

Beyond lockdowns: working from home and mental health across three phases of the pandemic

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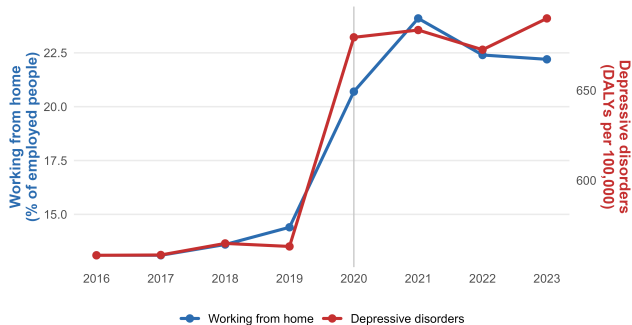
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Economics of Mental Health Workshop

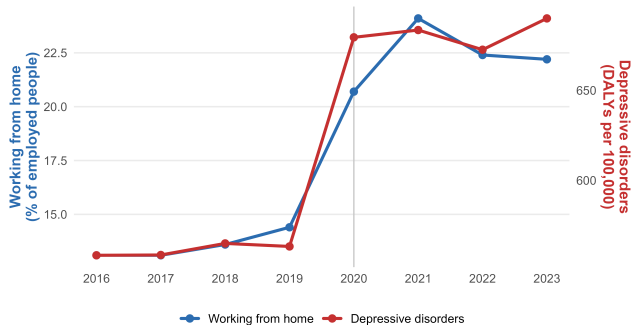
June, 2026

Motivation: Working from home & mental health across time



Sources: Eurostat Ifsa_ehomp (EU-27 aggregate); IHME GBD 2023. DALYs are the unweighted mean ac

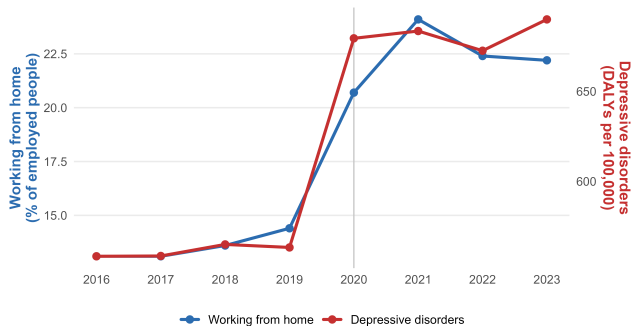
Motivation: Working from home & mental health across time



Sources: Eurostat Ifsa_ehomp (EU-27 aggregate); IHME GBD 2023. DALYs are the unweighted mean age

Question: Is working from home (WFH) creating a mental health crisis?

Motivation: Working from home & mental health across time



Sources: Eurostat Ifsa_ehomp (EU-27 aggregate); IHME GBD 2023. DALYs are the unweighted mean age

Question: Is working from home (WFH) creating a mental health crisis?

Tension: Was poor mental health due to WFH, or to the conditions around it?

Research Question:

How did the mental-health consequences of working from home change from lockdown to post-lockdown Australia?

- ▶ Phase 1 (2020): Abrupt lockdown → high restrictions & limited preparations
- ▶ Phase 2 (2021): Prolonged restriction-era → further restrictions & partial adaptation
- ▶ Phase 3 (2022): Post-lockdown → fewer restrictions & more autonomy

Secondary Question:

How do worker characteristics and job design moderate the relationship between working from home and mental health?

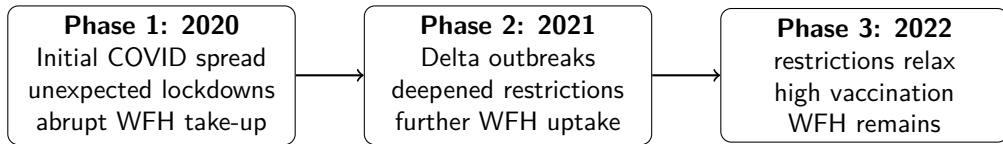
Preview of findings

- ❶ WFH–mental health relationship varies sharply across phases
 - ▶ During lockdown years, WFH is associated with modest but statistically significant declines in mental health
 - ▶ By 2022, once restrictions eased, the average WFH–mental health association is no longer negative
- ❷ Risks are concentrated among specific groups
 - ▶ Women (with dependent children) experience the largest negative associations during lockdown years
 - ▶ Workers with low job control remain negatively affected even in 2022
 - ▶ Moderate hybrid WFH in 2022 is positively associated with mental health

- 01** Data & institutional background
- 02** WFH & mental health by pandemic phase
- 03** Heterogeneity across workers and jobs
- 04** Discussion in 3 parts

Institutional setting: Australia's WFH experiment

- ▶ Australia provides a useful setting: strict lockdowns, large WFH take-up, and a clear transition out of restrictions
- ▶ Analysis period: 2015–2022; reference year is 2019
- ▶ Sample: continuously employed workers aged 20+ in 2019



Key contrast: forced WFH under lockdowns vs. more flexible post-lockdown WFH.

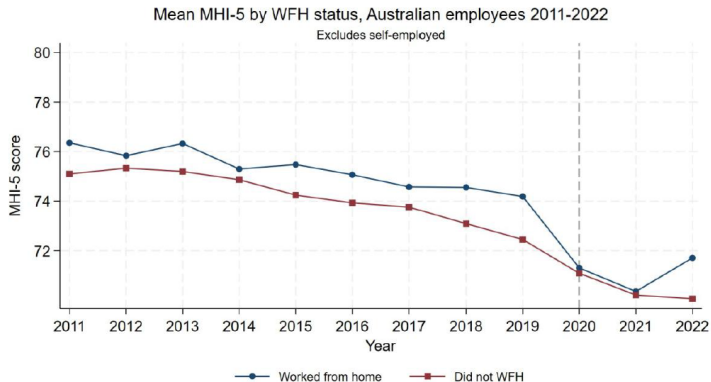
Data and measurement

- ▶ **Data:** Household, Income and Labour Dynamics in Australia (HILDA)
- ▶ **Sample:** $\sim 5,500$ continuously employed workers; $\sim 38,000$ person-year obs
- ▶ **Outcome:** MHI-5 mental health score
 - ▶ Based on five questions on anxiety and mood symptoms in the past four weeks
 - ▶ Scaled from 0 to 100; higher values indicate better mental health
- ▶ **Main WFH measure:** indicator for any usual working hours worked from home
- ▶ **Intensity measure:** share of weekly working hours worked from home
- ▶ **Design:** within-person panel analysis comparing changes relative to 2019

Sample restriction avoids confounding from job loss, but focuses on workers with stable employment.

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Figure 2. Mean Mental Health Inventory scores for employed people over time



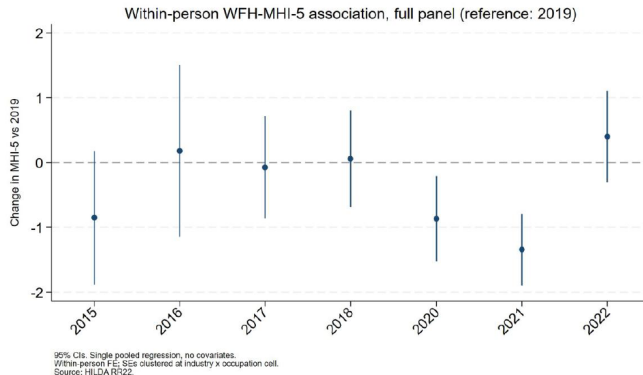
Source: HILDA RR22. Author's calculations.

$$\text{MHI-5}_{it} = \alpha_i + \sum_{k \neq 2019} \gamma_k \mathbf{1}\{t = k\} + \sum_{k \neq 2019} \beta_k \mathbf{1}\{t = k\} \times \text{WFH}_{it} + X'_{it} \pi + \varepsilon_{it}$$

- ▶ α_i : individual fixed effects.
- ▶ γ_k : calendar-year fixed effects, relative to 2019.
- ▶ β_k : WFH–year interaction; the coefficient of interest.
- ▶ Pre-pandemic coefficients for 2015–2018 are placebo/pre-trend checks.
- ▶ Standard errors clustered at the industry-by-occupation level.

Main result

Figure 4. Within-person event-study coefficients on WFH $\times$ year interactions, 2015–2022



Takeaway: [Popular Press] “Mental health crisis” narrative applied more to involuntary ‘WFH under lockdown conditions and institutional context’ than to WFH itself

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Heterogeneity: who is most affected?

Motivation: Average effects may hide different WFH experiences across workers/jobs.

1. Worker constraints and resources

▶ **Gender × dependent children**

- ▶ caregiving burden
- ▶ work–family conflict

▶ **Perceived social support**

- ▶ stress-buffering resources
- ▶ isolation risk

2. Job and work characteristics

▶ **WFH intensity**

- ▶ occasional vs. hybrid vs. high-intensity WFH
- ▶ degree of exposure

▶ **Perceived job control**

- ▶ autonomy over tasks and timing
- ▶ ability to manage boundaries

Key question: are WFH risks universal, or concentrated among certain workers?

Heterogeneity: who is most affected? – Gender and dependent children

Dependent variable: MHI-5 points	Group	2020	2021	2022
	Male, no dependents	-0.30	-0.49	0.99
	Female, no dependents	-1.49**	-1.98***	0.44
	Male, dependents	-0.25	-0.64	0.62
	Female, dependents	-1.71*	-2.04***	-0.79

- ① **Gender:** Women show the largest lockdown-period declines; effects are similar with and without dependent children.

Heterogeneity: who is most affected? – WFH intensity

Dependent variable: MHI-5 points	WFH share of hours	2020	2021	2022
	0–25%	-0.54	-1.79***	-0.32
	25–50%	0.55	-0.30	1.37*
	50–75%	-0.83	-0.32	1.32
	75–100%	-1.50	-1.39	0.48

- ① **Gender:** Women show the largest lockdown-period declines; effects are similar with and without dependent children.
- ② **WFH intensity:** No clear dose-response; moderate hybrid WFH, 25–50%, is positive in 2022.

Heterogeneity: who is most affected? – Social support

Dependent variable: MHI-5 points	Social support	2020	2021	2022
	High	-1.21***	-1.14***	0.22
	Medium	-0.13	-0.82	0.22
	Low	-1.10*	-1.37**	0.04

- 1 **Gender:** Women show the largest lockdown-period declines; effects are similar with and without dependent children.
- 2 **WFH intensity:** No clear dose-response; moderate hybrid WFH, 25–50%, is positive in 2022.
- 3 **Social support:** Little evidence of buffering; negative lockdown associations appear for both low- and high-support workers.

Heterogeneity: who is most affected? – Job control

Dependent variable:	Job control	2020	2021	2022
MHI-5 points	High	-0.72	-1.12***	0.76
	Medium	-1.22*	-1.23**	0.07
	Low	-2.04***	-2.59*	-1.83***

- 1 **Gender:** Women show the largest lockdown-period declines; effects are similar with and without dependent children.
- 2 **WFH intensity:** No clear dose-response; moderate hybrid WFH, 25–50%, is positive in 2022.
- 3 **Social support:** Little evidence of buffering; negative lockdown associations appear for both low- and high-support workers.
- 4 **Job control:** Low-control workers remain negatively affected even in 2022.

- ▶ WFH is associated with modest mental-health declines during lockdown years.
- ▶ Once restrictions ease, the average negative association disappears.
- ▶ Main interpretation: the mental-health costs reflect **WFH under lockdown conditions**, not WFH itself.
- ▶ Key exception: low-job-control workers remain negatively affected.

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- 02** Pandemic bundles: Separating WFH from concurrent shocks
- 03** Heterogeneity mechanisms: Interpreting subgroup patterns

1. WFH transitions - who does the β_k coefficient capture?

- ▶ Recall: $WFH_{t,i} = 1$ if individual i works from home in year t
 $\Rightarrow WFH_{it}$ pools different WFH histories:
 - ▶ **never WFH**: non-WFH comparison group
 - ▶ **always WFH**: experienced WFH workers
 - ▶ **new entrants**: workers induced into WFH by lockdowns
 - ▶ **exiters**: workers who leave WFH after restrictions ease
- ▶ Key question: Is the negative lockdown coefficient driven by **all WFH workers**, or mainly by **new entrants**?
- ▶ If mainly new entrants, the result may reflect forced transition costs rather than WFH under lockdown more generally.

1. WFH transitions - *suggested decomposition*

- ▶ Estimate the event study separately by WFH history:
 - ▶ pre-COVID WFH workers
 - ▶ pandemic-induced WFH entrants
 - ▶ temporary WFH workers / exiters
 - ▶ persistent post-lockdown WFH workers
- ▶ This would clarify the main estimand:
 - ▶ WFH itself
 - ▶ forced transition into WFH
 - ▶ WFH under lockdown conditions
 - ▶ selected post-lockdown hybrid work
- ▶ It would also help interpret why the average WFH association disappears in 2022

Discussion in 3 parts

- 01** WFH transitions: Clarifying the treatment margin
- 02** Pandemic bundles: Separating WFH from concurrent shocks
- 03** Heterogeneity mechanisms: Interpreting subgroup patterns

2. Pandemic bundles: Other possible simultaneous shocks

- ▶ WFH and non-WFH workers may have faced different pandemic-era shocks
- ▶ Some shocks may make WFH look worse:
 - ▶ school closures and childcare while working at home
 - ▶ social isolation and blurred work–home boundaries
 - ▶ lack of adequate home workspace
- ▶ Other shocks may make non-WFH look worse:
 - ▶ workplace infection risk
 - ▶ commuting during restrictions
 - ▶ correlation with lower income and worse housing conditions
- ▶ Hence the direction of confounding is ambiguous
- ▶ β_k not just WFH, but also *WFH conditions* and *relative pandemic bundles*

2. Pandemic bundles: Separating WFH from pandemic bundles

- ▶ Underlying questions:
 - ▶ How do new WFH entrants look like compared to existing WFH or never-WFH workers?
 - ▶ How do WFH conditions look like for different individuals during lockdown and outside lockdown?
- ▶ *Suggestions:*
 - ▶ Add region $\times$ year fixed effects for local lockdown intensity
 - ▶ Add occupation $\times$ year fixed effects for occupation specific changes
 - ▶ Add industry $\times$ year fixed effects for industry specific shocks
 - ▶ Compare pre-COVID WFH workers with new WFH entrants on items such as occupation, income, housing, household structure, and baseline mental health

Discussion in 3 parts

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3. Heterogeneity mechanisms: Interpreting subgroup patterns

- ▶ The heterogeneity results support the idea that WFH effects depend on constraints and work conditions
- ▶ But subgroups are not pandemic-specific:
 - ▶ low job control should matter for WFH generally
 - ▶ gendered work–family constraints may exist outside lockdowns as well
- ▶ This raises a useful test: Do heterogeneity patterns also appear before COVID?
 - ▶ If yes, they may reflect stable WFH vulnerabilities
 - ▶ If no, they may reflect pandemic-specific mechanisms such as lockdowns, school closures, remote monitoring, or crisis-driven work intensity
- ▶ *Suggestion:* estimate subgroup-specific placebo/pre-pandemic WFH associations

Good luck with the paper

- ▶ Very timely paper with clear policy relevance
- ▶ Advances the literature by separating lockdown and post-lockdown WFH
- ▶ Highlights that WFH conditions matter for mental-health outcomes
- ▶ Open questions:
 - ▶ Which WFH transition margin drives the main result?
 - ▶ How much of the estimate reflects pandemic-era shock bundles?
 - ▶ Are heterogeneity patterns stable vulnerabilities or pandemic-specific mechanisms?