

Precarious Employment and Employees' Self-rated Mental Health in Australia

Guangyu Zhang, Sue Richardson

* This study was undertaken as part of the project on Changing Pattern of Work: Impacts on Physical & Mental Health & the Meditating Role of Resiliency & Social Capital (2007-11) funded by the National Medical & Health Research Council (NHMRC) of Australia on the Strategic Awards.

Abstract

There is growing evidence that precarious employment is harmful to health. In Australia, such employment comprised one third of the total work force in 2006, much of which involved employment on casual terms. Australia is an interesting case, since it has a century-old system of protections for workers and a distinctive welfare state. Our hypothesis is that these protections reduce the harm to health arising from precarious employment. Employing six waves of longitudinal survey data and logistic regression models, this paper examines the mental health consequences, measured by SF-36 health instrument, of employment on a casual or fixed-term basis compared with permanent employment. Gender differences are explored. Key control variables include demographic and socio-economic characteristics, occupation, negative affectivity, and the level of social support. The paper also examines whether there were any lagged mental health consequences from current precarious employment. We find that most precarious employees did not have systematically worse mental health; however, male casual and female fixed-term employees working full-time were more likely to report low mental health. Meanwhile, no lagged mental health effects were found.

Key words: Precarious employment; Mental health; Longitudinal data; HILDA survey; Health inequalities; Australia

Introduction

The proportion of individuals employed in precarious work, including part-time, casual, fixed-term, labour-hire and self-employed jobs, has increased greatly in all industrial countries since the 1980s (Bergström and Storrie 2003; Quinlan, Mayhew and Bohle 2001). Australia is no exception, thanks to the restructuring of the economy, deregulation of the labour market and the globalisation process. By 2006 more than 40 percent of the total work force, including the self-employed, worked in precarious employment. Over half of these were casual employees, and another 7 percent were employed on a fixed-term contract. There is a clear gender difference: more women enjoyed the newly created full-time permanent jobs, while increasingly men of prime working age were in full-time casual employment. Despite this margin of change, women were much more likely than men to be employed on part-time and/or casual terms (Australian Bureau of Statistics 2009).

In contrast to permanent employment, precarious employment is seen to have high job insecurity, low wages, lack of social benefits, and powerlessness (Benach et al. 2008). There is growing evidence that these features have negative health consequences (Kawachi 2008; Virtanen et al. 2005), but the findings are not conclusive. Job insecurity has been identified as a major pathway linking precarious employment with negative health outcomes (Ferrie 1999) and meta-analyses confirmed the significant associations between them (De Witte 1999; Sverke, Hellgren and Naswall 2002). However, subjective job insecurity is only one dimension of precarious employment and as such provides a partial picture of its health consequences (Benach and Muntaner 2007; Benach et al. 2002).

Studies that directly examine how the form of employment relates to health have inconsistent findings. For example, Benavides et al. (2000) reported that precarious employment was more stressful based on cross-sectional data from 15 European countries. In contrast, Virtanen et al. (2002), reported that both men and women with fixed-term employment mostly had better self-rated health compared to their permanent counterparts. Using longitudinal data from both Britain and Germany, Rodriguez (2002) found only fixed-term employees in Germany reported significantly lower mental health. In a similar exercise but focusing on British workers alone with more detailed analyses, Bardasi & Francesconi (2004) still did not find any significant health consequences of contingent employment. A more recent study in Korea using longitudinal data reported significant health damaging effects of precarious employment (Kawachi 2008; Kim et al. 2008). We must conclude that the direct impact of precarious employment on health remains an unsettled question.

Australia is an interesting case. There has been an increase in precarious employment, but there are some unique characteristics in the Australian labour market that we expect to ameliorate its impact on workers. First, neither health care nor unemployment benefits are tied to prior employment history. Second, the industrial relations system provides casual employees with an unusual level of protection: a) most casuals are paid at a higher hourly rate than a permanent worker in the same job; b) employers are equally obligated

to contribute to the individual superannuation accounts of casual workers; and c) as with permanent workers, casual workers cannot be dismissed unfairly (unless they work for a small firm) or discriminated against on the basis of a range of personal characteristics including age, ethnicity, sex and marital status. Third, workers employed on a fixed-term contract are predominantly females with higher education and income concentrated in the education sector, enjoying benefits similar to their permanent counterparts (Wooden and Warren 2004). Finally, it is likely that many women who are employed part-time and/or as casuals prefer this form of employment: it provides them with more options for work/life balance, and the higher hourly pay for being casual is appealing.

Despite these protections, casual work does impose costs on some workers (Pocock, Prosser and Beridge 2004; Watson 2005). In addition to higher job insecurity, casual employees lack opportunities for on-the-job training and a career path (Richardson and Law 2009). In a qualitative study Pocock et al. (2004) found that the experience of casual work varied greatly by employer and that for many workers casual employment is “undermining self-esteem and contributing to worry and stress over money and predictable work” (2004: 7).

The experience of casual employment is likely to differ among adult men and women. One hypothesis is that men experience a conflict between their traditional family roles as breadwinners and the sad reality of uncertain earnings and low status employment that often goes with casual employment. At worst, they are stuck with “inferior” jobs with low pay, an implicit contract that says that their jobs and/or hours of work could be varied at any time by the employer, marginalisation in the workplace, little hope for career development and low status. All of these could contribute to chronic mental distress. In contrast, many women who work on casual terms are second earners in the family, so job insecurity is more tolerable; and they value the work and life balance made possible by casual and/or part-time work.

Because of the protections offered, we expect precarious employment to be relatively benign in its health impacts in Australia. Consequently, we propose two hypotheses: (1) the unique protections for precarious employees, in particular for casuals, are able to ameliorate any harmful effects, and (2) casual employment is more harmful to the health of men than of women. We used longitudinal data from the nationally representative Household, Income and Labour Dynamics in Australia (HILDA) survey, to examine these two hypotheses.

Data and Method

Data and statistical analysis

The data we used are from the first six waves of the HILDA survey. This is a broad social and economic panel survey, with a focus on employment, income and family formation. The data are collected annually from over 7,000 randomly chosen households across

Australia, comprising about 14,000 individuals. More detailed information about this survey is available elsewhere (Wooden and Watson 2007).

In the Person Questionnaire, employees, excluding employer/own account worker and employees of own business, were asked the same question in each wave: “Looking at Show Card ..., which of these categories best describe your current contract of employment?” In the show card, there were four mutually exclusive items: “(1) *Employed on a fixed-term contract*; (2) *Employed on a casual basis*; (3) *Employed on a permanent or ongoing basis*; and (4) *Other (please specify)*”. This variable constituted the key predictor in our statistical analyses. The SF-36 short form health survey module (Ware Jr. and Kosinski 2001) was used in each wave in the Self-completion Questionnaire, from which we constructed our dichotomous outcome variables.

In line with our research hypotheses, we first restricted our analysis to employees, employed at any point of time during the survey period. Employers and self-employed people were excluded. Then we excluded full-time students from our analysis, who primarily work as part-time casual employees. There is no evidence in the HILDA data that precarious employment is problematic for full-time students. We further confined our data sample to people of working age, i.e. aged 15-64 years at wave 1. We analysed data for males and females separately. In order to include more observations, and more importantly to avoid the bias of survivorship (Baum 2006: 47), we used unbalanced panel data with 36,055 person-year observations over a six-year period.

With a dichotomous dependent variable, we applied random effects logistic regression models using STATA 1.0 software to examine: (1) intra-individual changes over time; and (2) inter-individual differences against their backgrounds (Raudenbush and Bryk 2002). To address the health selection effect, i.e. less healthy employees may be more likely to be in precarious employment, we also ran models for both males and females with lagged predictor variables, i.e. examining the health consequences in year $t+1$ from precarious employment in year t .

Outcome and predictor variables

The Mental Health Inventory (MHI-5) from SF-36 is the mental health profile with a normalised score ranging from 0 to 100. For our mental health measure, we dichotomised MHI-5 using the cut-off point of 52 recommended by the SF-36 developers: 0 with scores 52 or lower indicating respondents with depressive symptoms, and 1 with scores higher than 52 suggesting respondents with better mental health (Ware Jr. and Kosinski 2001).

Following the convincing argument from Louie et al.’s (2006) for the need to refine the categories of employment status, we created our key predictor, the form of employment focusing on employees only, with 6 mutually exclusive categories: (1) Permanent full-time (reference group); (2) permanent part-time; (3) fixed-term full-time; (4) fixed-term part-time; (5) casual full-time; and (6) casual part-time. Because a large majority of fixed-term employees worked full-time, we had just one group of fixed-term employment (Table 1)

[Table 1 about here]

Our choice of predictor variables was based on both previous empirical studies and our research interest (See Table 1). In addition to form of employment, we included another employment-related predictor: workers' occupation. Following a previous study (Broom et al. 2006), the occupation variable was recoded into 3 broad categories: (1) professionals, including managers, administrators and professionals; (2) white-collar workers, including clerical, sales and service workers; and (3) blue-collar workers, including trades persons, production and transport workers and labourers. We expected employees in a professional occupation would have better mental health.

Demographic and socio-economic characteristics controlled for include age, education level, marital status and household income, as psychological and sociological studies consistently demonstrate the social patterns of depression in the community (Pearlin and Schooler 1978; Ross and Mirowsky 1989). We expect older, married, more highly educated people with higher income to have better mental health. In our analysis, age is recoded into 10 5-year age groups, ranging from 15-19 to 60-64. Educational achievement was recoded into five categories: (1) degree+ (reference group); (2) diploma/advanced diploma; (3) certificate 3 & 4; (4) Year 12; and (5) year 11 or less including Certificate 1 or 2. Marital status was recoded into three categories: (1) married or partnered (reference group); (2) separated, divorced or widowed; and (3) never married. Household income before tax was recoded into income quintiles. We also included the disability status of respondents, which is strongly associated with self-rated health (Butterworth and Croiser 2004). This variable was recoded into 3 categories: (1) without disabilities (reference group); (2) disabilities not affecting work; and (3) disabilities affecting work.

Australia is an immigrant country and new migrants from non-English speaking countries are more likely to encounter difficulties in employment (Australian Bureau of Statistics 2007). Therefore, we included the predictor for country of birth, specifically, (1) born in Australia (reference group); (2) major English-speaking countries; and (3) non-English speaking countries.

There is a large body of evidence suggesting that social support is a buffer for mental health problems (Berkman and Glass 2000; Kessler, Price and Wortman 1985). In the HILDA Self-completion Questionnaire, respondents were asked about their views in a set of 10 questions describing how much support they could get from other people, for example, "*I seem to have a lot of friends*", "*I often need help from other people but can't get it*", and "*There is someone who can always cheer me up when I 'm down*". They were arranged in a 7-point scale, ranging from 1 "Strongly disagree" to 7 "Strongly agree". These have been summed and divided by 10 to construct an index, the higher the score, the higher the level of social support.

Negative affectivity has been demonstrated to be closely related to self-rated health outcomes (Broom et al. 2006; Ferrie et al. 2001). The HILDA wave 5 data provides the

Big-5 Personality Inventory (John and Srivastava 1999). We chose the Emotional Stability scale in our model, ranging 1 to 7 with higher scores indicating better emotional stability. We assumed that personality would be stable over the time period that we observe and imputed the values from wave 5 to all waves.

Results

Table 2 presents the mean scores for mental health by form of employment by sex. For males, there were no significant differences in mental health between permanent and fixed-term employees working either full-time or part-time. However, both full-time and part-time casual employees reported significantly lower mental health. For females, both full-time and part-time casual employees and fixed-term full-time employees reported significantly lower mental health.

[Table 2 about here]

We first examined the effects of form of employment on mental health without controlling any predictors. Table 3 presents the odds ratios of reporting better mental health by sex. For males, compared to permanent employees, the odds ratios of reporting better mental health were 45 percent lower for permanent part-time, 51 percent lower for casual full-time and nearly 48 percent lower for casual part-time employees. For females, the stories were the same for both full-time and part-time casual employees. But fixed-term full-time employees had 34 percent lower odds ratio of reporting better mental health. In striking contrast to the men, women who had permanent part-time jobs had a *higher* odds ratio of reporting better mental health than the base case, although the difference was not statistically significant at conventional levels.

[Table 3 about here]

Tables 2 and 3 give two different ways of looking at the direct association between mental health and form of employment. Both ways show significantly and substantially lower mental health for men and women who are employed as casuals (full or part time). Both also show that women employed fixed term in full-time jobs have lower mental health. Men employed in permanent part-time work have lower odds of having good mental health, but similar average levels of mental health.

It is important to note the high intra-class correlation coefficients in both models. The coefficients for both males and females were nearly 60 percent, suggesting more variations in mental health outcomes were due to between-individual differences rather than within-individual differences (Singer and Willett 2003). This constitutes a very strong evidence for using random effects models.

Table 4 shows the odds ratios of reporting better mental health for male employees after controlling respondents' demographic and socio-economic, and other background characteristics. Model 1 examines the impacts of form of employment on mental health

when both of them were measured in year t together with other background characteristics; Model 2 estimates the impacts from form of employment in year t while mental health outcome and all other characteristics were measured in year $t+1$.

[Table 4 about here]

In Model 1, only casual full-time male employees reported significantly lower mental health (OR=0.65, $p<0.01$) compared to their permanent full-time counterparts. There was no lagged mental health effect for each form of precarious employment.

Table 5 presents the odds ratios of reporting better mental health for female employees. The only form of precarious employment reporting significantly lower mental health was fixed-term full-time employees (OR=0.64, $p<0.01$). Like their male counterparts, there were no lagged health impacts in year $t+1$ due to precarious employment in year t .

[Table 5 about here]

There is a marked contrast between the simple (main effects) correlations of Tables 2 and 3, and the results of the models which control for a range of background characteristics, shown in Tables 4 and 5. The simple correlations show a strong association between precarious (especially casual) employment and lower mental health. But when we control for background characteristics, this association is no longer statistically significant for women who are employed as casuals (full or part time) or for men who are employed part-time in permanent or casual positions. The implication is that people who are employed on precarious terms have characteristics that independently dispose them to have lower mental health. Our regressions show that these characteristics include (for both men and women) age (younger people have worse mental health), being unmarried, having a disability, having less social support and having negative affectivity. We may put this another way. Workers who are older, married, healthy, have good social supports and positive affectivity are resilient to any negative impacts of precarious employment. But, as Tables 4 and 5 show, these attributes are not sufficient to fully protect men employed full-time as casuals, or women employed full-time on fixed-term contracts.

Our analysis used random effects logistic regression models. Despite the strong case for using this model, i.e. the high intra-class correlation coefficient and the desire to generalize to the population, it leaves our results open to the possibility that they could be affected by endogeneity.

Conclusion

In this analysis, we employed nationally representative panel data for Australia, to examine the health impacts of precarious, i.e. fixed-term and casual employment. Given the unique characteristics of the Australian labour market, in particular the unusual protection for casual employees, we hypothesised that the harmful effects found in other

countries might be avoided in Australia. To the extent that we observed harmful effects, we expected them to be more substantial for men than for women.

Our results support the view that the Australian system of industrial protections and universal access to unemployment and health benefits does make contingent work less harmful for workers. We found no evidence that casual employment was harmful to the mental health of women or to men employed part-time or on fixed-term contracts.

But the protections offered to Australian contingent workers and their own resilience were not enough to prevent harm to the mental health of male employees working full-time but on casual terms. There are about 7 percent of male employees working full-time as casuals. Although this is not a large proportion of all employees, it is a growing form of employment for men. Our evidence suggests that it is not good for the mental health of men to be employed in this way. This is consistent with previous research reporting that male casual employees of prime working age were the least satisfied workers in several aspects of job satisfaction (Productivity Commission 2006). We proposed that this could result from the contrast between their traditional family roles and the social expectations of male breadwinners and the reality of employment as a casual.

It is less easy to understand why fixed term full-time employment is associated with lower mental health for women. This group is well-educated and mainly employed in the education sector. Their lower mental health remains a puzzle.

References

- Australian Bureau of Statistics. 2007. *Labour Force Status and Other Characteristics of Recent Migrants, Australia. Cat. 6250.0*. Canberra: Australian Bureau of Statistics,.
- . 2009. *Australian Labour Market Statistics. Cat. 6105.0*. Canberra: Australian Bureau of Statistics.
- Bardasi, Elena, and Marco Francesconi. 2004. "The impact of atypical employment on individual wellbeing: Evidence from a panel of British workers." *Social Science & Medicine* 58:1671-88.
- Baum, Christopher F. 2006. *An Introduction to Modern Econometrics Using Stata TX*: Stata Press.
- Benach, J, and C Muntaner. 2007. "Precarious employment and health: Developing a research agenda." *Journal of Epidemiology and Community Health* 61:276-7.
- Benach, J., M. Amable, C. Muntaner, and Fernando G. Benavides. 2002. "The consequences of flexible work for health: Are we looking at the right place?" *Journal of Epidemiology and Community Health* 56:405-6.
- Benavides, Fernando G, J Benach, A. Diez-Roux, and C Roman. 2000. "How do types of employment relate to health indicators? Findings from the Second European Survey on Working COnditions." *Journal of Epidemiology and Community Health* 54:494-501.
- Bergström, Ola, and Donald Storrie. 2003. *Contingent Employment in Europe and the United States* UK ; Northampton: Cheltenham.
- Berkman, L., and T. Glass. 2000. "Social integratin, social networks, social support and health." in *Social Epidemiology*, edited by L. and Kawachi Berkman, I. Oxford: Oxford University Press.
- Broom, Dorothy H., Rennie M. D'Souza, Lyndall Strazdins, Peter Butterworth, Ruth Parslow, and Bryan Rodgers. 2006. "The lesser evil: Bad jobs or unemployment? A survey of mid-aged Australians." *Social Science & Medicine* 63:576-86.
- Butterworth, Peter, and Timothy Croiser. 2004. "The validity of the SF-36 in an Australian National Household Survey: Demonstrating the applicability of the Household Income and Labour Dynamics in Australia (HILDA) Survey to examination of health inequalities." *BMC Public Health* 4.
- De Witte, Hans. 1999. "Job insecurity and psychological well-being: review of the literature and exploration of some unresolved issues." *European Journal of Work and Organizational Psychology* 8:155-77.
- Ferrie, Jane. 1999. "Health consequences of job insecurity." in *Labour Market Changes and Job Insecurity: A Challenge for Social Welfare and Health Promotion*, edited by Jane E Ferrie, Michael G. Marmot, John Griffiths, and Herio Ziglio. Copenhagen: WHO European Regional Publications.
- Ferrie, Jane, Martin Shipley, Michael Marmot, Pekka Martikainen, Stephen Stansfeld, and George Davey Smith. 2001. "Job insecurity in white-collar workers: Toward an explanation of associations with health." *Journal of Occupational Health Psychology* 6:26-42.
- John, Oliver P., and Sanjay Srivastava. 1999. "The Big-Five trait taxonomy: History, measurement, and theoretical perspectives." Pp. 102–38 in *Handbook of*

- Personality: Theory and Research* edited by L.A. Pervin and O.P. John. New York: Guilford Press.
- Kawachi, Ichiro. 2008. "Globalization and workers' health." *Industrial Relations* 46:421-23.
- Kessler, Ronald C., Richard H. Price, and Camille B. Wortman. 1985. "Social factors in psychopathology: Stress, social support, and coping processes." *Annual Reviews of Psychology* 36:351-72.
- Kim, Myoung-Hee, Chang-yup Kim, Jin-Kyung Park, and Ichiro Kawachi. 2008. "Is precarious employment damaging to self-rated health? Results of propensity score matching methods, using longitudinal data in South Korea." *Social Science & Medicine* 67:1-13.
- Louie, A.M., A. Ostry, M. Quinlan, T.G. Keegel, J. Shoveller, and A.D. LaMontagne. 2006. "Empirical study of employment arrangements and precariousness in Australia." *Relations Industrielles/Industrial Relations* 61:452-89.
- Pearlin, Leonard I., and Carmi Schooler. 1978. "The structure of coping." *Journal of Health and Social Behavior* 19:2-21.
- Pocock, Barbara, R. Prosser, and K. Beridge. 2004. "Only A Casual...': How Casual Work Affects Employees, Households and Communities in Australia." in *Labour Studies Report*. Adelaide: University of Adelaide.
- Productivity Commission. 2006. *The Role of Non-Traditional Work in the Australian Labour Market*. Canberra: Productivity Commission.
- Quinlan, M., C. Mayhew, and P. Bohle. 2001. "The global expansion of precarious employment, work disorganisation and occupational health: Placing the debate in a comparative historical context " *International Journal of Health Services* 31:507-36.
- Raudenbush, Stephen W., and Anthony S. Bryk. 2002. *Hierarchical Linear Models: Applications and Data Analysis Methods (Second Edition)*. Thousand Oaks, London, New Delhi: Sage Publications.
- Richardson, Sue, and Vincent Law. 2009. "Changing forms of employment and their implications for the development of skills." *Australian Bulletin of Labour* 35:355-92.
- Rodriguez, Eunice. 2002. "Marginal employment and health in Britain and Germany: does unstable employment predict health?" *Social Science & Medicine* 55:963-79.
- Ross, Catherine E., and John Mirowsky. 1989. "Explaining the social patterns of depression: Control and problem solving--or support and talking?" *Journal of Health and Social Behavior* 30:206-19.
- Singer, Judith D., and John B. Willett. 2003. *Applied Longitudinal Data Analysis: Modeling Change and Event Occurrence*. New York: Oxford University Press.
- Sverke, Magnus, Johnny Hellgren, and Katharina Naswall. 2002. "No security: A meta-analysis and review of job insecurity and its consequences." *Journal of Occupational Health Psychology* 7:242-64.
- Virtanen, Marianna, Mika Kivimaki, Matti Joensuu, Pekka Vietaanen, Marko Elovainio, and Jussi AVahtera. 2005. "Temporary employment and health: A review." *International Journal of Epidemiology* 34:610-22.
- Virtanen, P, J Vahtera, M Kivimaki, J Pentti, and J Ferrie. 2002. "Employment security and health." *Journal of Epidemiology and Community Health* 56:569-74.

- Ware Jr., John., and Mark Kosinski. 2001. *SF-36 Physical & Mental Health Summary Scales: A Manual for Users of Version 1*. Lincoln, Rhode Island: QualityMetric Incorporated.
- Watson, Ian. 2005. "Contented workers in inferior jobs? Re-assessing casual employment in Australia." *The Journal of Industrial Relations* 47:371-92.
- Wooden, Marck, and Nicole Watson. 2007. "The HILDA survey and its contribution to economic and social research (so far)." *The Economic Record* 83:208-32.
- Wooden, Mark, and Diana Warren. 2004. "Non-standard employment and job satisfaction: Evidence from the HILDA survey." *The Journal of Industrial Relations* 46:275-97.

Table 1 Proportion and means of predictors by sex in our analysis

Predictors/sex		Male	Female	<i>P</i> level
Form of employment	Permanent full-time	71.5	42.0	
	Permanent part-time	4.6	24.1	
	Fixed-term full-time	8.5	6.0	***
	Fixed-term part-time	1.0	3.8	
	Casual full-time	7.0	3.6	
	Casual Part-time	7.5	20.6	
Occupation	Professionals	42.2	45.0	
	White-collar	16.1	44.1	***
	Blue-collar	41.7	10.9	
Age	Mean, in years	37.8	38.4	***
Country of origin	Australian born	78.2	79.1	
	English-speaking countries	10.8	9.6	**
	Other countries	10.9	11.3	
Educational achievement	Degree+	24.2	30.3	
	Diploma/adv diploma	8.6	10.3	
	Cert III & IV	27.9	14.2	***
	Year 12	14.9	16.9	
	Year 11 or less	24.3	28.3	
Marital status	Married/de facto	67.5	65.7	
	Separated/divorced/widowed	6.7	13.6	***
	Never married	25.8	20.7	
Household Income	Mean, in 1,000	85.5	85.0	n.s.
Disability status	Without disabilities	84.8	85.8	
	Disabilities not affecting work	7.7	6.1	***
	Disabilities affecting work	7.5	8.2	
Social support	Scale 1-7, more support	4.5	4.7	***
Negative affectivity	Scale 1-7, emotional stability	5.1	5.2	***
N	Person-year observations	18,240	17,815	

Note: 1. Statistics are t-test or likelihood ratio test results for gender difference.

2. * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$.

Table 2 Mean score for mental health by form of employment by sex, 2001-06

Form of employment/Sex	Male	Female
Permanent full-time	76.6	74.8
Permanent part-time	75.5	74.9
Fixed-term full-time	76.1	72.2***
Fixed-term part-time	76.6	73.5
Casual full-time	73.7***	72.5*
Casual part-time	73.8***	72.5***
N (person-year observations)	16,386	16,439

Note: 1. Mental health scores are from SF-36 Mental Health profile ranging 0-100.

2. P levels show the results from Bonferroni tests compared to permanent full-time employment. * p<0.05 ** p<0.01 *** p<0.001.

Table 3 Odds ratios of reporting better mental health by form of employment and sex, 2001-06

	Male	Female
Permanent full-time	1.00	1.00
Permanent part-time	0.55**	1.16
Fixed-term full-time	0.86	0.66**
Fixed-term part-time	0.97	0.77
Casual full-time	0.49***	0.61*
Casual Part-time	0.52***	0.72***
rho	0.60	0.58
N	16,381	16,434

Note: 1. Rho is the intra-class correlation coefficient, suggesting the percentage of variance attributable to between-individual effects (Singer and Willett 2003).

2. * p<0.05 ** p<0.01 *** p<0.001.

Table 4 Odds ratios of reporting better mental health for males by form of employment, after adjusting for background characteristics

Predictors		Model 1	Model 2
		Both mental health and form of employment measured at year <i>t</i>	Form of employment measured at year <i>t</i> , while mental health and others measured at year <i>t</i> +1
Form of employment	Permanent full-time	1.00	1.00
	Permanent part-time	0.92 (0.59-1.41)	1.10 (0.67-1.81)
	Fixed-term full-time	0.79 (0.57-1.09)	1.28 (0.86-1.89)
	Fixed-term part-time	1.17 (0.50-2.77)	1.36 (0.44-4.22)
	Casual full-time	0.65 (0.47-0.91)*	1.11 (0.74-1.67)
	Casual part-time	0.74 (0.52-1.04)	1.29 (0.86-1.95)
Occupation	Professionals	1.00	1.00
	White-collar	1.40 (1.03-1.90)*	1.41 (0.99-2.02)
	Blue-collar	0.71 (0.51-0.98)*	0.95 (0.70-1.29)
Age group	5-year age group	1.07 (1.01-1.13)*	1.08 (1.01-1.15)*
Country of origin	Australian born	1.00	1.00
	English-speaking countries	1.06 (0.73-1.53)	0.99 (0.65-1.51)
	Other countries	0.83 (0.58-1.20)	0.75 (0.50-1.12)
Educational achievement	Degree+	1.00	1.00
	Diploma/adv diploma	1.39 (0.90-2.6)	1.73 (1.04-2.89)
	Cert III & IV	1.19 (0.85-1.67)	1.24 (0.85-1.82)
	Year 12	1.12 (0.76-1.65)	1.31 (0.84-2.03)
	Year 11 or less	0.90 (0.63-1.29)	0.94 (0.63-1.42)
Marital status	Married/de facto	1.00	1.00
	Separated/divorced/widowed	0.48 (0.33-0.68)***	0.46 (0.30-0.69)***
	Never married	0.69 (0.52-0.91)**	0.59 (0.43-0.81)***
Income quintile		1.07 (0.98-1.16)	1.08 (0.98-1.20)
Disability status	Without disabilities	1.00	1.00
	Disabilities not affecting work	0.60 (0.46-0.80)***	0.63 (0.45-0.87)**
	Disabilities limiting work	0.36 (0.27-0.47)***	0.33 (0.24-0.45)***
Social support	Scale 1-7, more support	3.35 (2.91-3.85)***	3.51 (2.98-4.12)***
Negative affectivity	Scale 1-7, emotional stability	2.27 (2.03-2.54)***	2.26 (1.99-2.56)***
N	Person-year observations	12,032	9,625

Notes: 1. In all models, year 't' refers to HILDA waves 2001-2005.

2. * p<0.05 ** p<0.01 *** p<0.001.

Table 5 Odds ratios of reporting better mental health for females by form of employment, after adjusting for background characteristics

Predictors		Model 1	Model 2
		Both mental health and form of employment measured at year t	Form of employment measured at year t, while mental health and others measured at year t+1
Form of employment	Permanent full-time	1.00	1.00
	Permanent part-time	1.23 (0.98-1.53)	1.05 (0.81-1.37)
	Fixed-term full-time	0.64 (0.46-0.89)**	1.00 (0.65-1.52)
	Fixed-term part-time	1.04 (0.69-1.58)	0.86 (0.54-1.37)
	Casual full-time	0.71 (0.4-1.08)	0.79 (0.46-1.35)
	Casual part-time	0.99 (0.79-1.27)	0.90 (0.68-1.19)
Occupation	Professionals	1.00	1.00
	White-collar	0.88 (0.70-1.09)	0.91 (0.70-1.17)
	Blue-collar	0.71 (0.51-0.98)*	0.69 (0.46-1.02)
Age group	5-year age group	1.09 (1.04-1.15)***	1.08 (1.01-1.15)*
Country of origin	Australian born	1.00	1.00
	English-speaking countries	1.00 (0.69-1.43)	1.18 (0.76-1.83)
	Other countries	0.76 (0.55-1.05)	0.69 (0.48-1.01)
Educational achievement	Degree+	1.00	1.00
	Diploma/adv diploma	1.24 (0.85-1.80)	1.34 (0.86-2.08)
	Cert III & IV	0.94 (0.67-1.31)	0.86 (0.58-1.26)
	Year 12	1.06 (0.77-1.47)	1.05 (0.71-1.53)
	Year 11 or less	1.00 (0.74-1.36)	1.02 (0.71-1.46)
Marital status	Married/de facto	1.00	1.00
	Separated/divorced/widowed	0.53 (0.40-0.71)***	0.53 (0.38-0.74)***
	Never married	0.97 (0.74-1.27)	1.03 (0.74-1.42)
Income quintile		1.06 (0.98-1.15)	1.10 (0.9-1.21)
Disability status	Without disabilities	1.00	1.00
	Disabilities not affecting work	0.65 (0.48-0.87)***	0.57 (0.41-0.81)**
	Disabilities limiting work	0.36 (0.28-0.46)***	0.35 (0.26-0.48)***
Social support	Scale 1-7, more support	2.68 (2.37-3.04)***	2.75 (2.37-3.19)***
Negative affectivity	Scale 1-7, emotional stability	1.92 (1.74-2.13)***	2.08 (1.84-2.34)***
N	Person-year observations	12,537	9,824

Notes: 1. In all models, year 't' refers to HILDA waves 2001-2005.

2. * p<0.05 ** p<0.01 *** p<0.001.