mediated the relationship between WFH and mental well-being in all survey rounds. Specifically, WFH was associated with greater stability, which in turn was associated with better mental well-being. This is in line with similar studies showing that workers who switched to WFH during COVID-19 reported higher perceived financial and job stability, since they could continue to earn money and ensure their jobs either with or without any further lockdowns (Giovanis and Ozdamar, 2022). Notably, the size of the coefficients suggests that the importance of stability decreased over time: it was the most important mediator at the beginning of the COVID-19 pandemic (round 1), whereas it played only a minor role in the last round, conducted at the beginning of 2022.

Our results point to important differences in the type of conflict between work and family domains. A positive indirect effect is observable for FWC, which stems from two negative constituent effects: WFH is associated with less FWC, which in turn is associated with better mental well-being. However, FWC was only statistically significant in round 1, when most EU member states were in their first lockdown, and in the last round, when the restrictions had already largely been relaxed. Furthermore, a comparison of coefficients suggests that FWC gained in importance over time and became a sizeable mediator when the restrictions had largely been lifted (round 5). A further distinction by previous experience of WFH suggests that the mediating role of FWC at the beginning of the COVID-19 pandemic only held for WFH novices, and was absent for established WFH workers. Conversely, WFC was a negative mediator, but was only statistically significant at the beginning of the pandemic (round 1). This stems from two opposing constituent effects. WFH was associated with greater WFC, which in turn was associated with lower mental well-being. Moreover, there are no differences according to previous WFH experience, and WFH was a negative mediator for both WFH novices and established WFH workers. The opposing effects of FWC and WFC are partly at odds with what is typically observed in the related COVID-19 literature, which finds negative effects for both FWC and WFC (Barriga Medina et al., 2021; Galanti et al., 2021; Kim et al., 2023; Lange and Kayser, 2022; Weale et al., 2023).

Resilience was another important positive mediator, but only one year into the pandemic (when countries were still in various stages of lockdown) and at the beginning of 2022, once the restrictions had largely been lifted (i.e. rounds 3 and 5); meanwhile it was insignificant (or only marginally significant) during the first COVID-19 year (i.e. rounds 1 and 2). As with FWC, resilience gained in importance over time and constituted a key mediator once the COVID restrictions had largely been lifted.

Other mediators that were only available for a single or a limited number of rounds also prove to have been relevant. For instance, there are important differences by type of support network. Information on support networks is only available for round 1. Specifically, networks of family and friends were relevant, in that WFH was associated with a greater importance of networks of family and friends, which in turn were associated with better mental well-being. The important role played by family and friends during the pandemic is corroborated by several studies which indicate that support from family members increased during the pandemic, especially for those with poorer mental health (Al Daheri et al., 2021). This mediating role of networks of family and friends was also observable for WFH novices, whereas it was only marginally significant for those who already had some prior experience of WFH. This underscores the fact that networks of family and friends were particularly important for the mental well-being of WFH novices. By contrast, institutional networks played no significant role in the mental well-being of those who worked from home.

Isolation was another highly relevant mediator, especially one year into the pandemic (when countries were again in various stages of lockdown), as well as at the beginning of 2022, when COVID-restrictions had generally been lifted (i.e. rounds 3 and 5); meanwhile, it was insignificant during the first COVID-19 year (round 2). Specifically, WFH was associated with less isolation, which in turn was associated with better mental well-being. This is at odds with what is typically found in the related literature, which emphasises the negative role played by isolation and which associates that with poorer mental health among those who worked from home (e.g. Wels et al., 2022; Wielgoszewska et al., 2022; Wood et al., 2021) and increased depression and suicidal ideation (Killgore et al., 2020). The size of the coefficients suggests that isolation may have been the most important mediator in rounds 3 and 5; it was even more important after the COVID-19 restrictions were largely lifted (round 5).

A non-negligible role was also played by workers' housing conditions, which was another positive mediator but was only available for the final round. Our results suggest that WFH was related to better accommodation, which in turn was associated with better mental well-being. The importance of housing conditions for mental health in a WFH context has also been highlighted in other studies, which emphasise that better housing quality (Bower et al., 2021) and better functionality of the technology available in the home office (Niebuhr et al., 2022) have a strong positive impact on residents' mental health.

Finally, both workload and the physical risk of contracting COVID-19 – only available in round 2 – proved insignificant. The lack of relevance of workload is surprising, since the pandemic typically increased the workload of those who worked from home, resulting in increased psychological distress (e.g. Barbieri et al., 2021).

There are both important similarities and certain differences when the WFH intensity is used instead; this is only available for rounds 2, 3 and 5 (see columns (7)-(9)). For instance, an important difference relates to the *direct* effect of WFH: this was negatively significant, but only in the first COVID-19 year (round 2), once the restrictions of the first lockdown had been relaxed. This points to the poorer mental well-being of those who worked more intensively from home, also controlling for all mediators.

Table 1 / Direct and indirect effects of WFH

	WFH: yes=1						WFH intensity		
Paths	**Round 1 (1)**	**Round 1: Novice (2)**	**Round 1: Established (3)**	**Round 2 (4)**	**Round 3 (5)**	**Round 5 (6)**	**Round 2 (7)**	**Round 3 (8)**	**Round 5 (9)**
Direct effect									
WFH → Mental WB	0.034	0.003	0.047	-0.068	0.002	-0.012	-0.100**	-0.000	-0.100
	(1.02)	(0.07)	(1.27)	(-1.46)	(0.07)	(-0.32)	(-2.03)	(-0.00)	(-1.28)
Indirect effects									
WFH → WFC → Mental WB	-0.017***	-0.014***	-0.018***	-0.002	-0.006	-0.003	-0.001	-0.006	-0.002
	(-3.65)	(-3.36)	(-3.63)	(-0.33)	(-1.45)	(-0.58)	(-0.19)	(-1.44)	(-0.42)
WFH → FWC → Mental WB	0.012**	0.023***	0.008	0.010	0.015*	0.044***	0.021	0.032***	0.078***
	(2.19)	(3.47)	(1.26)	(0.66)	(1.75)	(4.07)	(1.42)	(3.29)	(4.81)
WFH → Stability → Mental WB	0.049***	0.054***	0.046***	0.020***	0.025***	0.016**	0.021***	0.031***	0.017**
	(6.95)	(7.11)	(6.31)	(2.69)	(4.07)	(2.04)	(2.65)	(4.29)	(1.99)
WFH → Resilience → Mental WB	0.017*	0.014	0.018*	0.007	0.024**	0.049***	0.015	0.018*	0.044**
	(1.85)	(1.28)	(1.82)	(0.49)	(2.54)	(3.28)	(0.90)	(1.71)	(2.54)
WFH → Networks: family/friends → Mental WB	0.010**	0.014***	0.008*						
	(2.13)	(2.70)	(1.67)						
WFH → Networks: institutional → Mental WB	0.002	0.002	0.002						
	(1.30)	(1.10)	(1.23)						
WFH → Isolation → Mental WB				-0.005	0.044***	0.063***	-0.017	0.039**	0.053***
				(-0.31)	(2.87)	(4.68)	(-0.95)	(2.42)	(3.22)
WFH → Workload → Mental WB				0.011			0.014		
				(0.83)			(1.03)		
WFH → Phys. risk → Mental WB				-0.015			-0.018		
				(-1.32)			(-1.09)		
WFH → Accommodation → Mental WB						0.013**			0.014**
						(2.14)			(2.05)

Note: Columns (1)-(6) refer to results when WFH is defined as a binary variable in terms of whether a person worked from home during the pandemic (WFH = yes), whereby columns (2) and (3) refer to round 1 and whether somebody was a WFH novice (i.e. without any prior experience of WFH) or an established WFH worker (i.e. with prior WFH experience). Columns (7)-(9) refer to results when the intensity of WFH is used instead (WFH intensity) – defined as the ratio between the total number of hours worked from home and the total number of hours worked – for rounds 2, 3 and 5, respectively. A bootstrap bias-corrected method with a 95% confidence interval was used to calculate path estimates. Robust t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1.
Source: Living, Working and COVID-19 (Eurofound); rounds 1, 2, 3 and 5.

As concerns the similarities, FWC, stability, resilience, isolation and housing conditions remain important positive mediators between WFH and mental well-being. However, in contrast to the findings for the binary WFH indicator, the results for WFH intensity no longer ascribe the most important role to isolation across rounds 2, 3 and 5. Instead, FWC appears to have played the most important role in terms of the size of the coefficients, especially once the COVID-19 restrictions had largely been lifted (round 5).

5.2.2. Multigroup analysis by gender: direct and indirect effects of WFH on mental well-being

In the multigroup analysis by gender, we differentiate between male and female, but exclude the 'other' category, which only represents 0.23% of the final sample (or 203 persons in total) and is therefore too small to allow for a separate group to be specified and analysed.

Using the baseline model, the *invariance of the measures across genders* was first analysed to determine whether they have the same measurement properties and can therefore be compared across genders. Invariance was tested for the only latent construct used in the model, namely mental well-being. The sample means, standard deviations and correlations of the key variables by gender are displayed in Table A.3 and Table A.4. As is standard in the literature, we proceed stepwise and first test for configural invariance (same factor pattern/structure across groups), then for metric (weak) factorial invariance (same factor loadings across groups) and then for scalar (strong) factorial invariance (same intercepts across groups). To test each level of invariance, the difference in fit of the more constrained model is compared to that of the next, less-constrained model. As mentioned above, invariance is typically evaluated using the χ^2 difference test. However, since we use weights, χ^2 statistics are not available, and so we not only use the SRMR and the CD, but also perform adjusted Wald tests and report p-values from the null hypothesis of factorial invariance of each construct across groups.

The results are reported in Table A.5 and generally show good model fit for both males and females across all survey rounds, with all SRMRs far below the threshold of 0.08 and CDs ranging from 0.3 to 0.7. Moreover, fit statistics from the multigroup model show that the SRMR and the CD are good for all models, across all rounds: all SRMRs are below the threshold of 0.08 and all CDs are above 0.9. Both fit statistics remain robust when increasingly restrictive models are tested. Only the SRMR for round 5 is slightly above 0.08. Furthermore, results from adjusted Wald tests support metric invariance – except for round 1, for which, however, we find support for partial metric invariance (Meredith, 1993) once the parameters for two construct items are released: namely 'I have felt calm and relaxed' and 'I have felt active and vigorous'. By contrast, we fail to find support for scalar invariance, suggesting that equality of intercepts across genders cannot be supported. Since we do not conduct a comparison of latent means across genders, metric invariance suffices.

The direct and indirect effects on mental well-being of WFH from the multigroup analysis, using a bootstrap bias-corrected method with a 95% confidence interval, are reported in Table 2a and Table 2b. Columns (1)-(12) in Table 2a refer to results when WFH is defined as a binary variable, in terms of whether or not a person worked from home during the pandemic, with odd column numbers referring to the results for males and even column numbers to the results for females. Columns (13)-(18) in Table 2b refer to results when the frequency of WFH is used instead. Odd column numbers again refer to the results for males and even column numbers to the results for females.

The results in Table 2a show that WFH has a significant *direct* relationship with mental well-being – but only for women and only during the first COVID-19 year, when most EU economies were in their first lockdowns or else immediately afterwards, when they were gradually reopening (rounds 1 and 2), also controlling for all indirect effects. However, the nature of the relationship differs and is initially positive, but then turns negative. This shows that during the first lockdown, women who worked from home had better mental well-being than women who did not. However, during the subsequent reopening phase, the mental well-being of women who worked from home was significantly worse than that of women who did not. Moreover, further differentiation by previous WFH experience in round 1 suggests that the initial positive direct effect was mainly observed among established female WFH workers. The positive effect during the first lockdown is likely related to the fact that women are disproportionately employed as essential and frontline workers in sectors that remained open during the lockdowns (with the associated higher risk of viral transmission and the concomitant fear of contracting COVID-19) (Nabe-Nielsen et al., 2021; Rosemberg et al., 2021; Salari et al., 2020; Sarfraz et al., 2022; Wilbiks et al., 2021). WFH, by contrast, provided a safe and mentally less stressful work context for those women who could work from home, and especially for established WFH workers who did not switch to WFH totally unprepared.

As concerns *indirect* effects, the results point to important differences by gender. For example, for males who worked from home, important mediators were support from networks of family and friends (only available in round 1), physical risk of contracting COVID-19 (only available in round 2) and housing conditions (only available in round 5), although the latter two were only marginally significant. The network effect suggests that males who worked from home profited from their support networks of family and friends, in terms of having had better mental well-being than males who did not work from home.

For females, important mediators were both of the conflict concepts – WFC and FWC – but in different forms and at different stages of the pandemic (as is the case for the entire sample – see Table 1 above). While FWC was a positive mediator and was relevant for the entire two years of the COVID-19 pandemic under consideration, for both WFH novices and established WFH workers WFC was a negative mediator and only mattered during the first lockdown phase (round 1). The enforced closure of schools and childcare facilities during the lockdowns and the additional childcare and homeschooling responsibilities that were placed on families – typically undertaken by women (Del Boca et al., 2020; Farré et al., 2022; Sevilla and Smith, 2020) – help to explain the relevance of both conflict concepts for females and the absence of any relevance for males. The positive FWC effect suggests that women who worked from home seem to have found it less stressful mentally to balance their (additional) family and work commitments than women who still went into work while their children were stuck at home, and this positively affected their mental well-being. Conversely, the negative WFC effect during the first lockdown was likely the result of changing work demands in the newly mandated WFH context, which was often associated with increased workload pressure (Wu and Chen, 2020); these demands were difficult to reconcile with a simultaneous increase in the amount of time spent on domestic activities, including housework, childcare and homeschooling. However, during the first lockdown, women – more so than men – cut their working hours so that they could better meet their new caregiving (including homeschooling) responsibilities (Collins et al., 2021). Hence, the negative WFC effect among women was absent thereafter (i.e. in rounds 2, 3 and 5).

Workload was another mediator for women (only available in round 2); however, it was only marginally significant. The results suggest that women who worked from home had a greater workload than women who did not, which in turn was associated with poorer mental well-being.

Table 2a / Direct and indirect effects of WFH by gender: WFH

	WFH: yes=1											
	Round 1		Round 1: Novice		Round 1: Established		Round 2		Round 3		Round 5	
Paths	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
Direct effect												
WFH → Mental WB	-0.030	0.102**	-0.086	0.080*	-0.013	0.113**	-0.006	-0.119**	0.058	-0.063	-0.031	0.002
	(-0.65)	(2.47)	(-1.57)	(1.81)	(-0.26)	(2.49)	(-0.09)	(-2.02)	(1.14)	(-1.49)	(-0.63)	(0.03)
Indirect effects												
WFH → WFC → Mental WB	-0.012*	-0.024***	-0.011	-0.018***	-0.012*	-0.027***	-0.011	0.003	-0.010	-0.002	-0.004	0.001
	(-1.80)	(-3.84)	(-1.63)	(-3.45)	(-1.79)	(-3.86)	(-0.95)	(0.45)	(-1.41)	(-0.51)	(-0.68)	(0.10)
WFH → FWC → Mental WB	0.010	0.015**	0.020	0.025***	0.006	0.009	-0.028	0.056***	0.015	0.016*	0.056***	0.035***
	(1.03)	(2.42)	(1.62)	(3.36)	(0.65)	(1.36)	(-1.24)	(2.90)	(0.91)	(1.74)	(3.28)	(2.71)
WFH → Stability → Mental WB	0.052***	0.046***	0.057***	0.052***	0.050***	0.042***	0.017	0.025**	0.018**	0.029***	0.021**	0.012
	(4.46)	(5.58)	(4.23)	(5.67)	(4.21)	(4.94)	(1.61)	(2.34)	(2.39)	(3.59)	(1.98)	(1.10)
WFH → Resilience → Mental WB	0.030*	0.003	0.025	0.001	0.031*	0.004	-0.001	0.018	0.018	0.025**	0.057***	0.032
	(1.82)	(0.30)	(1.21)	(0.11)	(1.80)	(0.36)	(-0.04)	(1.07)	(1.06)	(2.26)	(2.81)	(1.49)
WFH → Networks: family/friends → Mental WB	0.013**	0.006	0.015*	0.012*	0.013*	0.002						
	(2.11)	(0.97)	(1.93)	(1.82)	(1.93)	(0.36)						
WFH → Networks: institutional → Mental WB	0.002	0.002	0.004	0.001	0.002	0.002						
	(0.88)	(1.23)	(1.00)	(0.88)	(0.70)	(1.25)						
WFH → Isolation → Mental WB							0.002	-0.005	0.034	0.055***	0.067***	0.057***
							(0.08)	(-0.19)	(1.63)	(2.66)	(3.41)	(2.88)
WFH → Workload → Mental WB							-0.010	0.027*				
							(-0.47)	(1.71)				
WFH → Phys. risk → Mental WB							-0.031*	0.006				
							(-1.81)	(0.33)				
WFH → Accommodation → Mental WB											0.013*	0.011
											(1.96)	(1.13)

Note: Bootstrap bias-corrected method with 95% confidence interval to calculate path estimates. Robust t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1.
Source: Living, Working and COVID-19 (Eurofound); rounds 1, 2, 3 and 5.

Stability is the one mediator that was important for both genders throughout the two years of the COVID-19 pandemic under consideration. For both genders, stability was the most important mediator during the first lockdown (round 1) – with no differences according to previous experience of WFH – but its importance declined thereafter. The other mediators relevant for both genders were resilience and isolation, but at different stages of the pandemic. For women, resilience and isolation were relevant one year into the pandemic, when countries were again in various stages of lockdown (round 3). Meanwhile for males, both mediators mattered mainly at the beginning of 2022, when the COVID restrictions had largely been lifted (round 5).

Conversely, institutional networks were insignificant for both genders.

The findings barely change when WFH intensity is used instead (see Table 2b). In some instances, however, coefficients become only marginally significant. A case in point is stability, which only mattered in 2021 for males (round 3) and in 2022 for females (round 5); during the first year of the pandemic (round 2), it was only marginally significant.

Table 2b / Direct and indirect effects of WFH by gender: WFH intensity

	WFH intensity					
	Round 2		Round 3		Round 5	
Paths	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
	(13)	**(14)**	**(15)**	**(16)**	**(17)**	**(18)**
Direct effect						
WFH → Mental WB	-0.051	-0.153**	0.016	-0.029	-0.083	-0.065
	(-0.764)	(-2.284)	(0.275)	(-0.665)	(-1.228)	(-0.766)
Indirect effects						
WFH → WFC → Mental WB	-0.009	0.003	-0.011	-0.003	-0.004	0.002
	(-0.78)	(0.45)	(-1.26)	(-0.55)	(-0.63)	(0.24)
WFH → FWC → Mental WB	-0.006	0.051**	0.032	0.034***	0.106***	0.056***
	(-0.30)	(2.28)	(1.75)	(3.23)	(4.30)	(3.00)
WFH → Stability → Mental WB	0.021*	0.021*	0.022*	0.034***	0.022**	0.013
	(1.84)	(1.84)	(2.56)	(3.51)	(2.01)	(1.07)
WFH → Resilience → Mental WB	0.001	0.025	0.006	0.024*	0.066***	0.010
	(0.05)	(1.42)	(0.32)	(1.95)	(2.94)	(0.36)
WFH → Isolation → Mental WB	-0.015	-0.017	0.032	0.046**	0.063***	0.044*
	(-0.71)	(-0.63)	(1.45)	(1.98)	(3.08)	(1.86)
WFH → Workload → Mental WB	-0.005	0.030*				
	(-0.21)	(1.84)				
WFH → Phys. risk → Mental WB	-0.043*	0.012				
	(-1.81)	(0.56)				
WFH → Accommodation → Mental WB					0.016**	0.010
					(2.01)	(1.05)

Note: Bootstrap bias-corrected method with 95% confidence interval to calculate path estimates. Robust t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1.
Source: Living, Working and COVID-19 (Eurofound); rounds 1, 2, 3 and 5.

6. Summary and conclusion

This paper has analysed the relationship between working from home (WFH) and mental well-being – measured by the WHO-5 Well-Being Index – and the changing role of different mediators in this relationship during the first two critical years of the COVID-19 pandemic, when governments repeatedly imposed lockdowns and enacted WFH mandates to contain the spread of the virus.

It used data from Eurofound's e-survey, Living, Working and COVID-19, and looked at four different stages of the COVID-19 pandemic in the EU27 (as of 2020), namely: (i) April to June 2020, when most EU member states were in their first lockdown; (ii) June to July 2020, when economies and societies were gradually reopening; (iii) February to March 2021, when countries were again in various stages of lockdown; and (iv) March to May 2022, when many EU countries had already greatly reduced restrictions following the final lockdown in winter 2021/22. The study tested various mediators, such as work-family conflict (WFC) and family-work conflict (FWC), stability, resilience, isolation, the importance of different support networks (i.e. family and friends vs. institutional networks), workload, physical risk of contracting COVID-19 at work and housing conditions. Some of these were only available in specific survey rounds. In the context of the first lockdown, it also differentiated by previous WFH experience, in terms of: (i) *WFH novices* and (ii) *established WFH workers*. Moreover, it distinguished by gender, in order to account for the gendered impact of the closure of schools and childcare facilities on paid and unpaid work hours during the COVID-19 pandemic. Due to the cross-sectional nature of the data, our analysis is correlational in nature. Causality and issues of endogeneity are best studied with time series, which were not yet available at the time of writing.

Our results point to the absence of a direct relationship between WFH and mental well-being in any of the four stages of the COVID-19 pandemic analysed. A direct effect is only observed when WFH intensity is used as a WFH measure: then it is negative and limited to the phase of gradual reopening after the first lockdown.

We identified several relevant – predominantly positive – mediators, whose importance changed over the two years of the COVID-19 pandemic studied. Stability is the only mediator that was relevant over the entire two-year pandemic period analysed. However, its importance decreased over time. The remaining mediators were only relevant at specific stages of the pandemic. The conflicts between work and family domains – captured by WFC and FWC – were only relevant during the first lockdown (FWC also mattered in spring 2022). Conversely, resilience and isolation only mattered during the second year of the pandemic, especially when most EU economies had lifted their restrictions. Some mediators that were only available in certain survey rounds also proved relevant, such as the support from networks of family and friends or housing conditions; meanwhile institutional networks, workload and the physical risk of contracting COVID-19 proved irrelevant.

The nature of some mediators seems to have been at odds with what is commonly found in the related literature. A case in point is isolation: WFH was associated with less isolation, which in turn was associated with better mental well-being. Since this was mainly observed in the second pandemic year –

during another round of lockdowns, but especially once COVID-19 restrictions had largely been lifted – this may indicate the effectiveness of certain countermeasures aimed at reducing the greater sense of loneliness and isolation felt by those who worked from home during the first lockdown, but even more so the positive effect of easing most restrictions. Moreover, WFH was associated with less FWC, which in turn was linked to better mental well-being; this can largely be explained by differences between the genders (see below).

The relevance of the mediators differs according to previous WFH experience. Unlike established WFH workers, WFH novices also benefited from lower FWC and more helpful networks of family and friends.

Our results differ by gender. We find that WFH had a significant direct relationship with mental well-being, but only among women, only in the first COVID-19 year, and in the opposite direction: during the first lockdown, women who worked from home had better mental well-being than women who did not; during the subsequent reopening phase, the mental well-being of women who worked from home was significantly worse than that of women who did not. The positive effect during the first lockdown was related to the industry-specificity of lockdown measures: WFH provided a safe and mentally less stressful work context for women who could work from home (especially for established WFH workers who did not switch to WFH totally unprepared), whereas essential and frontline workers – disproportionately composed of women – in sectors that remained open during the lockdowns faced a higher risk of viral transmission and stronger negative mental health effects.

Mediators were also gender specific. For males who worked from home, an important mediator was support from networks of family and friends. For females who worked from home, important mediators were WFC and FWC, related to adjustments they had to make in work and non-work hours in response to the enforced closure of schools and childcare facilities during the lockdowns. In this context, the positive effect of FWC that was found in the overall sample can be explained by the results for females: women who worked from home seem to have found it comparatively less mentally stressful to balance their (additional) family – including childcare and homeschooling – and work responsibilities than did women who still went into work while their children were stuck at home. The negative effect of WFC, which was limited to the first lockdown, is likely the result of an increase in workload pressure in the newly mandated WFH context, which then forced women to reduce their working hours in order to better meet their additional caregiving responsibilities. Hence, the negative WFC effect among females was absent from subsequent rounds.

Some mediators are relevant for both genders: stability was important throughout the two COVID-19 years considered, as were resilience and isolation – which, however, mattered at different stages of the pandemic.

Overall, an important finding of our analysis is that the relevance of mediators between WFH and mental well-being changed during the pandemic and was specific not only to certain stages of the pandemic, but also to gender. This underscores the importance of the specific measures implemented during the pandemic (such as lockdowns and stages of reopening) for the relationship between WFH and mental well-being. Moreover, the gender-specificity of the mediators highlights the fact that males and females who worked from home were affected differently by these measures. Lockdowns – especially the first – hit women the hardest, as they took on most of the additional domestic activities that resulted from the enforced closure of schools and childcare facilities during the lockdowns. Single mothers took the

biggest hit. To achieve a better balance of their work and new domestic responsibilities, women reduced their working hours, further increasing the gender gap in working hours (Collins et al., 2021). While our findings are specific to the COVID-19 pandemic, they are of general relevance and importance, especially since pandemics like COVID-19 are increasingly likely to occur (Marani et al., 2021), making similar containment measures more likely, too. Given that fact, policies are needed that are crafted to the specific needs of women and mothers.

Our results also show that support networks mattered for the mental well-being of those working from home, but that the type of network made a difference (this information was only available in round 1). In this respect, an important role was attached to networks of family and friends – especially for men – while institutional networks proved irrelevant. This suggests that both networks provide different resources and social capital (Putnam, 1995), and that the closer and more intimate ties with members of the family and the circle of friends is of particular importance. Institutional networks can have difficulty in establishing such ties. From a policy perspective, our results suggest that in times of health crises – like the COVID-19 pandemic – an expansion of institutional networks may fail to generate any positive effect on mental well-being, particularly for those who work from home.

Our results also indicate that the lack of previous WFH experience, while playing a role, was not in itself a cause of poorer mental well-being among WFH novices. Quite the contrary: in some important respects, WFH novices seem to have benefited – e.g. through lower FWC or more helpful networks of family and friends. This suggests that they may have had important resources to fall back on that experienced WFH workers lacked.

7. References

Al Dhaheri, A.S., Bataineh, M.F., Mohamad, M.N., Ajab, A., Al Marzouqi, A., Jarrar, A.H. et al. (2021). Impact of COVID-19 on mental health and quality of life: Is there any effect? A cross-sectional study of the MENA region. *PLoS ONE*, 16(3), e0249107, https://doi.org/10.1371/journal.pone.0249107.

Bailey, D.E. and Kurland, N.B. (2002). A review of telework research: Findings, new directions, and lessons for the study of modern work. *Journal of Organizational Behavior*, 23, 383-400, https://doi.org/10.1002/job.144.

Barbieri, B., Balia, S., Sulis, I., Cois, E., Cabras, C., Atzara, S. and De Simone, S. (2021). Don't call it smart: Working from home during the pandemic crisis. *Frontiers in Psychology*, 12, 741585, https://doi.org/10.3389/fpsyg.2021.741585.

Barriga Medina, H.R., Campoverde Aguirre, R., Coello-Montecel, D., Ochoa Pacheco, P. and Paredes-Aguirre, M.I. (2021). The influence of work–family conflict on burnout during the COVID-19 pandemic: The effect of teleworking overload. *International Journal of Environmental Research and Public Health*, 18, 10302, https://doi.org/10.3390/ijerph181910302.

Bloom, N., Liang, J., Roberts, J. and Ying, Z.J. (2015). Does working from home work? Evidence from a Chinese experiment. *Quarterly Journal of Economics*, 130(1), 165-218, https://doi.org/10.1093/qje/qju032.

Bodner, A., Ruhl, L., Barr, E., Shridhar, A., Skakoon-Sparling, S., Card, K.G. (2022). The Impact of working from home on mental health: A cross-sectional study of Canadian worker's mental health during the third wave of the COVID-19 pandemic. International Journal of Environmental Research and Public Health, 19(18):11588, https://doi.org/10.3390/ijerph191811588.

Borgman, L.-S., Rattay, P. and Lampert, R. (2019). Health-related consequences of work-family conflict from a European perspective: Results of a scoping review. *Frontiers in Public Health*, 7, 189, https://doi.org/10.3389/fpubh.2019.00189.

Bower, M., Buckle, C., Rugel, E., Donohoe-Bales, A. et al. (2021). 'Trapped', 'anxious' and 'traumatised': COVID-19 intensified the impact of housing inequality on Australians' mental health. *International Journal of Housing Policy*, 23(2), 260-291, https://doi.org/10.1080/19491247.2021.1940686.

Choi, E.P.H., Hui, B.P.H. and Wan, E.Y.F. (2020). Depression and anxiety in Hong Kong during COVID-19. *International Journal of Environmental Research and Public Health*, 17, 3740, https://doi.org/10.3390/ijerph17103740.

Collins, C., Landivar, L.C., Ruppanner, L. and Scarborough, W.J. (2021). COVID-19 and the gender gap in work hours. *Gender, Work & Organization*, 28(Suppl 1), 101-112. https://doi.org/10.1111/gwao.12506.

Del Boca, D., Oggero, N., Profeta, P. et al. (2020). Women's and men's work, housework and childcare, before and during COVID-19. *Review of Economics of the Household*, 18, 1001-1017, https://doi.org/10.1007/s11150-020-09502-1.

Dutcher, E.G. (2012). The effects of telecommuting on productivity: An experimental examination. The role of dull and creative tasks. *Journal of Economic Behavior and Organization*, 84, 355-363, https://doi.org/10.1016/j.jebo.2012.04.009.

Eddleston, K.A. and Mulki, J. (2017). Toward understanding remote workers' management of work–family boundaries: The complexity of workplace embeddedness. *Group & Organization Management*, 42(3), 346-387, https://doi.org/10.1177/1059601115619548.

Ekpanyaskul, C. and Padungtod, C. (2021). Occupational health problems and lifestyle changes among novice working-from-home workers amid the COVID-19 pandemic. *Safety and Health at Work*, 12, 384-389, https://doi.org/10.1016/j.shaw.2021.01.010.

Elbaz, S., Richards, J.B. and Provost Savard, Y. (2022). Teleworking and work-life balance during the COVID-19 pandemic: A scoping review. *Canadian Psychology/Psychologie Canadienne*, Advance online publication, https://doi.org/10.1037/cap0000330.

Farré, L., Fawaz, Y., González, L. and Gaves, J. (2022). How the COVID-19 lockdown affected gender inequality in paid and unpaid work in Spain. *Review of Income and Wealth*, 68(2), 323-347, https://doi.org/10.1111/roiw.12563.

Felstead, A. and Reuschke, D. (2020). *Homeworking in the UK: Before and during the 2020 lockdown*. WISERD Report. Cardiff: Wales Institute of Social and Economic Research. Available for download from: https://www.regionalstudies.org/wp-content/uploads/2020/08/Homeworking-in-the-UK_Report_Final_3.pdf.

Fiorenzato, E., Zabberoni, S., Costa, A. and Cona, G. (2021). Cognitive and mental health changes and their vulnerability factors related to COVID-19 lockdown in Italy. *PLoS ONE*, https://doi.org/10.1371/journal.pone.0246204.

Gajendran, R.S. and Harrison, D.A. (2007). The good, the bad, and the unknown about telecommuting: meta-analysis of psychological mediators and individual consequences. *Journal of Applied Psychology*, 92(6), 1524-1541, https://doi.org/10.1037/0021-9010.92.6.1524.

Galanti, T., Guidetti, G., Mazzei, E., Zappalà, S. and Toscano, F. (2021). Work from home during the COVID-19 outbreak: The impact on employees' remote work productivity, engagement, and stress. *Journal of Occupational and Environmental Medicine*, 63(7), e426-e432, https://doi.org/10.1097/JOM.0000000000002236.

Giovanis, E. and Ozdamar, O. (2022). Implications of COVID-19: The effect of working from home on financial and mental well-being in the UK. *International Journal of Health Policy Management*, 11(9), 1635-1641, https://doi.org/10.34172/ijhpm.2021.33.

Griep, R.H., Almeida, M.C.C., Barreto, S.M. et al. (2022). Working from home, work-time control and mental health: Results from the Brazilian longitudinal study of adult health (ELSA-Brasil). *Frontiers in Psychology*, 13, 993317, https://doi.org/10.3389/fpsyg.2022.993317.

Gualano, M.R., Santoro, P.E., Borrelli, I. et al. (2023). TElewoRk-RelAted Stress (TERRA), psychological and physical strain of working from home during the COVID-19 pandemic: A systematic review. *Workplace Health & Safety*, 71(2), 58-67, https://doi.org/10.1177/21650799221119155.

Gueguen, G. and Senik, C. (2023). Adopting telework. The causal impact of working from home on subjective well-being in 2020. *British Journal of Industrial Relations*, 61(4) 832-868, https://doi.org/10.1111/bjir.12761.

Hall, C., Davidson, L., Brooks, S.K., Greenberg, N. and Weston, D. (2023). The relationship between homeworking during COVID-19 and both, mental health, and productivity: A systematic review. *BMC Psychology*, 11(188), 1-19, https://doi.org/10.1186/s40359-023-01221-3.

Hayes, A.F. (2013). Introduction to Mediation, Moderation, and Conditional Process Analysis: A regression-based approach. Second edition. New York: Guilford Press.

Hornung, S. and Glaser, J. (2009). Home-based telecommuting and quality of life: Further evidence on an employee-oriented human resource practice. *Psychological Reports*, 104(2), 395-402, https://doi.org/10.2466/PR0.104.2.395-402.

Hu, L.-t. and Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structural analysis: Conventional criteria versus new alternatives. *Structural Equation Modelling*, 6(1), 1-55, https://doi.org/10.1080/10705519909540118.

Iversen, M.M., Norekvål, T.M., Oterhals, K., Fadnes, L.T., Mæland, S., Pakpour, A.H. and Breivik, K. (2022). Psychometric properties of the Norwegian version of the fear of COVID-19 scale. *International Journal of Mental Health and Addiction*, 20(3), 1446-1464, https://doi.org/10.1007/s11469-020-00454-2.

Kaduk, A., Genadek, K., Kelly, E.L. and Moen, P. (2019). Involuntary vs. voluntary flexible work: Insights for scholars and stakeholders. *Community, Work & Family*, 22(4), 412-442, https://doi.org/10.1080/13668803.2019.1616532.

Kakar, A.S., Rauza, M.A. and Lateef, F. (2023). An empirical analysis of the mediating role of fear of COVID-19 between telecommuting and employees retention. *Employ Responsibility and Rights Journal*, https://doi.org/10.1007/s10672-023-09448-3.

Kazekami, S. (2020). Mechanisms to improve labor productivity by performing telework. *Telecommunications Policy*, 44(2), 101868, https://doi.org/10.1016/j.telpol.2019.101868.

Killgore, W.D., Cloonan, S.A., Taylor, E.C. and Dailey, N.S. (2020). Loneliness: A signature mental health concern in the era of COVID-19. *Psychiatry Research*, 290, 113117, https://doi.org/10.1016/j.psychres.2020.113117.

Kim, H.Y., Hong, Y.C., Lee, N., Park, J., Lee, K.S., Yun, J.Y. and Lee, D.W. (2023). Working from home, work-life balance, and depression/anxiety among Korean workers in the COVID-19 pandemic period: A mediation analysis. *Journal of Occupational and Environmental Medicine*, 65(2), 98-103. https://doi.org/10.1097/JOM.0000000000002726.

Koçak, O., Koçak, Ö.E. and Younis, M.Z. (2021). The psychological consequences of COVID-19: Fear and the moderator effects of individuals' underlying illness and witnessing infected friends and family. *International Journal of Environmental Research and Public Health*, 18(4),1836, https://doi.org/10.3390/ijerph18041836.

Koltai, J., Raifman, J., Bor, J., McKee, M. and Stuckler, D. (2022). COVID-19 vaccination and mental health: A difference-in-difference analysis of the understanding America study. *American Journal of Preventive Medicine*, 62(5), 679-687, https://doi.org/10.1016/j.amepre.2021.11.006.

Lange, M. and Kayser, I. (2022). The role of self-efficacy, work-related autonomy and work-family conflict on employee's stress level during home-based remote work in Germany. *International Journal of Environmental Research and Public Health*, 19(9), 4955, https://doi.org/10.3390/ijerph19094955.

Marani, M., Katul, G.G., Pan, W.K. and Parolari, A.J. (2021). Intensity and frequency of extreme novel epidemics. *PNAS*, 118(35), 1-4, https://doi.org/10.1073/pnas.2105482118.

Matthews, T.A., Chen, L., Omidakhsh, N. et al. (2022). Gender difference in working from home and psychological distress: A national survey of US employees during the COVID-19 pandemic. *Industrial Health*, 60(4), 334-344, https://doi.org/10.2486/indhealth.2022-0077.

Meredith, W. (1993). Measurement invariance, factor analysis and factorial invariance. *Psychometrika*, 58, 525-543, https://doi.org/10.1007/BF02294825.

Nabe-Nielsen, K., Nilsson, C.J., Juul-Madsen, M., Bredal, C., Hansen, L.O.P. and Hansen, Å.M. (2021). COVID-19 risk management at the workplace, fear of infection and fear of transmission of infection among frontline employees. *Occupational and Environmental Medicine*, 78, 248-254, http://dx.doi.org/10.1136/oemed-2020-106831.

Niebuhr, F., Borle, P., Börner-Zobel, F. and Voelter-Mahlknecht, S. (2022). Healthy and happy working from home? Effects of working from home on employee health and job satisfaction. *International Journal of Environmental Research and Public Health*, 19(3), 1122, https://doi.org/10.3390/ijerph19031122.

Niu, Q., Nagata, T., Fukutani, N., Tezuka, M., Shimoura, K., Nagai-Tanami, M. et al. (2021). Health effects of immediate telework introduction during the COVID-19 era in Japan: A cross-sectional study. *PLoS ONE*, 16(10), e0256530, https://doi.org/10.1371/journal.pone.0256530.

Nunnally, J.C. (1978). *Psychometric Theory*, McGraw Hill, New York.

Oakman, J., Kinsman, N., Lambert, K. et al. (2022). Working from home in Australia during the COVID-19 pandemic: Cross-sectional results from the Employees Working From Home (EWFH) study. *BMJ Open*, 12(4), e052733, https://doi.org/10.1136/bmjopen-2021-052733.

Otsuka, S. Ishimaru, T., Nagata, M., Tateishi, S., Eguchi, H., Tsuji, M., Ogami, A., Matsuda, S. and Fujino, Y. (2021). A cross-sectional study of the mismatch between telecommuting preference and frequency associated with psychological distress among Japanese workers in the COVID-19 pandemic. *Journal of Occupational and Environmental Medicine*, 63(9), e636-e640, https://doi.org/10.1097/JOM.0000000000002318.

Perez-Arce, F., Angrisani, M., Bennett, D., Darling, J., Kapteyn, A. and Thomas, K. (2021). COVID-19 vaccines and mental distress. *PLoS ONE*, 16(9), e0256406, https://doi.org/10.1371/journal.pone.0256406.

Preacher, K.J. and Hayes, A.F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40(3), 879-891, https://doi.org/10.3758/BRM.40.3.879.

Putnam, R.D. (1995). Bowling alone: America's declining social capital. *Journal of Democracy*, 6(1), 65-78, https://doi.org/10.1353/jod.1995.0002.

Raykov, T. and Tisak, J. (2004). Examining time-invariance in reliability in multi-wave, multi-indicator models: A covariance structure analysis approach accounting for indicator specificity. *British Journal of Mathematical and Statistical Psychology*, 57(2), 253-263, https://doi.org/10.1348/0007110042307267.

Rosemberg, M.A.S., Adams, M., Polick, C., Li, W.V., Dang, J. and Tsai, J.H.C. (2021). COVID-19 and mental health of food retail, food service, and hospitality workers. *Journal of Occupational and Environmental Hygiene*, 18(4-5), 169-179, https://doi.org/10.1080/15459624.2021.1901905.

Salari, N., Khazaie, H., Hosseinian-Far, A., Khaledi-Paveh, B., Kazeminia, M., Mohammadi, M., Shohaimi, S., Daneshkhah, A. and Eskandari, S. (2020). The prevalence of stress, anxiety and depression within front-line healthcare workers caring for COVID-19 patients: A systematic review and meta-regression. *Human Resources for Health*, 18, 100, https://doi.org/10.1186/s12960-020-00544-1.

Sarfraz, M., Ji, X., Asghar, M., Ivascu, L. and Ozturk, I. (2022). Signifying the relationship between fear of COVID-19, psychological concerns, financial concerns and healthcare employees job performance: A mediated model. *International Journal of Environmental Research and Public Health*, 19(5), 2657, https://doi.org/10.3390/ijerph19052657.

Schifano, S., Clark, A.E., Greiff, S., Vögele, C. and D'Ambrosio, C. (2021). Well-being and working from home during COVID-19. *Information Technology & People*, 36(5), 1851-1869, https://doi.org/10.1108/ITP-01-2021-0033.

Seddig, D., Maskileyson, D. and Davidov, E. (2022). Vaccination against COVID-19 reduces virus-related fears: Findings from a German longitudinal study. *Frontiers in Public Health*, 10, 878787. https://doi.org/10.3389/fpubh.2022.878787.

Sevilla, A. and Smith, S. (2020). Baby steps: The gender division of childcare during COVID19. *Oxford Review of Economic Policy*, 36(1), S169-S186, https://doi.org/10.1093/oxrep/graa027.

Şimşir, Z., Koç, H., Seki, T. and Mark D. Griffiths, M.D. (2022). The relationship between fear of COVID-19 and mental health problems: A meta-analysis, *Death Studies*, 46(3), 515-523, https://doi.org/10.1080/07481187.2021.1889097.

Somasundram, K.G., Hackney, A., Yung, M. et al. (2022). Mental and physical health and well-being of Canadian employees who were working from home during the COVID-19 pandemic. *BMC Public Health*, 22, 1987, https://doi.org/10.1186/s12889-022-14349-5.

Song, Y. and Gao, J. (2020). Does telework stress employees out? A study on working at home and subjective well-being for wage/salary workers. *Journal of Happiness Studies*, 21(7), 2649-2668, https://doi.org/10.1007/s10902-019-00196-6.

Van Zoonen, W. and Sivunen A.E. (2022). The impact of remote work and mediated communication frequency on isolation and psychological distress. *European Journal of Work Organizational Psychology*, 31(4), 610-621, https://doi.org/10.1080/1359432X.2021.2002299.

Vander Elst, T., Verhoogen, R., Sercu, M., Van den Broeck, A., Baillien E. and Godderis, L. (2017). Not extent of telecommuting, but job characteristics as proximal predictors of work-related well-being. *Journal of Occupational and Environmental Medicine*, 59(10), E180-E186, https://doi.org/10.1097/JOM.0000000000001132.

Wang, Y.A., and Rhemtulla, M. (2021). Power analysis for parameter estimation in structural equation modeling: A discussion and tutorial. *Advances in Methods and Practices in Psychological Science*, 4(1), https://doi.org/10.1177/2515245920918253.

Weale, V., Lambert, K.A., Graham, M., Stuckey, R. and Oakman, J. (2023). Do work–family conflict or family–work conflict mediate relationships between work-related hazards and stress and pain? *American Journal of Industrial Medicine*, 66, 780-793, https://doi.org/10.1002/ajim.23514.

Wels, J., Wielgoszewskal, B., Moltrecht, B. et al. (2022). Home working and social and mental wellbeing at different stages of the COVID-19 pandemic in the UK: Evidence from 7 longitudinal population surveys. *PLoS Medicine*, 20(4): e1004214, https://doi.org/10.1371/journal.pmed.1004214.

Wielgoszewska, B., Booth, C., Green, M.J., Hamilton, O.K. and Wels, J. (2022). Association between home working and mental health by key worker status during the Covid-19 pandemic. Evidence from four British longitudinal studies. *Industrial Health*, 60(4), 345-359, https://doi.org/10.2486/indhealth.2022-0081.

Wilbiks, J.M.P., Best, L.A., Law, M.A. and Roach, S.P. (2021). Evaluating the mental health and well-being of Canadian healthcare workers during the COVID-19 outbreak. *Healthcare Management Forum*, 34, 205-210, https://doi.org/10.1177/08404704211021109.

Windeler, J.B., Chudoba, K.M. and Sundrup, R.Z. (2017). Getting away from them all: Managing exhaustion from social interaction with telework. *Journal of Organizational Behavior*, 38(7), 977-995, https://doi.org/10.1002/job.2176.

Wood, S.J., Michaelides, G., Inceoglu, I., Hurren, E.T., Daniels, K. and Niven, K. (2021). Homeworking, well-being and the COVID-19 pandemic: A diary study. *International Journal of Environmental Research and Public Health*, 18 (44), 7575, https://doi.org/10.3390/ijerph18147575.

Wu, H. and Chen, Y. (2020). The impact of work from home (WFH) on workload and productivity in terms of different tasks and occupations. In: C. Stephanidis et al., *HCI International 2020 – Late Breaking Papers: Interaction, Knowledge and Social Media. HCII 2020.* Lecture Notes in Computer Science, Vol. 12427. Cham: Springer, https://doi.org/10.1007/978-3-030-60152-2_52.

Xiao, Y., Becerik-Gerber, B., Lucas, G. and Roll, S.C. (2021). Impacts of working from home during COVID-19 pandemic on physical and mental well-being of office workstation users. *Journal of Occupational and Environmental Medicine*, 63(3), 181-190, https://doi.org/10.1097/JOM.0000000000002097.

Xue, B. and McMunn, A. (2021). Gender differences in unpaid care work and psychological distress in the UK Covid-19 lockdown. *PLoS ONE*, 16(3), e0247959, https://doi.org/10.1371/journal.pone.0247959.

Yucel, D. and Chung, H. (2023). Working from home, work–family conflict, and the role of gender and gender role attitudes. *Community, Work & Family*, 26(2), 190-221, https://doi.org/10.1080/13668803.2021.1993138.

Table A.1 / Summary statistics, Cronbach's alpha and correlations of key variables: rounds 1 to 5

	Round	Mean	Std	α/corr. coeff†	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. WFH	R1	0.67	0.47	-	1														
	R2	0.60	0.49	-	1														
	R3	0.61	0.49	-	1														
	R5	0.49	0.50	-	1														
2. WFH: novice	R1	0.20	0.40	-	0.36[a]	1													
3. WFH: established	R1	0.46	0.50	-	0.66[a]	-0.47[a]	1												
4. WFH intensity	R2	0.46	0.45	-	0.83[a]	-	-	1											
	R3	0.45	0.44	-	0.82[a]	-	-	1											
	R5	0.28	0.37	-	0.78[a]	-	-	1											
5. Mental WB	R1	0.49	0.18	0.88	0.06[a]	0.00	0.06[a]	-	1										
	R2	0.52	0.18	0.89	0.03[a]	-	-	0.02[b]	1										
	R3	0.47	0.19	0.90	0.02[a]	-	-	0.01[b]	1										
	R5	0.48	0.18	0.90	0.08[a]	-	-	0.05[a]	1										
6. WFC	R1	0	1	0.83†	0.18[a]	0.04[a]	0.14[a]	-	-0.24[a]	1									
	R2	0	1	0.86†	0.17[a]	-	-	0.16[a]	-0.25[a]	1									
	R3	0	1	0.86†	0.15[a]	-	-	0.14[a]	-0.26[a]	1									
	R5	0	1	0.85†	0.11[a]	-	-	0.09[a]	-0.28[a]	1									
7. FWC	R1	0	1	0.73†	-0.01[a]	-0.02[a]	0.00	-	-0.33[a]	0.49[a]	1								
	R2	0	1	0.71†	-0.01	-	-	-0.03[a]	-0.41[a]	0.47[a]	1								
	R3	0	1	0.70†	-0.01	-	-	-0.03[a]	-0.42[a]	0.47[a]	1								
	R5	0	1	0.72†	-0.07[a]	-	-	-0.10[a]	-0.46[a]	0.45[a]	1								
8. Workload	R2	0	1	0.58	0.30[a]	-	-	0.26[a]	-0.15[a]	0.32[a]	0.46[a]	1							
9. Phys. risk	R2	0	1	0.65	-0.37[a]	-	-	-0.42[a]	-0.08[a]	0.01	0.17[a]	-0.02[b]	1						
10. Stability	R1	0	1	0.65	0.15[a]	0.09[a]	0.07[a]	-	0.29[a]	-0.12[a]	-0.17[a]	-	-	1					
	R2	0	1	0.56	0.17[a]	-	-	0.17[a]	0.31[a]	-0.15[a]	-0.22[a]	0.01	-0.17[a]	1					
	R3	0	1	0.62	0.18[a]	-	-	0.18[a]	0.32[a]	-0.18[a]	-0.25[a]	-	-	1					
	R5	0	1	0.60	0.19[a]	-	-	0.16[a]	0.37[a]	-0.23[a]	-0.31[a]	-	-	1					
11. Resilience	R1	0	1	0.73†	0.07[a]	0.01	0.06[a]	-	0.41[a]	-0.17[a]	-0.22[a]	-	-	0.27[a]	1				
	R2	0	1	0.74†	0.05[a]	-	-	0.04[a]	0.49[a]	-0.20[a]	-0.25[a]	-0.05[a]	-0.05[a]	0.30[a]	1				
	R3	0	1	0.76†	0.07[a]	-	-	0.05[a]	0.51[a]	-0.22[a]	-0.30[a]	-	-	0.32[a]	1				
	R5	0	1	0.76†	0.09[a]	-	-	0.07[a]	0.55[a]	-0.25[a]	-0.35[a]	-	-	0.36[a]	1				
12. NW: friends/family	R1	0	1	0.66	0.04[a]	0.01[b]	0.03[a]	-	0.14[a]	0.00	-0.06[a]	-	-	0.14[a]	0.11[a]	1			
13. NW: institutional	R1	0	1	0.46	0.06[a]	0.03[a]	0.03[a]	-	0.00	0.05[a]	0.03[a]	-	-	0.04[a]	-0.01[b]	-0.43[a]	1		
14. Isolation	R2	0	1	0.69†	-0.05[a]	-	-	-0.02[b]	-0.52[a]	0.20[a]	0.27[a]	0.09[a]	0.04[a]	-0.34[a]	-0.47[a]	-	-	1	
	R3	0	1	0.95†	-0.06[a]	-	-	-0.03[a]	-0.56[a]	0.20[a]	0.30[a]	-	-	-0.34[a]	-0.49[a]	-	-	1	
	R5	0	1	0.71†	-0.12[a]	-	-	-0.08[a]	-0.52[a]	0.23[a]	0.33[a]	-	-	-0.40[a]	-0.49[a]	-	-	1	
15. Accommodation	R5	0	1	0.67	-0.07[a]	-	-	-0.06[a]	-0.28[a]	0.20[a]	0.27[a]	-	-	-0.32[a]	-0.25[a]	-	-	0.26[a]	1

Note: † refers to the correlation coefficient in the case of two-item constructs, [a] p<0.001, [b] p<0.05, own calculations.

Table A.2 / Measurement model: rounds 1 to 5

Item	Round 1		Round 2		Round 3		Round 5	
	Unst. FL	St. FL	Unst. FL	St. FL	Unst. FL	St. FL	Unst. FL	St. FL
Mental well-being								
I have felt cheerful and in good spirits	1.000*	0.778[a]	1.000*	0.765[a]	1.000*	0.803[a]	1.000*	0.806[a]
I have felt calm and relaxed	1.004[a]	0.750[a]	1.027[a]	0.735[a]	0.995[a]	0.773[a]	1.005[a]	0.782[a]
I have felt active and vigorous	1.072[a]	0.807[a]	1.112[a]	0.814[a]	1.064[a]	0.833[a]	1.058[a]	0.835[a]
I woke up feeling fresh and rested	1.106[a]	0.759[a]	1.184[a]	0.776[a]	1.117[a]	0.797[a]	1.099[a]	0.786[a]
I have felt cheerful and in good spirits	1.014[a]	0.728[a]	0.982[a]	0.684[a]	1.030[a]	0.745[a]	0.937[a]	0.709[a]
Work-family conflict**								
Felt too tired after work to do some of the household jobs which needed to be done	-	0.935[a]	-	0.994[a]	-	0.958[a]	-	0.970[a]
Found that your job prevented you from giving the time you want to your family	-	0.758[a]	-	0.738[a]	-	0.755[a]	-	0.694[a]
Family-work conflict**								
Found it difficult to concentrate on your job because of family	-	0.705[a]	-	0.741[a]	-	0.722[a]	-	0.771[a]
Found that your family responsibilities prevented you from giving the time you should to your job	-	0.768[a]	-	0.735[a]	-	0.694[a]	-	0.702[a]
Stability								
Might lose your job in the next 3 months	1.000*	0.599[a]	1.000*	0.557[a]	1.000*	0.593	1.000*	0.495[a]
Have to leave accommodation within the next 6 months because you can no longer afford it	1.300[a]	0.658[a]	1.192[a]	0.512[a]	1.381[a]	0.626[a]	1.741[a]	0.643[a]
Your household is able to make ends meet	0.847[a]	0.648[a]	0.792[a]	0.628[a]	0.748[a]	0.567[a]	1.068[a]	0.646[a]
Resilience**								
I find it difficult to deal with important problems that come up in my life	-	0.739[a]	-	0.808[a]	-	0.788[a]	-	0.792[a]
When things go wrong in my life, it generally takes me a long time to get back to normal	-	0.771[a]	-	0.748[a]	-	0.749[a]	-	0.820[a]
Isolation**								
I feel left out of society	-	-	-	0.682[a]	-	0.662[a]	-	0.594[a]
I have felt lonely	-	-	-	0.689[a]	-	0.700[a]	-	0.649[a]
Networks with friends/family								
Support from family/friends in each situation								
Illness	1.000*	0.585[a]	-	-	-	-	-	-
Advice	1.066[a]	0.607[a]	-	-	-	-	-	-
Job search	0.943[a]	0.399[a]	-	-	-	-	-	-
Feeling depressed	0.963[a]	0.535[a]	-	-	-	-	-	-
Childcare	1.023[a]	0.443[a]	-	-	-	-	-	-
Shopping	1.077[a]	0.508[a]	-	-	-	-	-	-

Contd.

Table A.2 / Contd.

Item	Round 1		Round 2		Round 3		Round 5	
	Unst. FL	St. FL	Unst. FL	St. FL	Unst. FL	St. FL	Unst. FL	St. FL
Networks with organisations								
Support from a service provider/institution/organisation in each situation								
Illness	1.000*	0.480[a]	-	-	-	-	-	-
Advice	1.066[a]	0.444[a]	-	-	-	-	-	-
Feeling depressed	0.681[a]	0.321[a]	-	-	-	-	-	-
Childcare	0.662[a]	0.442[a]	-	-	-	-	-	-
Workload								
Worked in your free time to meet work demands	-	-	1.000*	0.749[a]	-	-	-	-
You have enough time to get the job done	-	-	0.502[a]	0.495[a]	-	-	-	-
Change in working hours during the COVID-19 pandemic	-	-	0.494[a]	0.376[a]	-	-	-	-
Physical risk								
Currently at risk of contracting the COVID-19 virus because of your job?	-	-	1.000*	0.689[a]	-	-	-	-
Currently in direct physical contact with people	-	-	0.690[a]	0.471[a]	-	-	-	-
Required to wear personal protective equipment to prevent the spread of COVID-19	-	-	0.882[a]	0.612[a]	-	-	-	-
Accommodation								
Thinking about your accommodation, how problematic are:								
Lack of space in the home	-	-	-	-	-	-	1.000*	0.512[a]
Poor insulation/energy efficiency	-	-	-	-	-	-	0.908[a]	0.434[a]
Poor internet connection	-	-	-	-	-	-	0.623[a]	0.329[a]
No access to balcony/terrace/garden	-	-	-	-	-	-	1.069[a]	0.539[a]
Noise from neighbours	-	-	-	-	-	-	1.322[a]	0.670[a]
Noise from traffic	-	-	-	-	-	-	1.053[a]	0.591[a]

Note: * unit loading indicator constrained to 1, ** concepts only include two items so that an identification issue emerges. Hence, only the standardised factor loadings (FL) are reported, based on a fully specified measurement model, [a] factor loadings significant at p<0.001. Factor loadings (standardised and unstandardised) are not shown for constructs with only two items due to identification issues: work-family conflict, family-work conflict, resilience and stability.

Table A.3 / Summary statistics and correlations of key variables: males

	Round	Mean	Std	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. WFH	R1	0.66	0.47	1														
	R2	0.59	0.49	1														
	R3	0.56	0.50	1														
	R5	0.46	0.50	1														
2. WFH: novice	R1	0.16	0.37	0.32[a]	1													
3. WFH: established	R1	0.50	0.50	0.72[a]	-0.44[a]	1												
4. WFH intensity	R2	0.43	0.44	0.81[a]			1											
	R3	0.39	0.43	0.81[a]			1											
	R5	0.26	0.36	0.77[a]			1											
5. Mental WB	R1	0.51	0.18	0.03[a]	-0.01	0.04[a]		1										
	R2	0.53	0.18	0.04[a]			0.03	1										
	R3	0.49	0.20	0.03[a]			0.01	1										
	R5	0.49	0.19	0.10[a]			0.07[a]	1										
6. WFC	R1	-0.01	-0.97	0.18[a]	0.02	0.15[a]		-0.24[a]	1									
	R2	-0.06	0.97	0.16[a]			0.14[a]	-0.25[a]	1									
	R3	-0.06	0.98	0.15[a]			0.13[a]	-0.29[a]	1									
	R5	-0.04	0.99	0.10[a]			0.08[a]	-0.30[a]	1									
7. FWC	R1	-0.09	-0.98	-0.01	-0.03[a]	0.01		-0.34[a]	0.49[a]	1								
	R2	-0.15	1.00	-0.02			-0.05[a]	-0.42[a]	0.47[a]	1								
	R3	-0.14	1.02	-0.02			-0.05[a]	-0.45[a]	0.50[a]	1								
	R5	-0.12	1.02	-0.09[a]			-0.12[a]	-0.48[a]	0.48[a]	1								
8. Workload	R2	-0.02	0.95	0.27[a]			0.22[a]	-0.14[a]	0.32[a]	0.44[a]	1							
9. Phys. risk	R2	-0.09	0.98	-0.34[a]			-0.40[a]	-0.07[a]	0.03[b]	0.18[a]	-0.02	1						
10. Stability	R1	0.00	1.04	0.18[a]	0.09[a]	0.10[a]		0.32[a]	-0.15[a]	-0.22[a]			1					
	R2	0.06	1.03	0.18[a]			0.18[a]	0.34[a]	-0.20[a]	-0.26[a]	0.00	-0.20[a]	1					
	R3	0.02	1.02	0.17[a]			0.18[a]	0.37[a]	-0.24[a]	-0.30[a]			1					
	R5	0.02	1.02	0.20[a]			0.18[a]	0.39[a]	-0.26[a]	-0.35[a]			1					
11. Resilience	R1	0.12	-0.98	0.06[a]	0.01	0.06[a]		0.43[a]	-0.21[a]	-0.26[a]			0.32[a]	1				
	R2	0.15	0.97	0.06[a]			0.05[a]	0.53[a]	-0.24[a]	-0.28[a]	-0.05[a]	-0.06[a]	0.36[a]	1				
	R3	0.17	0.96	0.07[a]			0.06[a]	0.53[a]	-0.24[a]	-0.32[a]			0.37[a]	1				
	R5	0.16	0.99	0.11[a]			0.08[a]	0.56[a]	-0.28[a]	-0.37[a]			0.41[a]	1				
12. NW: friends/family	R1	0.08	-1.00	0.04[a]	0	0.04[a]		0.14[a]	0.00	-0.06[a]			0.14[a]	0.11[a]	1			
13. NW: institutional	R1	0.01	-1.01	0.06[a]	0.03[a]	0.04[a]		0.00	0.05[a]	0.03[a]			0.04[a]	-0.02[b]	-0.40[a]	1		
14. Isolation	R2	-0.19	0.97	-0.08[a]			-0.05[a]	-0.55[a]	0.21[a]	0.30[a]	0.08[a]	0.04[a]	-0.35[a]	-0.50[a]			1	
	R3	-0.21	0.95	-0.08[a]			-0.05[a]	-0.56[a]	0.22[a]	0.33[a]			-0.37[a]	-0.51[a]			1	
	R5	-0.17	0.95	-0.13[a]			-0.08[a]	-0.52[a]	0.24[a]	0.34[a]			-0.41[a]	-0.49[a]			1	
15. Accommodation	R5	0.04	0.98	-0.08[a]			-0.07[a]	-0.29[a]	0.23[a]	0.30[a]			-0.33[a]	-0.26[a]			0.26[a]	1

Note: [a] p<0.001, [b] p<0.05, own calculations.

Table A.4 / Summary statistics and correlations of key variables: females

	Round	Mean	Std.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. WFH	R1	0.67	0.47	1														
	R2	0.61	0.49	1														
	R3	0.64	0.48	1														
	R5	0.52	0.5	1														
2. WFH: novice	R1	0.22	0.41	0.37[a]	1													
3. WFH: established	R1	0.45	0.50	0.64[a]	-0.48[a]	1												
4. WFH intensity	R2	0.47	0.45	0.84[a]			1											
	R3	0.49	0.44	0.83[a]			1											
	R5	0.31	0.38	0.78[a]			1											
5. Mental WB	R1	0.48	0.18	0.08[a]	0.01	0.07[a]		1										
	R2	0.50	0.18	0.03[b]			0.02	1										
	R3	0.45	0.19	0.03[a]			0.03[a]	1										
	R5	0.46	0.18	0.06[a]			0.04[a]	1										
6. WFC	R1	0.02	-1.01	0.18[a]	0.05[a]	0.13[a]		-0.24[a]	1									
	R2	0.03	1.00	0.17[a]			0.17[a]	-0.24[a]	1									
	R3	0.03	1.00	0.14[a]			0.14[a]	-0.24[a]	1									
	R5	0.04	0.99	0.11[a]			0.10[a]	-0.26[a]	1									
7. FWC	R1	0.03	-1.00	-0.02[b]	-0.02[a]	0.00		-0.33[a]	0.49[a]	1								
	R2	0.07	0.98	-0.01			-0.03[b]	-0.40[a]	0.48[a]	1								
	R3	0.07	0.97	-0.01			-0.03[a]	-0.40[a]	0.45[a]	1								
	R5	0.09	0.95	-0.06[a]			-0.10[a]	-0.44[a]	0.42[a]	1								
8. Workload	R2	0.06	1.02	0.31[a]			0.27[a]	-0.15[a]	0.31[a]	0.47[a]	1							
9. Phys. risk	R2	0.03	1.01	-0.39[a]			-0.44[a]	-0.08[a]	-0.01	0.17[a]	-0.02[b]	1						
10. Stability	R1	0.03	0.96	0.14[a]	0.09[a]	0.06[a]		0.27[a]	-0.11[a]	-0.14[a]			1					
	R2	0.04	0.97	0.16[a]			0.16[a]	0.29[a]	-0.13[a]	-0.20[a]	0.02	-0.15[a]	1					
	R3	0.07	0.97	0.19[a]			0.18[a]	0.30[a]	-0.16[a]	-0.22[a]			1					
	R5	0.05	0.96	0.18[a]			0.14[a]	0.35[a]	-0.20[a]	-0.28[a]			1					
11. Resilience	R1	0.09	-0.95	0.08[a]	0.01	0.06[a]		0.40[a]	-0.15[a]	-0.21[a]			0.25[a]	1				
	R2	0.09	0.95	0.04[a]			0.04[a]	0.47[a]	-0.18[a]	-0.23[a]	-0.05[a]	-0.05[a]	0.27[a]	1				
	R3	0.13	0.94	0.06[a]			0.05[a]	0.50[a]	-0.21[a]	-0.28[a]			0.30[a]	1				
	R5	0.09	0.94	0.08[a]			0.06[a]	0.55[a]	-0.23[a]	-0.32[a]			0.33[a]	1				
12. NW: friends/family	R1	0.16	-0.91	0.03[a]	0.01	0.02[a]		0.15[a]	0.00	-0.06[a]			0.14[a]	0.11[a]	1			
13. NW: institutional	R1	0.00	-0.99	0.06[a]	0.03[a]	0.03[a]		0.00	0.06[a]	0.03[a]			0.04[a]	-0.01	-0.44[a]	1		
14. Isolation	R2	-0.16	0.94	-0.04[a]			-0.01	-0.51[a]	0.19[a]	0.26[a]	0.09[a]	0.04[a]	-0.33[a]	-0.46[a]			1	
	R3	-0.17	0.93	-0.05[a]			-0.03[a]	-0.56[a]	0.19[a]	0.27[a]			-0.32[a]	-0.48[a]			1	
	R5	-0.17	0.94	-0.11[a]			-0.07[a]	-0.53[a]	0.23[a]	0.32[a]			-0.38[a]	-0.48[a]			1	
15. Accommodation	R5	0.02	0.98	-0.05[a]			-0.05[a]	-0.28[a]	0.17[a]	0.25[a]			-0.32[a]	-0.24[a]			0.26[a]	1

Note: [a] p<0.001, [b] p<0.05, own calculations.

Table A.5 / Factorial invariance across genders

		Round 1	Round 2	Round 3	Round 5
Measurement model: males	SRMR	0.057	0.053	0.060	0.063
	CD	0.294	0.681	0.382	0.379
Measurement model: females	SRMR	0.047	0.050	0.046	0.062
	CD	0.350	0.706	0.448	0.477
Configural invariance	SRMR	0.075	0.071	0.078	0.084
	CD	0.907	0.958	0.930	0.929
Metric invariance	SRMR	0.075	0.071	0.078	0.084
	CD	0.906	0.957	0.930	0.929
Scalar invariance	SRMR	0.075	0.071	0.078	0.084
	CD	0.907	0.958	0.930	0.929
Health	Metric (p-value)	(0.005)	(0.474)	(0.742)	(0.831)
	Partial (p-value)	(0.196)†	-	-	-
	Scalar (p-value)	(0.000)	(0.002)	(0.000)	(0.000)

Note: p-values from adjusted Wald tests which test the equality of certain measurement parameters are reported in parentheses. Metric refers to metric factorial invariance, partial to partial metric invariance, and scalar to scalar factorial invariance. † released parameters are Health-2 and Health-3 ('I have felt calm and relaxed' and 'I have felt active and vigorous').

IMPRESSUM

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