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Article

Underemployment and mental health amongst working-age Australians: a gendered analysis using the HILDA survey (2002–2022)

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ABSTRACT

Underemployment is an increasingly persistent and pervasive feature of contemporary labour markets and there is some evidence to suggest that underemployment is an important social determinant of health and well-being. However, the evidence base has tended to focus on hours-based underemployment more than others like skills-based underemployment. Moreover, the gendered dimensions of underemployment remain under-researched despite evidence to suggest that women are more likely to be underemployed. Drawing on 21 annual waves (2002–22) of data from the Household, Income, Labour Dynamics in Australia survey, this longitudinal study employed Mundlak modelling to examine the association between two forms of subjective underemployment and mental health in working-age (25–64 years) Australians ($n = 18,285$). Underemployment was operationalized in two ways: (1) hours-related underemployment; and (2) skills-based underemployment. Mental health was assessed using the MHI-5 scale. All models were stratified by gender. Results suggest that hours-related underemployment has a more negative effect on women's mental health while skills-related underemployment has a more negative effect on men's. Theoretically, this article highlights how subjective forms of underemployment are like unemployment, acting as a stressor for mental health because they partially deprive workers of the benefits of full employment. This study provides robust longitudinal evidence of the detrimental impact of underemployment on the mental health of working-aged Australians, highlighting how inadequate forms of work have negative health consequences. Thus, greater effort from both governments and employers is needed to implement policies and programs that help workers reach their capacity to mitigate against the negative health effects of underemployment.

Keywords: underemployment; mental health; gender; longitudinal; Australia

Contribution to Health Promotion

- This study demonstrates the importance of underemployment as a social determinant of mental health.
- Underemployment is becoming a more persistent feature of labour markets, especially in high-income countries like Australia.
- Underemployment is multi-dimensional, but this study focused on two forms—hours-related and skill-related underemployment.
- Both forms of underemployment adversely impact the mental health of both Australian men and women.
- Reducing underemployment has the potential to improve population-level mental health.

INTRODUCTION

Employment is an important social determinant of mental health. The relationship between employment and mental health rests on a continuum; those employed full-time are in better health than those unemployed (Bamba 2011). This suggests that people working in other forms of employment along this continuum may fare better or worse depending on their proximity to full-time employment. Indeed, there is a growing body of evidence that suggests non-standard and precarious work is associated with poorer health and well-being

(De Witte et al. 2016, Churchill and Khan 2021, Pulford et al. 2002). Here, we explore a form of employment that is often under-investigated: underemployment. In its broadest definition, underemployment is 'working in a job that is below the employee's full working capacity' (McKee-Ryan and Harvey 2011: 963). Understanding the impact of underemployment on health, specifically mental health, is critical as underemployment has become a more pervasive, and persistent feature of employment histories in recent decades (Mavromaras et al. 2015, Chambers et al. 2021, Griffin et al. 2021).

Underemployment has been conceptualized and operationalized in several ways. It should be understood as a multi-dimensional concept involving subjective and objective elements, most of which are characterized as conditions that are less than what one would typically experience in full-time employment. [McKee-Henry and Harvey \(2011: 974\)](#) note, ‘Underemployment is extremely complex not only because of its multidimensionality but also because of the potential overlap between dimensions’. Underemployment involves working less than one’s full capacity or preference in several ways: (1) employed in a job where one earns less or is stationed in a lower-status job than in their previous job; (2) working less than full-time hours but wanting to work more hours; (3) mismatch between one’s preferences and actual working schedule and shifts; (4) using less of one’s education skills, training, education, or experience or working in a job outside of one’s education and training; (5) subjective feelings of working in a job that uses less skills or is of lesser or lower quality ([McKee-Ryan and Harvey 2011](#)). The broad definition of underemployment means that many people can experience different forms of underemployment, particularly those on the margins of the labour market. This also means that it is difficult to synthesize research on underemployment and its impacts because of its multifaceted nature.

Underemployment is associated with poorer general health and well-being ([Heyes and Tomlinson 2021](#), [Bell and Blanchflower 2019](#), [Friedland and Price 2003](#), [Kameråde and Richardson 2018](#)). However, previous research testing the association between underemployment and mental health outcomes has produced mixed findings. As [Friedland and Price \(2003: 152\)](#) note, ‘the relationship between underemployment and health and psychological well-being varies by both types of underemployment and indicator of health and wellbeing’. Hours-related underemployment is associated with higher levels of depression ([Bell and Blanchflower 2019](#), [Dooley et al. 2000](#), [Mousteri et al., 2020](#)), psychological distress ([Allan et al. 2022](#)), and lower levels of positive self-concept ([Friedland and Price 2003](#)). However, there has been inconsistency across studies in how hours-related underemployment has been measured; for example, [Dooley et al. \(2000\)](#) and [Friedland and Price \(2003\)](#) operationalized hours-related underemployment as working 35 h or more a week and wanting to work more hours. In contrast, [Mousteri et al. \(2020\)](#) and [Scott-Marshall et al. \(2007\)](#) used a lower threshold of 30 h per week. [De Moortel et al. \(2018\)](#) used a broader indicator of underemployment based on whether the workers’ desired hours were matched, greater (i.e. underemployed) or lesser (i.e. overemployed), finding no association between underemployment and mental health. The evidence on the relationship between skills-based underemployment and mental health is more inconclusive. Moreover, some of this literature uses overeducation as a proxy for skill underutilization whereby being overqualified for one’s current job or occupation is equated to not using one’s skills to the fullest in their current job. For example, [Scott-Marshall et al. \(2007\)](#) and [Hilbrecht et al. \(2017\)](#) both rely on measures of perceived overeducation to find an association between skills-related underemployment and poorer mental health. Similarly, [Allan et al. \(2022\)](#) found an association between perceived overqualification and psychological distress. However, [Friedland and Price \(2003\)](#) found no association between overeducation using an objective measure to conclude that skills-related underemployment and mental health. Overall, the evidence on

underemployment and mental health is uneven with much of it focused on hours-related underemployment. The research on skills-related underemployment is significantly less established and limited because it relies on cross-sectional data, with few studies employing longitudinal data or analysis.

Underemployment, whether hours-related or skills-related, has the potential to negatively impact mental health by acting as a chronic stressor. Similar to unemployment, subjective underemployment represents a significant mismatch between an individual’s employment conditions and their expectations, capacities, and aspirations ([Pearlin 1989](#), [Pearlin et al. 2005](#)). This mismatch can trigger psychosocial strain, leading to declines in psychological well-being. Theoretically, we integrate the stress process model ([Pearlin et al. 2005](#)) and latent deprivation theory ([Jahoda 1982](#)) to explain the mechanisms through which subjective underemployment affects mental health. These two perspectives highlight how underemployment both induces stress through unrealised aspirations and restricts access to key benefits that employment typically provides.

According to the stress process model, stressors—defined as events or experiences that challenge adaptation—can have negative consequences on emotions, cognition, behaviour, and overall well-being ([Pearlin 1989](#), [Pearlin et al. 2005](#)). Underemployment functions as a stressor because it represents a barrier to achieving one’s goals, creating frustration, uncertainty, and diminished self-worth. From a structural perspective, stress is not an isolated experience but is shaped by an individual’s position in the social hierarchy, including class, age, gender, race, and other social markers ([Pearlin 1989](#)). Individuals from marginalized or disadvantaged groups may be more susceptible to underemployment due to constrained opportunity structures, making them more vulnerable to prolonged stress and its negative effects on mental health ([McLeod and Nonnemaker 1999](#)). Furthermore, underemployment can have spillover effects by inducing economic strain, particularly in the case of hours-related underemployment, where fewer work hours result in lower earnings. Economic stressors, in turn, can amplify mental health struggles by increasing uncertainty, financial insecurity, and overall stress exposure ([Epel et al. 2018](#)).

While the stress process model explains how underemployment acts as a stressor, latent deprivation theory ([Jahoda 1982](#)) highlights how underemployment restricts access to crucial psychological benefits of employment. According to [Jahoda \(1982\)](#), employment provides five key latent functions, beyond its manifest function of income: (1) Time structure; (2) A sense of purpose; (3) Social contact; (4) Status and identity; and (5) Regular activity. Unemployment fully deprives workers of these benefits, but underemployment may result in partial deprivation, depending on its form. Hours-related underemployment may disrupt time structure, particularly in industries characterized by casual, temporary, or irregular employment patterns ([Beck et al. 2024](#)). A lack of predictable working hours can reduce stability, weaken routines, and contribute to stress and uncertainty, leading to psychological distress.

Skills-related underemployment may deprive individuals of meaningful work and a sense of purpose by preventing them from utilizing their full skill set. This mismatch between capabilities and job roles can lead to demotivation, dissatisfaction, and a diminished sense of professional identity. Both forms of underemployment may weaken status and identity, as

workers may perceive their roles as undervalued, leading to feelings of inadequacy, frustration, and lower self-esteem. This aligns with research suggesting that individuals who perceive themselves as overqualified or underutilized may experience a lack of recognition and appreciation, further exacerbating stress (Evans et al. 2006).

We argue that underemployment negatively impacts mental health through two interrelated pathways. First, underemployment acts as a chronic stressor by limiting workers' career aspirations and goal attainment, generating psychological strain due to unrealised potential and economic instability (Pearlin et al. 2005). Second, where underemployment restricts access to employment's latent benefits, particularly time structure, purpose, status, and identity, contributing to diminished self-worth, motivation, and social integration (Jahoda 1982). In this way, we suggest that underemployment not only creates stress by limiting opportunities but also erodes the psychological and material benefits typically derived from employment, reinforcing cycles of mental health strain.

There is some research to suggest that underemployment is gendered as both women and men are more likely than men to experience both hours-related underemployment (Scott-Marshall et al. 2007) and skills-related underemployment (Boto-García and Escalonilla 2022). However, much of the research on underemployment is gender-blind in that research does not focus on the gendered mechanisms, experience or outcomes of underemployment, including mental health outcomes. Studies use sex as a control and analyses are rarely, if ever, stratified, which further limits our knowledge of the differences between men's and women's experiences of underemployment. Those outside the gender binary are further excluded. Women's higher incidence of hours- and skills-related underemployment reflects the structure of the labour market and women's position within it. Over their working lifetime most women move in and out of paid work to accommodate the provision of family care (Charlesworth et al. 2011), which channels women into certain types of employment, occupations and industries, such as female-dominated occupations or more precarious jobs where there is a higher incidence of underemployment (Kameråde and Richardson 2018; Charlesworth et al. 2011). Women are also more likely to be educated than men (ABS 2018) and because of their overrepresentation in lower-quality jobs, they are more likely to experience skills-related underemployment.

Since the Global Financial Crisis (2008–09), there is evidence to suggest that many forms of underemployment like hours-related, skills-related and wage-related underemployment have become a more persistent feature of the Australian labour market (Borland and Coelli 2021, de Fontenay et al. 2020). However, underemployment remains largely invisible as a social problem and historically there has been an overemphasis on addressing and reducing unemployment. The Australian government's recent *White Paper on Full Employment* (Commonwealth of Australia 2023) acknowledges the growing problem of underemployment. However, this is acknowledged as an economic problem rather than one of well-being and health. The evidence base in Australia regarding the impact of underemployment on health is limited. A 2017 study showed a step-wise relationship between hours-related underemployment and mental health; the greater the number of hours-underemployed Australians preferred to work, the greater the decline in mental health. The fixed-effects models

showed that workers who desired between 11 and 20 h more work a week had the greatest declines in mental health (Milner and LaMontagne 2017). Other studies have looked at underemployment in specific subpopulations. For example, a 2017 study found that underemployed Australians (working less than 40 h a week) have poorer mental health than those who were not underemployed, with associations particularly pronounced for those with a disability who were underemployed (Milner et al. 2017). A 2012 study found that migrants who did not use their skills had poorer general health than those who did use their skills (Reid 2012). Nonetheless, despite interest in subpopulations, none of these examined the gendered dimensions of underemployment.

The current study aims to address some of the gaps in the current literature on underemployment and mental health. First, we focus on two forms of subjective underemployment: (1) *hours-related underemployment*—working fewer hours than one would like; (2) *skills-related underemployment*—working in a job where one does not sufficiently use their skills. While hours-related underemployment has been the focus of most of the literature on underemployment, we use a broader measure of hours-related underemployment. Notably, our measure does not include a threshold on the number of hours worked in the respondents' current job (i.e. working less than 35 h per week), which means it captures all workers, regardless of whether they work part-time or full-time hours. Furthermore, our inclusion of a subjective measure of skills-related underemployment also makes a strong contribution to the literature given previous research has tended to use objective measures (Allan et al. 2022), deriving skills-related underemployment using years spent in education for example. Second, we account for the gendered dimensions of underemployment given that women are more likely to be exposed. We stratify our models by gender and include key covariates such as household configuration and hours spent on unpaid labour (e.g. care, housework), which shape women's labour force participation. We acknowledge gender beyond the binary conceptualizations; however, data limitations mean that our sample and thus conclusions about underemployment and mental health are limited to discussions about men and women. Third, we make a theoretical contribution by drawing on the stress process model and latent deprivation theory to show that forms of subjective underemployment are stressors like unemployment and depriving workers of the latent benefits of full employment. Fourth, we draw on robust longitudinal data and use advanced modelling techniques that allow us to look at both random- and fixed-effects components. Finally, this study contributes to the field by examining the Australian context where research on underemployment is limited despite its prevalence across the national labour market.

OBJECTIVES AND HYPOTHESES

The focus of this research is to examine underemployment. We stratify the models by gender to consider gender associations. The research aims to address: (1) whether being exposed to hours-related and/or skills-related underemployment affects mental health; and (2) whether these effects are gendered. In line with some of the theoretical mechanisms identified earlier, we expect that both forms of underemployment will impact the mental health of working Australians. We also expect that both genders will be impacted.

DATA AND METHODS

Data and analysis sample

Data are drawn from the Household, Income and Labour Dynamics in Australia (HILDA) Survey. HILDA is a household panel study with a focus on dynamics in three key research areas: family and household, income and welfare, and labour. HILDA commenced in 2001, and data are collected yearly (Summerfield *et al.* 2020). HILDA is a dynamic panel dataset in which respondents may exit the survey due to household dissolution or death or enter by joining an existing household or upon turning 15 years of age. The reference population for the initial wave was all members in private dwellings across Australia. From the sampling frame, 11,693 households were identified and interviews with 7,682 responding households were completed resulting in a 66% household response rate for Wave 1. From the responding households, 13,969 responding persons over the age of 15 were interviewed in wave 1. A top-up sample was introduced in 2011 (wave 11), which added 4009 people from 2153 households to correct for under-representativeness, including migrant populations, and address bias arising from non-random attrition (see Watson 2011 for more details). Attrition in the HILDA Survey is similar to international household panels such as the British Household Panel Survey (BHPS) (Wooden and Watson 2021). Data collection for the HILDA survey was approved by the Human Research Ethics Committee at the University of Melbourne.

Analysis for this study utilized pooled data from 21 annual waves of HILDA (2002–22), with the population of interest restricted to employed adult Australians 25–64 years who were observed at least once during this period. Of the 44,460 participants (434,947 observations) in waves 2002–22, there were 25,577 participants (233,103 observations) aged 25–64 years. Of those, 19,972 (161,947 observations) were employed. The resultant analytic sample across all contributing waves, after excluding participants with missing data from variables of interest, was 18,285 participants (124,469 observations), 9,310 women and 9,155 men. Figure 1 outlines the selection of participants for the analytical sample.

Exposure variables

In each HILDA wave, labour force status is captured and classifies participants as employed, unemployed, or not in the labour force/retired for the year preceding the present interview year. Employed participants are subsequently asked numerous questions regarding their job characteristics, employment conditions, and opinions regarding their jobs in both the personal and the self-completion questionnaires. For this study, two measures of subjective underemployment were constructed and analysed separately. These were an hours-based measure: (1) more work hours preferred and skill-based measure: (2) over-skilled in current job. They were derived and operationalized as follows:

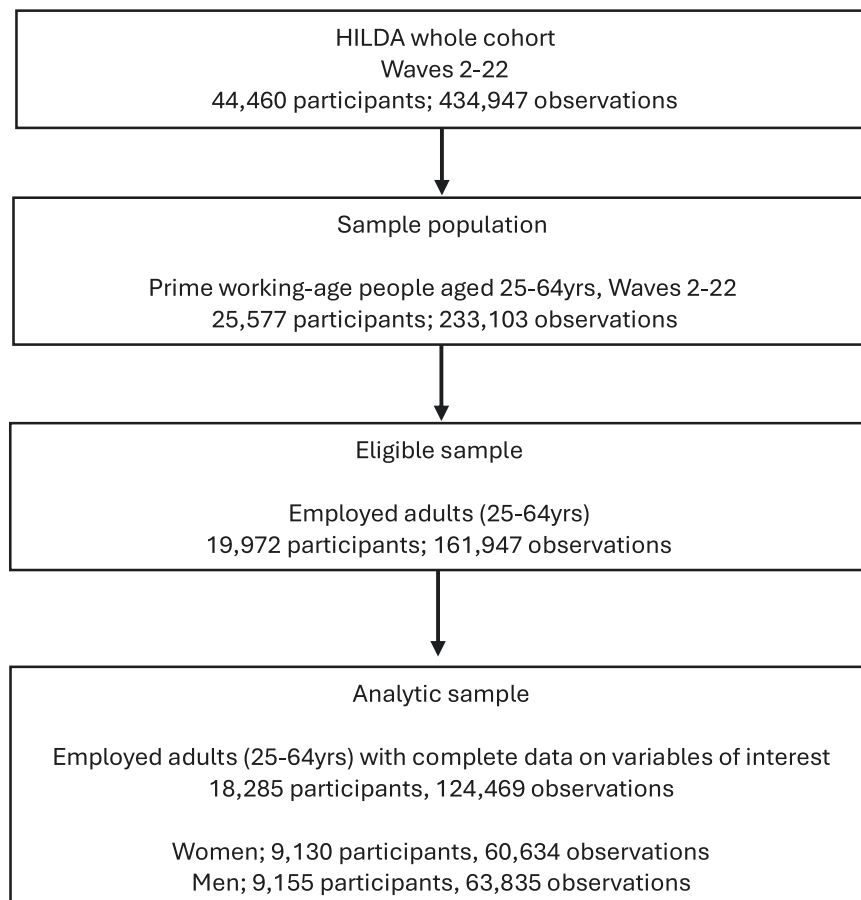


Figure 1. Flow chart showing selection of analytic sample.

More work hours preferred

The HILDA personal questionnaire asks employed participants questions regarding their job characteristics in every wave. One of these questions concerns the number of hours respondents would prefer to work (if they could choose the number of hours they work each week, taking into account how that would affect their income). Response options included: (1) fewer hours, (2) about the same hours, and (3) more hours. For our analysis, the variable was operationalized as a categorical variable, with ‘about the same hours’ coded as the reference group. The ‘more hours’ category was the main group of interest as we were particularly interested in interrogating underemployment.

Over-skilled in current job

In every wave of the HILDA survey, the self-completion questionnaire includes questions to employed participants regarding their opinions about their jobs. One of these questions relates to skill usage via the statement ‘I use many of my skills and abilities in my current job’, and respondents’ answers are measured via a Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). For our analysis, the variable was operationalized as a binary exposure and dichotomized into feeling over-skilled in one’s current job (1–4) or feeling skill-matched (5–7) in one’s current job.

Outcome variable

HILDA includes a range of subjective measures of health, including the Short Form (SF)-36 Health Survey, which has demonstrated validity within the Australian and HILDA context (Butterworth and Crosier 2004, Summerfield et al. 2020). The SF-36 instrument comprises 36 items assessing health status and well-being within eight distinct functional health scales (Ware and Sherborne 1992, McHorney et al. 1993). One of these is the 5-item mental health scale known as the MHI-5. The MHI-5 assesses symptoms of depression and anxiety (nervousness, depressed affect) and positive markers of mental health (feeling calm and happy) in the 4 weeks preceding the survey (Ware and Sherbourne 1992, McHorney et al. 1993, Ware 2001). The MHI-5 is an effective mental health screening instrument and has been validated as a measure for depression using clinical interviews as the gold standard (Rumpf et al. 2001, Cujipers et al. 2009). The MHI-5 is expressed on a 0–100 scale, with lower scores indicating poorer mental health (Ware and Sherbourne 1992, McHorney et al. 1993) For all analyses in this article, the MHI-5 score was operationalized as a continuous numerical variable with scores ranging from 0 to 100.

Covariates

Based on existing literature (Bell and Blanchflower 2019, Dooley et al. 2000, Mousteri et al. 2020), we considered the following variables to be plausible common causes of underemployment and mental health amongst working-age Australian adults and, as such, they were included in our models as confounders; age, household disposable income (quintiles), occupational skill level (low, medium, and high according to the Australian and New Zealand Standard Classification of Occupations occupational groupings), education, long-term physical health condition (yes/no), place of residence (city/regional/remote), ethnicity/Indigenous status (non-indigenous Australian/Indigenous or Torres Strait Islander Australian/

other English-speaking country/non-English-speaking countries), unpaid labour time (household work, childcare, other care, outdoor tasks [all in hours/week]), and household configuration (partner status/dependent children). (Household disposable income was calculated by summing the income components for the previous financial year for all adults in the household and was equivalised using the modified OECS scale (Hagenaars et al. 1994). For each wave of data, nominal household income values were converted into quintiles of the Australian population distribution using percentile statistics for the corresponding year from the ABS biennial survey of Income and Housing (Australian Bureau of Statistics 2017). The highest quintile of the population distribution of disposable income was used as the reference category. We also controlled for survey year to account for period-specific contextual, population and/or policy factors, and age-squared given age may have a non-linear relationship with our exposure variables over time.

Statistical analysis

All statistical analyses were performed using Stata 17.0 statistical package (StataCorp 2021). All analyses were stratified by gender. First, descriptive analysis was performed to examine the characteristics of the population of interest. We then utilized Mundlak (1978) longitudinal regression modelling to examine the relationship between each of our two indicators of underemployment and mental health. Two separate Mundlak models were performed controlling for the covariates described above, i.e. separate models for skills-based underemployment ‘over-skilled in current job’, and hours-based underemployment ‘more work hours preferred’. Mundlak regression modelling was chosen for two reasons. Firstly, it includes group-means over time of time-varying variables in the models, which is relevant in the current study given the 22 years of data being analysed. Furthermore, Mundlak models exploit the strengths of both random-effects and fixed-effects regression approaches and are consequently also known as hybrid models (Schunck and Reinhard 2013, Bell and Jones 2015, Dieleman and Templin 2016). This methodology enables separate estimates for both ‘within’ and ‘between’ person effects (Schunck and Reinhard 2013, Bell and Jones 2015, Dieleman and Templin 2016). In the fixed-effect component of these models, time-invariant confounding (such as personality characteristics) is effectively controlled for, with each person serving as their own control (within-person) (Schunck and Reinhard 2013, Bell and Jones 2015, Dieleman and Templin 2016). Conversely, random-effects models (between-person) can estimate coefficients for both time-invariant and time-variant variables. However, these models may produce biased estimates for time-invariant variables if unobserved heterogeneity is correlated with the variables included in the analysis (Schunck and Reinhard 2013, Bell and Jones 2015, Dieleman and Templin 2016). Mundlak models combine the strengths of both approaches, enabling the estimation of the effect of changes in underemployment status on mental health at an individual level (within-person), while also capturing the associations between these variables at the group level (between-person).

RESULTS

Table 1 presents the sample characteristics based on the gendered distribution of outcome, exposure, and confounding

Table 1. Sample characteristics

	Female	Male
Participants, <i>n</i> (%)	9,130 (50)	9,155 (50)
Observations, <i>n</i> (%)	60,634 (49)	63,835 (51)
Age, years (mean ± SD)	42.5 ± 10.7	42.7 ± 10.8
Mental health, MHI-5 score* (mean ± SD)	73.7 ± 16.3	75.9 ± 15.6
*The MHI-5 is expressed on a 0–100 scale, with lower scores indicating poorer mental health		
Hours of work preferred, <i>n</i> (%)		
About the same hours preferred	35,830 (59)	38,334 (60)
Fewer hours preferred	16,865 (28)	19,045 (30)
More hours preferred	7,939 (13)	6,493 (10)
Use of skills and abilities in current job, <i>n</i> (%)		
Skill-matched	47,820 (79)	51,050 (80)
Over-skilled	12,814 (21)	12,822 (20)
Unpaid labour, hours/week (mean ± SD)		
Total unpaid labour (inclusive of all below)	31.2 ± 24.7	20.2 ± 15.6
Household work	17.6 ± 12.0	9.3 ± 7.3
Childcare	10.2 ± 17.0	6.1 ± 9.6
Care for elders/disabled	0.9 ± 5.1	0.5 ± 3.5
Outdoor tasks	2.6 ± 3.9	4.4 ± 5.1
Household structure, <i>n</i> (%)		
Couple no children	17,024 (28)	17,279 (27.1)
Couple with children < 15	19,563 (32)	24,991 (39.1)
Couple with children > 15 (dependent students or non-dependent children)	8,254 (14)	8,607 (13.5)
Lone person	7,095 (12)	8,639 (13.5)
Lone parent with children < 15	3,514 (5.8)	601 (0.9)
Lone parent with children > 15 (dependent students or non-dependent children)	2,913 (4.8)	1,554 (2.4)
Other (other related no children < 15, group household unrelated, multi-family)	2,271 (3.8)	2,201 (3.5)
Education, <i>n</i> (%)		
School not completed	10,189 (16.8)	9,861 (15.4)
Year 12	7,405 (12.2)	7,624 (11.9)
Diploma/Certificate	18,042 (29.8)	26,406 (41.3)
Bachelor's degree and above	24,998 (41.2)	19,981 (31.3)
Ethnic background, <i>n</i> (%)		
Non-indigenous Australian	47,064 (77.6)	32,009 (76.6)
Indigenous/Torres Strait Islander Australian	1,084 (1.8)	1,027 (1.6)
Other English-speaking country	5,442 (9.0)	6,951 (10.9)
Non-English-speaking country	7,069 (11.7)	6,981 (10.9)
Household disposable income, quintiles, <i>n</i> (%)		
1st quintile	2,743 (4.5)	2,760 (4.3)
2nd quintile	7,426 (12.3)	8,356 (13.1)
3rd quintile	13,079 (21.6)	13,525 (21.2)
4th quintile	17,050 (28.1)	17,562 (27.5)
5th quintile	20,336 (33.5)	21,669 (33.9)
Long-term health condition, disability, or impairment, <i>n</i> (%)		
Yes	10,684 (17.6)	10,629 (16.6)
No	49,950 (82.4)	53,243 (83.4)
Place of residence, <i>n</i> (%)		
Major city	39,904 (65.8)	41,803 (65.5)
Regional/rural	19,822 (32.7)	21,038 (32.9)
Remote	908 (1.5)	1,031 (1.6)
Occupational skill level, <i>n</i> (%)		
High	27,220 (44.9)	27,361 (42.9)
Medium	25,007 (41.2)	21,709 (34.0)
Low	8,407 (13.9)	14,765 (23.1)

Table 1. Continued

	Female	Male
<i>Labour force characteristics</i>		
Paid work hours, hrs/week in all jobs (mean \pm SD)	33.21 \pm 13.1	43.4 \pm 11.8
<i>Employment arrangement, n (%)</i>		
Permanent full-time	25,399 (42.1)	39,523 (62.0)
Permanent part-time	13,607 (22.5)	1,958 (3.1)
Casual and labour hire	9,384 (15.5)	5,806 (9.1)
Fixed term	5,507 (9.1)	4,113 (6.5)
Self-employed	6,494 (10.8)	12,305 (19.3)

variables. There was evidence of gender differences in mental health, labour force characteristics, and unpaid labour time. Women had lower mean mental health scores (73.7) than men (75.9) and did an average of 11 h more of unpaid labour each week than men. Regarding labour force characteristics, substantially more women were employed part-time (23%) than men (3%), and this was also reflected in the hours of paid work in all jobs (mean of 33 h for women and 43 h for men). Correspondingly, more men worked full-time (62%) than women (42%). More women than men were casual workers (16% and 9%, respectively) and fixed-term workers (9% and 7%, respectively). More men than women were self-employed (19% and 11%, respectively) and there were more men (23%) than women (14%) in low-skilled occupations. There were minimal gender differences in household structure, except for lone parents with children under 15, with approximately six times more women (6%) than men (1%) in this category. With respect to education, more men (41%) than women (30%) had a diploma/certificate; however, more women had a bachelor's degree or above (41%) than men (31%). Ethnicity and the proportion of participants with a long-term health condition, disability or impairment, regional place of residence, and across the household income quintiles were also overall similar between genders.

Forms of underemployment for the sample population have waxed and waned over the last 20 years (see [Supplementary Figure A1](#)). Minimal differences were observed for our two underemployment indicators (hours of work preferred, use of skills and abilities in current job).

Analytical results

[Table 2](#) presents the crude and adjusted coefficients for each of the three models from the Mundlak longitudinal regression models for the relationship between skill-based and hours-based underemployment and mental health, stratified by gender. The adjusted models control for confounding variables (e.g. socio-demographic differences like education) to isolate the effect of hours- and skills-based underemployment. Overwhelmingly, both our crude and adjusted results show a strong association between underemployment and poorer mental health in both women and men, in both within and between-person components of the models. The results presented below are for the covariate-adjusted models.

Skill-based underemployment—Use of skills and abilities in current job model

Compared to participants who were perceived to be skills-matched in their current job, those who perceived themselves

to be over-skilled in their current job had poorer mental health. In the between-person approach, the mental health MHI-5 scores of women who were over-skilled were 1.4 points lower than women who were skill-matched (-1.4 , 95% CI -1.7 , -1.1 ; $P < .001$), and men's were 2.0 points lower (-2.0 , 95% CI -2.2 , -1.7 ; $P < .001$), after adjusting for confounders. Similar results were observed in the within-person analyses (albeit slightly attenuated), with women's mental health MHI-5 scores 1.1 points lower when over-skilled (-1.1 , 95% CI -1.4 , -0.8 ; $P < .001$) compared to when they were skill-matched, and men's 1.6 points lower (-1.6 , 95% CI -1.9 , -1.3 ; $P < .001$), after adjusting for confounders.

Hours-based underemployment—Hours of work preferred model

Compared to participants who preferred the same hours of work, those who reported that they preferred more hours of work had poorer mental health. In the between-person approach, the mental health MHI-5 scores of women preferring more hours were 1.6 points lower than women who preferred their current hours (-1.6 , 95% CI -1.9 , -1.3 ; $P < .001$), and men's were 1.2 points lower (-1.2 , 95% CI -1.5 , -0.9 ; $P < .001$), after adjusting for confounders. Similar results were observed in the within-person analyses (albeit slightly attenuated), with women's mental health MHI-5 scores 1.2 points lower (-1.2 , 95% CI -1.6 , -0.9 ; $P < .001$) when they preferred more hours compared to when they preferred the same, and men's 0.6 points lower (-0.6 , 95% CI -1.0 , -0.3 ; $P < .001$), after adjusting for confounders. Note that [Table 2](#) also reports the findings for the third category of hours of work preferred (prefer fewer hours), which also suggests a strong association with poorer mental health (compared to those who prefer the same hours of work) and prefer to work fewer hours. However, this is not discussed further given that over-employment is not the focus of this article.

DISCUSSION

Drawing on pooled data from 21 annual waves of data (2002–22) from the HILDA survey, this longitudinal study estimated Mundlak models to examine the association between forms of underemployment and mental health in working-age (25–64 years) Australian women and men. We examined two forms of underemployment: (1) hours-related underemployment which involves working fewer hours than desired; and (2) skills-related underemployment which involves not fully utilizing one's skills in one's job. The models were stratified by gender to explore the gendered dimensions of underemployment.

Table 2. Mundlak regression examining associations between mental health and various indicators of underemployment in working-age adults (25–64) over 21 waves (waves 2–22) of HILDA, stratified by gender

Underemployment indicators	Women 9,130 persons, 60,634 observations		Men 9,155 persons, 63,835 observations	
	MH Score b coefficient ^a (95% CI; P-value)		MH Score b coefficient ^a (95% CI; P-value)	
	Model 1: Crude model	Model 2: Adjusted model	Model 1: Crude model	Model 2: Adjusted model
<i>Between persons</i>				
<i>Hours of work preferred</i>				
About the same hours preferred	Reference group	Reference group	Reference group	Reference group
Fewer hours preferred	-1.4 (-1.6, -1.2; P < 0.001)	-1.5 (-1.8, -1.3; P < 0.001)	-1.5 (-1.7, -1.3; P < 0.001)	-1.6 (-1.9, -1.4; P < 0.001)
More hours preferred	-1.8 (-2.1, -1.5; P < 0.001)	-1.6 (-1.9, -1.3; P < 0.001)	-1.3 (-1.7, -1.0; P < 0.001)	-1.2 (-1.5, -0.9; P < 0.001)
<i>Use of skills and abilities in current job</i>				
Skill-matched	Reference group	Reference group	Reference group	Reference group
Over-skilled	-1.4 (-1.7, -1.2; P < 0.001)	-1.4 (-1.7, -1.1; P < 0.001)	-2.1 (-2.3, -1.8; P < 0.001)	-2.0 (-2.2, -1.7; P < 0.001)
<i>Within persons</i>				
<i>Hours of work preferred</i>				
About the same hours preferred	Reference group	Reference group	Reference group	Reference group
Fewer hours preferred	-1.3 (-1.6, -1.1; P < 0.001)	-1.3 (-1.6, -1.1; P < 0.001)	-1.4 (-1.7, -1.2; P < 0.001)	-1.5 (-1.7, -1.2; P < 0.001)
More hours preferred	-1.3 (-1.6, -0.9; P < 0.001)	-1.2 (-1.6, -0.9; P < 0.001)	-0.6 (-0.9, -0.2; P < 0.001)	-0.7 (-1.0, -0.3; P < 0.001)
<i>Use of skills and abilities in current job</i>				
Skill-matched	Reference group	Reference group	Reference group	Reference group
Over-skilled	-1.1 (-1.4, -0.8; P < 0.001)	-1.1 (-1.4, -0.8; P < 0.001)	-1.6 (-1.8, -1.3; P < 0.001)	-1.6 (-1.9, -1.3; P < 0.001)

Model 1: Crude model. Model 2: Adjusted model. Adjusted for age, age-squared, year, unpaid labour time (household work, childcare, other caregiving, outdoor tasks), long-term health condition, education, disposable income, occupational skill level, household structure (partner status, dependent children, etc.), place of residence, and ethnicity/Indigenous status.

^aEstimated regression coefficient or estimated mean difference (MH-5 trans score on a 0–100 scale).

We expected that both forms of underemployment would have a negative effect on the mental health of working Australians. We expected that this effect would be consistent across genders even after accounting for confounders like unpaid labour (e.g. housework, time with children) and household composition. Our findings align with these expectations. For both men and women in our study, hours-related and skills-related underemployment were negatively associated with mental health.

Across the models, regardless of the type of underemployment they were exposed to, underemployed respondents consistently had an increased risk of mental health problems, and these relationships were not explained by confounders. Using Mundlak models allowed us to decompose two separate effects—between effects and time-varying within-person effects—in examining the relationship between mental health and forms of underemployment. The significant time-varying within-person effects indicate that change in mental health was associated with a change in underemployment status. This is one of the key contributions of this study. This means that we compare those individuals who have at some point been exposed to either form of underemployment and have poorer mental health and those whose change in mental health status is associated with a change in underemployment status (i.e.

moving into hours-based underemployment). We find support for both between- and within-person effects. Men and women who have been exposed to either form of underemployment were more likely to report a decline in mental health than those who were not underemployed, with this association evident for both hours- and skills-based underemployment.

Our findings align with some of the previous research on subjective underemployment which has found a negative association with mental health among hours-underemployed workers in Australia (Milner and LaMontagne 2017) and globally (Dooley et al. 2000, Moustari et al. 2020). Most of the research (and indeed policy) about underemployment is focused on hours-related underemployment. Thus, one of the main contributions of this study is to add to the literature on skills-based underemployment and its association with mental health. The findings heretofore have been mixed (Friedland and Price 2003, Scott-Marshall et al. 2007, Allan et al. 2022); however, our findings align with the limited amount of research that has reported a negative association between skills-related underemployment and mental health (Scott-Marshall et al. 2007, Reid 2012, Heilbrecth et al. 2017).

This research also highlights the gendered dimensions of underemployment. Previous research has largely ignored the

gendered impact of underemployment even though women are more likely to be both hours- and skills-related underemployed (Chambers et al. 2021, Griffin et al. 2021). Our results yield interesting gender-specific findings. The results suggest that the mental health consequences of hours-related underemployment are greater for women and that the mental health consequences of skills-related underemployment are greater for men. Women may experience a stronger impact of hours-related underemployment on their mental health, as they are more likely than men to be employed in part-time jobs (Charlesworth et al. 2011). Consequently, working fewer hours can significantly affect their income, a crucial factor influencing health and well-being. Men tend to work longer hours in better-paying occupations (Wilkins and Wooden 2014) and thus may be able to weather hours-underemployment better because even if they do lose work, it is likely to have less of a financial impact. On the other hand, skills-related underemployment may negatively impact men more because being employed in a job where they are not using their skills to the fullest may indicate they are working in a job that is somehow lesser in terms of job quality or meaning (Beck et al. 2024). This may be more damaging to men than women as work is central to masculinity and masculine identities as breadwinners (Morgan 1992).

The findings have theoretical implications. First, this research extends on the stress process model as the results suggest both forms of hours- and skills-based underemployment act like stressors in the same way unemployment is a stressor (Pearlin et al. 2005). Second, the results of the Mundlak models illustrate that subjective underemployment is not a static stressor or that the negative relationship between subjective forms of underemployment and mental health is not just a stressor or result of cumulative stress as per the stress process model, but also dynamic as we found that transitions into hours- or skill-based underemployment were found to be associated with negative mental health. This expands our understanding of how stress changes over time. Third, the findings that both forms of underemployment are associated with mental health reaffirm the ideas behind latent deprivation that of the manifest and latent benefits of employment (Jahoda 1982). However, the findings do suggest that some forms of underemployment may result in a partial deprivation of latent benefits, i.e. skills-underemployment. Fourth, the gendered differences in the effects of hours- and skills-related underemployment may suggest that manifest functions of employment may be more important to women's health and well-being than latent benefits as a loss of hours results in not only a loss or deprivation of a time structure but also income (Jahoda 1982, Beck et al. 2024). Taken with the larger effect of skills-based underemployment on mental health among men, these gendered results necessitate a re-examination of latent deprivation theory through a gendered lens and suggest a re-thinking of how particular latent benefits like purpose, identity, and status may reflect gendered, breadwinner ideals. Finally, this research underscores the importance of recognizing underemployment as a site of inequality and a site of poor health, lending evidence to Beck et al. (2004) criticism of the 'any job is better than no job' discourse.

The findings of our study have implications for the well-being of working Australians. In 2019, 1.1 million working Australians were hours-underemployed (Chambers et al. 2021) and almost one in five were over-skilled (Griffin et al. 2021). Both forms of underemployment have been on the

rise in the Australian labour market since the Global Financial Crisis (2008–09) (Mavromaras et al. 2015, Chambers et al. 2021, Griffin et al. 2021). This study suggests that a considerable proportion of the working population is being exposed to the negative effects of underemployment on their mental health and well-being. However, underemployment has largely been absent from the government's agenda. Although the Australian Government's *White Paper on Full Employment* (2022) acknowledges the growing problem of underemployment, ameliorating underemployment is seen as addressing an economic issue of productivity rather than improving health and well-being. In contrast, this research highlights that underemployment is more than just an economic issue but critical to the health and well-being of Australians. Furthermore, in addressing both hours-based and skill-based underemployment, governments have the potential to elicit significant population mental health gains.

The strengths of this study are the use of longitudinal data from a large, long-standing nationally representative household study (HILDA) and the use of a validated measure of mental health (MHI-5). Further strengths are its focus on two forms of underemployment, its application of a robust hybrid analytical method to define both between- and within-person associations and its application of a gender lens. However, there are several limitations to our study. First, the focus is on subjective forms of underemployment, which means our picture of underemployment and its impact on mental health and well-being is limited because underemployment is multi-dimensional encompassing both subjective measures (like hours- and skills-related underemployment) as well as objective measures like wage-related underemployment. Moreover, individuals likely experience more than one form of underemployment at a time. Future studies could incorporate objective measures of underemployment and explore the multidimensionality of underemployment. Second, both our exposure and outcome variables were self-reported and are thus susceptible to self-reporting bias. This may also lead to common methods bias which may lead to spurious associations between the exposure and outcome variables because some respondents may overreport their perceived levels of underemployment and mental health due to negative affectivity rather than their actual situation. Third, findings may not be generalizable to the whole working population given our study sample was restricted to working-age Australians aged between 25 and 64 years. This restriction was specifically implemented to avoid any potential bias around older age groups and health status; however, it is of note that underemployment is greatest among age groups at both ends of the spectrum (Churchill 2021). There is a potentiality that limiting the sample to employed persons only means that our results are susceptible to healthy worker bias (Dahl 1993). Fourth, given our models cannot assess directionality, reverse causation is a further limitation. Our models simply compare the average mental health of individuals in different exposure categories, and therefore cannot rule out the possibility that some people with poor mental health may select into underemployment.

CONCLUSION

As underemployment increases both in Australia and around the world, this study makes several key contributions. Providing

robust, longitudinal evidence regarding the detrimental impact of underemployment on mental health amongst working-aged Australians, this research finds that both forms of underemployment—hours- and skills-based—affect mental health. The results of Mundlak models suggest that the mental health consequences of hours-related underemployment are greater for women whereas the mental health consequences of skills-related underemployment are greater for men. These gendered findings require further research. Lastly, these findings highlight the need for a greater focus on underemployment, which remains often under-researched and invisible in employment policy and programs but is a critical social determinant of health and well-being. As this research shows, in addressing underemployment, governments can improve the well-being of their citizenry.

SUPPLEMENTARY MATERIAL

Supplementary material is available at *Health Promotion International* online.

AUTHOR CONTRIBUTIONS

B.C., J.E., L.R., Y.T., and T.K. conceived and designed the study. J.E. accessed and verified the study. J.E. conducted and wrote up the analysis. All authors interpreted the results. J.E. and B.C. wrote the manuscript. J.E. compiled the tables and figures. All authors contributed to drafts, approved the final version, and were responsible for the decision to submit the manuscript for publication.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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DATA AVAILABILITY

The data that support the findings of this study are not publicly available due to the conditions of data access from the data custodians (the Australian Data Archive). Interested individuals can apply to the Australian Data Archive for access at <https://dataverse.ada.edu.au/dataverse.xhtml?alias=ada&q=HILDA>, and once approved can apply to the corresponding author.

ETHICS

Data collection for the HILDA survey was approved by the Human Research Ethics Committee at the University of Melbourne.

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