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Trajectories: the interplay between housing and mental health pathways

Quantitative evidence on the relationship between mental health and housing

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Related reports and documents

Trajectories: the interplay between mental health and housing pathways. A short summary of the evidence.

Trajectories: the interplay between housing and mental health pathways. Report for national consumer and carer consultations.

Trajectories: the interplay between mental health and housing pathways. Final research report.

Trajectories: the interplay between mental health and housing pathways. Report for Indigenous consultations.

Trajectories: the interplay between mental health and housing pathways. Policy options report.

Available at https://www.ahuri.edu.au/research/trajectories

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Acronyms and abbreviations used in this report

AHURI	Australian Housing and Urban Research Institute Limited
HILDA	Household, Income and Labour Dynamics in Australia
JH	Journeys Home
K6	Kessler Psychological Distress Scale (six-item version)
MHI-5	Mental Health Inventory (five-question version)

1 Summary findings

Key points

- Poor and deteriorating mental health directly impact housing stability.
- Mediators such as social support, good general health and accessing mental health and health services can reduce the likelihood of housing instability, and shorten the length of time a person experiences mental ill-health.
- Absence of mediators and experience of negative life events amplify the relationship between housing instability and mental ill-health.
- Most people within the general population experience only relatively short periods of mental ill-health: two-thirds (66%) recover within a year, and 89 per cent recover within three years.
- People experiencing severe psychological distress have an 89 per cent increased likelihood of financial hardship in the following year, and a 96 per cent increased likelihood of financial hardship within two years.
- People with a diagnosed mental health condition have a 39 per cent increased likelihood of experiencing a forced move within one year, and a 32 per cent increased likelihood of a forced move within 2 years.
- Financial hardship in the past 12 and 24 months elevates the likelihood that a person will experience deteriorating mental health to the point where they experience symptoms by 23 per cent and 21 per cent, respectively.
- People whose mental health deteriorates to the degree that they experience symptoms and who do not access health services are 66 per cent more likely to experience financial hardship in the next 12 months (68% in 24 months).
- People whose mental health deteriorates to the degree that they experience symptoms and who do not access mental health services have a 36 per cent increased likelihood of experiencing financial hardship in the next 12 months.
- People who experience deteriorating mental health with symptoms and who do not access health services are 58 per cent more likely to experience a forced move in the next 24 months, compared to those without deteriorating mental health.
- People who experience deteriorating mental health with symptoms and who do not access mental health services are 36 per cent more likely to experience financial hardship in the next 12 months (35% in 24 months).
- Social support reduces the likelihood of deteriorating mental health to the point where a person experiences symptoms by 33 per cent.
- Being a victim of physical violence negatively affects mental health status for up to three years, increases the likelihood of a forced move in the next 12 months by 37 per cent, and increases the likelihood of financial hardship by 5 per cent.

This research aimed to better understand the relationship between mental health, housing instability and homelessness, identify the protective and risk factors (mediating factors) and ascertain the duration of mental ill-health.

To this end, the analysis:

- considered the direct effects of mental health status and deteriorating mental health on tenure and housing stability
- modelled the impact of mediating factors (health and mental health services use, physical health, life events, housing and non-housing factors)
- undertook a survival analysis to determine the duration of spells people spend in mental ill-health.

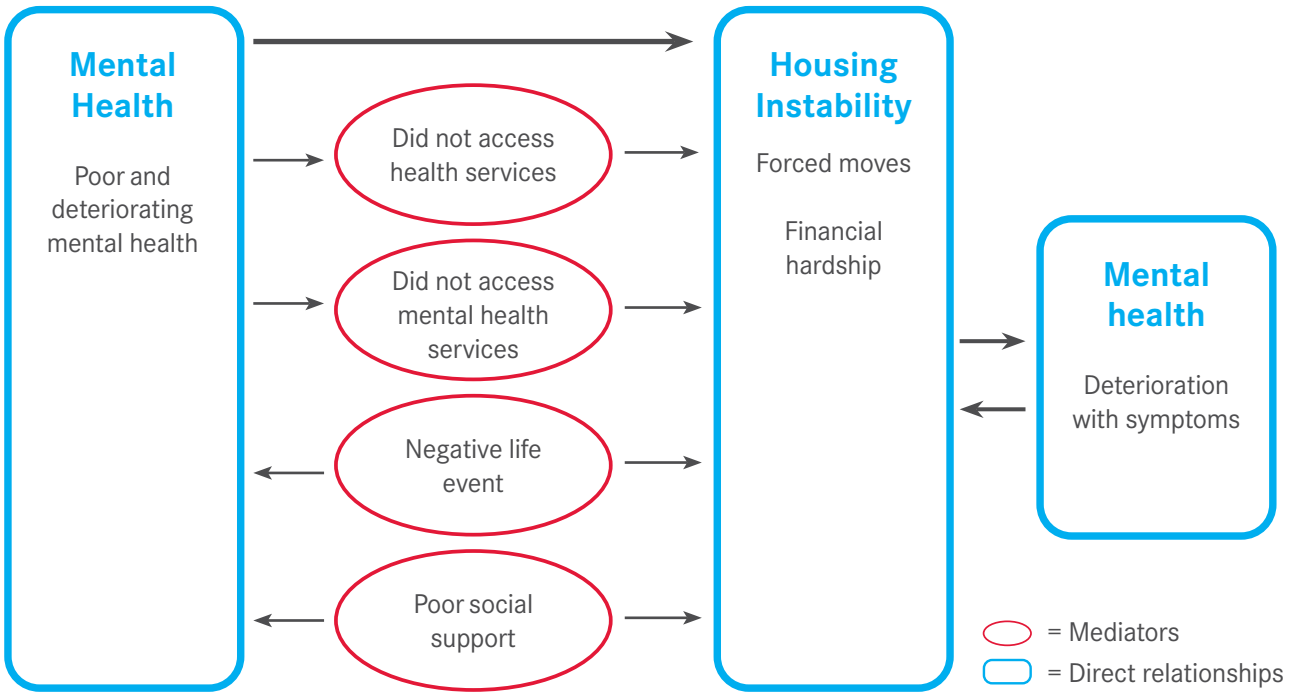
Two longitudinal panel datasets were analysed. The Household Income and Labour Dynamics in Australia (HILDA) survey, which represents the general population, and Journeys Home (JH), which represents a vulnerable cohort that is at risk of homelessness or is homeless. Because of their diverging characteristics, the two cohorts were analysed separately.

1.1 Poor and deteriorating mental health directly impact housing stability

The analysis showed that poor and deteriorating mental health directly impacted housing stability. Unstable housing, in turn, especially financial hardship, was correlated with deteriorating mental health to the point where a person experienced symptoms (Figure 1). In other words, poor and deteriorating mental health increased the likelihood of housing instability which, in turn increased the likelihood that mental health deteriorated to the point where a person experienced symptoms of anxiety, depression and severe mental distress in a mutually reinforcing pattern.

Mediators such as social support, good general health and accessing mental health and health services could act as circuit-breakers that:

Figure 1: Mental health and housing instability: direct effects and mediating factors



Source: The authors

- reduced the likelihood of housing instability
- protected against deteriorating mental health
- shortened the length of time a person experienced mental ill-health.

Conversely, acquisition of serious personal injury or illness and a long-term health condition increased the likelihood of housing instability and deteriorating mental health.

1.1.1 There is a direct relationship between mental ill-health and housing instability

The analysis showed a direct relationship between poor and deteriorating mental health and housing instability, where housing instability was measured by way of forced moves and financial hardship.

The analysis found strong evidence that deteriorating mental health and mental health diagnosis were statistically significantly related to housing instability.

As measured by the 6-item Kessler psychological distress scale (K6), people experiencing severe psychological distress:

- had an 89 per cent increased likelihood of experiencing financial hardship in the following year, and a 96 per cent increased likelihood of experiencing financial hardship within two years (Table 11)
- had a 28 per cent increased likelihood of experiencing a forced move in the following year, and a 26 per cent increased likelihood of experiencing a forced move in the following 24 months (Table 4).

People with a diagnosed mental health condition:

- had a 44 per cent increased likelihood of financial hardship within one year, and a 46 per cent increased likelihood of financial hardship within two years (Table 13).
- had a 39 per cent increased likelihood of a forced move within one year, and a 32 per cent increased likelihood of a forced move within two years (Table 6).

As measured by the 5-item Mental Health Inventory (MHI-5) score, people who experienced deteriorating mental health and who had symptoms:

- had a 24 per cent increased likelihood of financial hardship in the following 12 months, and a 28 per cent increased likelihood of financial hardship in the next 24 months (Table 15)
- had a 30 per cent increased likelihood of a forced move in the following 12 and 24 months (Table 8).

The analysis also examined whether housing instability contributed to poor or deteriorating mental health. The analysis found strong evidence that financial hardship in the past 12 and 24 months elevated the likelihood that a person would experience deteriorating mental health to the point where they experienced symptoms by 23 per cent and 21 per cent, respectively. There was some evidence (significant at the 10 per cent level) that a forced move in the previous two years elevated the risk of a person experiencing deteriorating mental health to the point where they experienced symptoms by 14 per cent (Table 18).

1.1.2 Good general health, use of health and mental health services and social support are protective factors

Health and use of health services

The analysis showed that accessing health services and mental health services could protect against housing instability for people who experienced poor and deteriorating mental health. Good physical health:

- reduced the length of time a person experienced mental ill-health with symptoms
- reduced the likelihood of housing instability

- offered strong protection against deteriorating mental health.

Conversely, people with a long-term health condition had an elevated risk of housing instability and deteriorating mental health.

- People with deteriorating mental health who experienced symptoms–but who did not access health services–were 58 per cent more likely to experience a forced move in the next 24 months, compared to those without deteriorating mental health and who also did not access health services (Table 21).
- People experiencing deteriorating mental health with symptoms who did not access health services (65%) or mental health services (36%) were more likely to experience financial hardship in the next 12 and 24 months, compared to those without deteriorating mental health who also did not access mental health services (Table 22).
- Self-assessed good general health and very good general health reduced the duration of time a person spent in mental ill-health by 5 per cent and 9 per cent, respectively (Table 29).
- Very good self-assessed general health reduced the likelihood of a forced move in the next two years by 10 per cent, and the likelihood of financial hardship in the next 12 and 24 months by 34 and 30 per cent, respectively. Importantly, it reduced the likelihood of deteriorating mental health by 80 per cent (Table 30).
- Conversely, a long-term health condition increased the likelihood of a forced move within one year by 15 per cent, and within two years by 18 per cent. A long-term health condition increased the likelihood of financial hardship within one year by 21 per cent, and within two years by 24 per cent. A long-term health condition increased the likelihood of deteriorating mental health to the point where a person experienced symptoms by 38 per cent (Table 30).
- Serious personal injury or illness negatively impacted mental health status for up to three years, and increased the likelihood of a forced move in the following 12 months by 16 per cent (Table 32 and Table 34).

Social support

The analysis showed that social support protected against housing instability and deteriorating mental health.

- Social support reduced the likelihood in the following 12 and 24 months of forced moves by 5 per cent and of financial hardship by 10 per cent (Table 30).
- Social support reduced the likelihood of deteriorating mental health to the point where a person experienced symptoms by 33 per cent (Table 30).
- Social support reduced the length of time a person spent in mental ill-health by 6 per cent (Table 29).

Life events

The analysis examined the impact of life events on mental health status and housing instability. Most life events affected mental health status in the first year following the event, but some life events had enduring consequences (Table 32, Table 33 and Table 34).

- Being a victim of physical violence negatively affected mental health status for up to three years, increased the likelihood of a forced move in the next 12 months by 37 per cent, and increased the likelihood of financial hardship by 5 per cent.
- Separation from spouse negatively affected mental health status for up to two years.
- A change in job in the past 12 months increased the likelihood of a forced move in the next 12 months by 27 per cent and in the next 24 months by 29 per cent.

1.1.3 Duration of mental ill-health

The analysis showed that the duration of mental ill-health within the general population is relatively short for most individuals.

- Two-thirds (66%) of people experiencing mental ill-health (measured by the MHI-5 score) recovered within one year, and 89 per cent recovered within three years (Table 28).
- Women, young people, families with multiple children, those not working, those with poor self-assessed general health, residents of Victoria, and those with poor social support all experienced longer than average periods in mental ill-health (Table 29).

1.2 Mental health and housing instability for those at risk of homelessness or who are homeless

Findings from the analysis on the relationship between mental ill-health and housing instability for the at-risk JH cohort highlighted the different roles mediators played for this cohort.

No strong statistical relationships between mental health, tenure and housing instability were identified for the at-risk JH cohort, although a mental health diagnosis and public housing tenure were slight protective factors against becoming homeless. Diagnosis appeared to have a slight protective effect against homelessness, but increased the risk of financial hardship.

- Analysis showed no statistically significant relationship between psychological distress and tenure (Table 3).
- A mental health diagnosis reduced the likelihood of homelessness by 3 per cent (significant at the 5 per cent level) (Table 3).
- The likelihood of a forced move in the next six months was elevated by 4 per cent for those experiencing severe psychological distress (Table 5) and by 3 per cent for those experiencing deteriorating mental health with symptoms (Table 9) (both significant at the 5 per cent level).
- Severe psychological distress elevated the likelihood of financial hardship in the next six months by 8 per cent (Table 12).
- A mental health diagnosis increased the likelihood of financial hardship in the next six months by 6 per cent (Table 14).

1.2.1 Entries into homelessness

Analysis of mental health and entries into homelessness found few statistically significant relationships.

- People without a mental health diagnosis who experienced severe psychological distress were 6 per cent more likely to enter into homelessness compared to those without a diagnosis and without symptoms (significant at the 5 per cent level).

1.2.2 Mediating factors

Tenure

The analysis provided strong evidence that public housing tenants were 10 per cent less likely to enter homelessness compared to private renters (Table 25). This points to the protective effects of public housing compared to other tenures.

Social support

The analysis showed that social support lowered the likelihood of entering homelessness by 1 per cent (significant at the 5 per cent level) (Table 27).

Risk factors

Illicit drug use (regular and irregular) and experience of violence or abuse (as a child or recently) increased the likelihood of financial hardship and entry into homelessness in the following six months (Table 31).

- Irregular illicit drug use increased the likelihood of a forced move by 4 per cent (Table 31).
- Having been in state care increased the likelihood of entry into homelessness by 2.3 per cent (Table 31).

1.3 Policy implications

The key finding of the research is that there is a direct relationship between mental ill-health and housing instability, and that this relationship is affected by a range of mediators (risk and protective factors). Diverging findings between the general population and the at-risk cohort suggest that different policy interventions are required for the two groups.

The research findings suggest that to be effective, policy responses must address housing and mental health issues, as well as mediating factors. This highlights the importance of holistic person-centred approaches that offer support coordination.

Option 1
Improve the level of integration across service systems and between services

The research findings demonstrate a significant bidirectional relationship between mental health, deteriorating mental health and housing instability (particularly financial hardship). This points to the importance of addressing housing and mental ill-health issues at the same time. For this to occur effectively, greater integration across and within service systems is required. The findings highlight that providing support to prevent financial hardship among those with mental ill-health is key to protecting people from housing instability.

Option 2
Increase the use of health and mental health services by people experiencing mental ill-health

The research shows that not accessing health and mental health services is a risk factor for housing instability for people experiencing mental ill-health. It is therefore essential to increase the proportion of people with mental ill-health who access mental health and health services. This will involve lowering barriers to access to health and mental health services, as well as providing education and information to increase the awareness of available services.

Option 3
Develop person-centred approaches that integrate mental health, physical health and social support

The research shows that good physical health protects against mental ill-health and housing instability, and reduces the amount of time a person spends in mental ill-health. The research identified social support as an important protective factor for mental ill-health, as it shortens the amount of time a person spends in mental ill-health. This highlights the importance of support coordination and integrated treatment plans.

Option 4
Immediately available support for life events

Negative life events–such as serious personal injury or illness, physical violence and separation from a spouse–increase the risk of mental ill-health and housing instability for up to three years. This finding shows that there are opportunities to provide support to mitigate against the negative effects of these life events to prevent mental ill-health and housing instability.

2 Introduction

The research presented here is part of the *Trajectories: the interplay between housing and mental health pathways* (Trajectories) project undertaken by the Australian Housing and Urban Research Institute (AHURI) in collaboration with Mind Australia.[1]

This analysis examines the relationship between mental ill-health and housing tenure, and more specifically, housing instability, using the Household Income and Labour Dynamics in Australia (HILDA) and Journeys Home: Longitudinal Study of Factors Affecting Housing Stability (JH) datasets.
The research aimed to address the following questions:

- What is the relationship between mental health, housing instability and homelessness?
- What are the protective and risk factors?
- How long do people experience mental ill-health?

HILDA and JH represent two distinct populations.

HILDA is a household-based panel study with over 17,000 participants, which draws on a nationally representative sample of the Australian population that it has followed over time (since 2001) up to wave 17.

The JH study lasted for two and a half years (2011 to May 2014) and its 1,700 participants were either homeless, housing insecure or at high risk of becoming homeless. Consequently, the JH cohort represents a much more vulnerable population than the HILDA cohort.

1 The other reports from this project are available on the AHURI website: https://www.ahuri.edu.au/research/trajectories

3 Measures of mental health

Both HILDA and JH include survey items that screen for the presence of mental ill-health. HILDA includes the Mental Health Inventory (MHI-5) annually and the 10-item Kessler psychological distress scale (K10) biennially from wave 7. JH uses the abbreviated 6-item Kessler psychological distress scale (K6) in every survey. These are not clinical assessments of the person's mental health–however, they are good indicators of whether or not individuals have an underlying mental health issue, particularly depression and anxiety.

In addition, both HILDA and JH include limited information on whether a person has a mental health diagnosis.

3.1 Mental health screening tools MHI-5 and K6

The self-assessed 5-item Mental Health Inventory (MHI-5) is a subset within the Medical Outcomes Study Short Form (SF36), and uses five questions to construct a mental health index. The items are:

How often in the past four weeks have you:

1. been a nervous person?
2. felt so down in the dumps nothing could cheer you up?
3. felt calm and peaceful?
4. felt down?
5. been a happy person?

Responses offered are:

1. all of the time
2. most of the time
3. a good bit of the time
4. some of the time
5. a little of the time
6. none of the time.

The mental health score is obtained by summing the (reversed) answers to these five questions, subtracting 5, dividing by 25, and multiplying the sum by 100. The final measure ranges between 0 and 100, where 100 signals excellent mental health and 0 a severe mental health problem. This measure of mental health is associated with symptoms of depression and anxiety (Berwick et al. 1991), with scores below 52 considered to be predictive of episodes of depression (Silveira et al. 2005).

For consistency with other measures in this analysis, the MHI-5 scores are inverted so that a higher value indicates poorer mental health and a lower value indicates better mental health. Consequently, in this analysis 0 represents excellent mental health and 100 indicates a severe mental health issue; scores above 48 are predictive of episodes of depression.

HILDA includes the Kessler psychological distress 10-item scale (K10) biennially from wave 7. This analysis uses the abbreviated 6-item version (K6) of the K10 to allow for comparability with the JH analysis–as JH only uses the K6.
The K6 asks six questions:

In the last four weeks/30 days, about how often did you feel:

1. nervous?
2. hopeless?
3. restless or fidgety?
4. depressed?
5. that everything was an effort?
6. so sad that nothing could cheer you up?

K6 asks respondents to rate the six questions on a scale from 1–5

1. none of the time
2. a little of the time
3. some of the time
4. most of the time
5. all of the time.

The key strength of K6 is that it was designed to have optimal sensitivity at the upper end of the population distribution concerning psychological

distress, and thus is effective at screening for severe mental disorders (Kessler et al. 2003).

A K6 score of greater than or equal to 5 is a good predictor of at least moderate mental illness (Prochaska et al. 2012) and a score of greater than or equal to 13 of severe mental illness (Kessler et al. 2003). Hence we categorise the K6 into three risk categories:

- no evidence of mental illness–K6 less than 5 (K<5)
- mild to moderate mental illness–K6 greater than or equal to 5 and less than 13 (K6=5-12)
- severe mental illness–K6 greater than or equal to 13 (K6≥13).

3.2 Deterioration in mental health

In addition to examining the level effects of these mental health measures, the analysis investigated the change (or decline) in mental health. Changes in mental health were assessed using the MHI-5 and K6 measures. MHI-5 was used for the HILDA analysis, as it is available in every wave. K6 was used for JH, as it is the only mental health measure available in this survey.

The deteriotation in mental health was modelled over three different periods: the change in mental health scores over the past one, two or three years. To assess the change over two and three years, we analysed whether the current score showed a deterioration compared to the score two or three years earlier.

Those with good mental health and those with poor mental health were seperated using a model specification that captures deteriorating mental health only for persons who have evidence of an underlying mental health issue–that is, those who have an MHI-5 score of >48. This cut-off point produces a targeted variable that requires two conditions to be met:

- a decrease in mental health from the previous period
- a mental health score above 48,which is predictive of episodes of depression.

3.3 Mental health diagnosis

HILDA and JH include limited information on whether a person has been diagnosed with a mental health disorder.

Two items in the HILDA survey ask whether a person has been 'ever diagnosed with depression or anxiety', or with 'any other mental health condition' by a 'health professional'. However, these two items were only asked in waves 9 and 13, which limits the ability to know when these diagnoses occurred.

In wave 1, JH respondents were asked whether they were ever diagnosed with any of the following mental illnesses: bipolar affective disorder, schizophrenia, depression, post-traumatic stress disorder and anxiety disorder. In subsequent waves, respondents were asked whether they had been diagnosed with any of the above five mental health conditions in the last six months.

To identify respondents without a diagnosis, but who show signs of an underlying mental health issue, we constructed additional indicators. The first uses the MHI-5 measure of >48 to reflect whether an underlying condition is present, excluding those with a diagnosed condition. The second uses a K6 risk category of severe psychological distress (K6 ≥13), excluding those with a diagnosed condition.

3.4 Housing instability

The analysis used three proxies to measure housing instability:

- forced moves
- financial hardship
- entry into homelessness.

3.4.1 Forced moves

For HILDA, we constructed the forced-move variable as a binary indicator of whether a person who has moved from their home since their previous interview (approximately one year prior) had to move either through eviction, the property becoming unavailable, health problems, relationship breakdown or being required to move between public housing properties.[2]

We constructed a similar indicator for JH. The indicator captures whether a person who has moved from their accommodation since their previous interview (approximately six months prior) due to any of the following factors:

- eviction
- property no longer available
- health problems
- relationship breakdown
- domestic and family violence or abuse
- non-family violence
- employment problems/unemployment
- problematic drug or substance use
- problematic gambling
- transition from state care
- natural disaster or fire
- end of lease
- rent was too expensive
- accommodation was only temporary.

When the forced move variable records a '1', it means that a forced move happened since the previous survey. Our variable captures whether there was a forced move in the next wave or two. Hence, our variable predicts whether a forced move will occur in the following or subsequent two waves.

3.4.2 Entries to homelessness

Analysis of entries to homelessness is only possible using JH data, as HILDA does not include homeless persons. JH uses the cultural definition of homelessness (Chamberlain and MacKenzie 1992), which defines homelessness in relation to community standards in contemporary Australia society–that is, whether people's accommodation meets the minimum expected community standard. It comprises three types of homelessness:

1. Primary homelessness–all people without conventional accommodation, e.g. sleeping rough, living in squats, etc.
2. Secondary homelessness–people who frequently move from one form of temporary shelter to another. Includes couch surfing and use of emergency accommodation, e.g. refuges, shelters, etc.
3. Tertiary homelessness–people staying in boarding houses on a medium- to long-term basis (13 weeks or longer). They are considered homeless because their accommodation does not have the characteristics identified in the minimum community standard.

The analysis of entries into homelessness used the same approach as outlined in the forced moves (Section 3.4.1) and aimed to predict whether the current values were significantly related with entries into homelessness by the next survey.

3.4.3 Financial hardship

HILDA and JH measure financial hardship by asking survey respondents whether one of a range of events occurred in the previous 12 months (six months in JH) because of a shortage of money. HILDA and JH have five items in common:

[2] Note: HILDA also captures whether households had to sell their house (over a four-year period) due to financial difficulties. However, this information comes from the wealth modules in waves 6, 10 and 14, which do not coincide with K6 measures or other indicators of mental health diagnosis and service usage, and therefore could not be used for the analysis. It is worth pointing out that Read, M., Stewart, C. and La Cava, G. (2014) *Mortgage-related financial difficulties: Evidence from Australian micro-level data*, Reserve Bank of Australia, found that 'mortgage-related financial difficulties are often temporary; only a small proportion of households that report missing a mortgage payment go on to report experiencing more serious financial difficulties'. It is therefore anticipated that the omission of this information will not lead to substantial bias.

- Went without meals. (Had to go without food when you were hungry (JH).)
- Had to pawn or sell something.
- Asked a welfare agency for food, clothes, accommodation or money.
- Asked for financial help from friends or family.
- Could not pay electricity, gas or telephone bills on time.

HILDA asks two additional questions:

- Could not pay the mortgage or rent on time.
- Was unable to heat the home.

In JH there is an additional item:

- Could not go out with friends because could not pay your way.

Our modelling uses this information to assess if financial hardship occurred in the next survey. The modelling uses information from the next wave to test the current period's value with financial hardship in the next period.

3.4.4 Use of health services

HILDA and JH ask whether the respondent used any of a number of health services in the previous 12 months (previous 6 months for JH). Our analysis includes the following items:

- all health services
- mental health services
- GP
- dental services
- hospital stays.

JH includes those health services listed in HILDA, plus hospital doctor, specialist and other health services.

4 Method

The analysis used three different modelling techniques.

- Multinomial modelling was used when there was more than one possible outcome and the outcomes are not ordered.
- Logistic modelling was used for binary questions–for example, whether or not the individual moved in the past survey.
- Survival analysis was used to test the length of time individuals experienced mental health symptoms.

4.1 Multinomial modelling

Multinomial logistic regression was used when multiple outcomes are possible and the categories cannot be ordered in a meaningful way, for example, type of tenure. Multinomial logistic regression predicts the type of housing individuals are likely to live in given their characteristics, which can include their mental health.

4.2 Logistic modelling

Logistic modelling can be used to model the probability of an event occurring. The outcome variables must be binary. In this report the outcome used was the likelihood that an individual will experience a forced move, financial hardship or entry into homelessness. It was recorded as a '1' if the event happens to the individual in the next period and '0' if not. Hence the model tried to predict the likelihood that the event occurred given the characteristics of the individual.

4.3 Survival analysis

Survival analysis is used to track the same individual over time provided they continue to experience a particular state. The original application of survival analysis was to track the individual who was diagnosed with a health condition. The patient was then tracked over time to test how long the individual managed to survive given their characteristics. The approach taken here is similar, with tracking of individuals who recorded a mental health score that suggested they are experiencing mental health symptoms. Once this occurs, the model tracks the length of time they remain in this state. When their mental health improves, they leave the analysis.

4.4 Wave selection

The analysis takes advantage of the nature of the data, with individuals able to be tracked over time. The separation of periods is also important to reduce reverse causality. For example, the logistic models use the individual characteristics and values in wave 10 to try and predict if the individual will experience a forced move by wave 11. When considering deteriorating mental health, the model compares the differences in mental health in wave 9 to wave 10 to test if it has a significant relationship with the individual suffering a forced move by wave 11. This example demonstrates how the panel data is being utilised.

4.5 Control variables

We use controls to ensure that respondents' individual characteristics do not bias the model. We control for gender, age, Aboriginal and Torres Strait Islander status, family composition, number of children, urban area, state, education level, labour force status, income, level of relative disadvantage, wave dummies.

5 Tenure

HILDA

The analysis did not identify strong links between tenure and mental ill-health.

- People with a mental health diagnosis were 3 per cent less likely to be home owners, and 2.2 per cent more likely to be a private renter (Table 1).
- People without a diagnosed mental health condition, but who experienced symptoms, were 1 per cent more likely to be in public housing (Table 1).
- People experiencing mild psychological distress were 2 per cent less likely to be a homeowner, 2.1 per cent more likely to be a renter (Table 2).
- Homeownership had a modest protective effect against deteriorating mental health, with homeowners being 8 per cent less likely to experience deteriorating mental health in the next 12 months than private renters (Table 18)

Journeys Home

- People with a diagnosed mental health condition are more likely to be in private rental or a homeowner and less likely to be homeless (Table 3)

This part of the analysis investigated whether a person's mental health status is correlated with their tenure.

5.1 Does mental health status predict tenure?

The analysis used the MHI-5 (Table 1) and the K6 measures (Table 2) to ascertain whether a person's mental health status was predictive of tenure. In the first instance, we analysed whether there was a relationship between a person's current mental health status (as captured by MHI-5) and their tenure. The results showed that the worse a person's mental health was, the less likely they were to be a homeowner and the more likely they were to be in private rental (Table 1, 2nd column).

The sample was then split into three groups:

- those without a diagnosed condition or symptoms (MHI-5 ≤48);
- those with a diagnosed mental health condition
- those without a diagnosis but who exhibited symptoms of mental ill-health (MHI-5 >48).

The results showed that those diagnosed with a mental health condition were 3 per cent less likely to be a homeowner, 2.2 per cent more likely to be in a private rental and .03 per cent more likely to be in community housing (Table 1). People who had not been diagnosed with a mental health condition, but who had symptoms were 0.9 per cent more likely to be in public housing (Table 1).

Table 1: Average marginal effects, multinomial logistic regression of housing tenure with cluster, MHI-5, HILDA

	Level	Diagnosed with a mental health condition	No diagnosis but with symptoms (MHI-5>48)
Home owner	−0.0006426*** (0.0001286)	−0.03*** (0.008)	0.001 (0.011)
Private Renter	0.000525*** (0.0001178)	0.022*** (0.008)	−0.014 (0.010)
Public housing	0.0000735 (0.0000466)	0.004 (0.003)	0.009** (0.004)
Community housing	0.000 (0.0000174)	0.003* (0.001)	0.002 (0.002)
Rent-free	0.0000225 (0.0000464)	0.002 (0.003)	0.003 (0.005)
Number of observations	*168,624*	*32,092*	*32,092*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

Further modelling used the K6 measure and diagnosis to interrogate the relationship between mental health and tenure (Table 2). Mild psychological distress (K6 = 5–12) and severe psychological distress (K6 ≥ 13) were compared to the base case of no psychological distress (K6 < 5). Table 2 shows that people who experienced mild psychological distress were 2 per cent less likely to be home owners, 2.1 per cent more likely to be private renters, 0.5 per cent more likely to be in public housing and 0.6 per cent less likely to be living rent-free. People experiencing severe psychological distress were 4 per cent less likely to be a homeowner and 3.4 per cent more likely to be a private renter.

The second model examined whether diagnosis was related to tenure using three groups:

- those not diagnosed and with a K6 score <13 (base case)
- those diagnosed
- those not diagnosed, but experiencing severe psychological distress (K6≥13).

The results showed that people with a diagnosed mental health condition were 3.1 per cent less likely to be a homeowner and 2.5 per cent more likely to be a private renter (Table 2).

Table 2: Average marginal effects multinomial logistic regression of housing tenure with cluster, K6, HILDA

Tenure	Mild to moderate psychological distress	Severe psychological distress	Diagnosed with a mental health condition	No diagnosis but with symptoms
	K6 = 5–12	*K6 ≥13*		*K6 ≥13*
	Reference = no psychological distress (K6 <5)			
Home owner	−0.020*** (0.005)	−0.040*** (0.011)	−0.031*** (0.008)	−0.025 (0.017)
Private rental	0.021*** (0.005)	0.034*** (0.010)	0.025*** (0.008)	0.022 (0.016)
Public housing	0.005** (0.002)	0.004 (0.003)	0.002 (0.003)	−0.002 (0.005)
Community housing	−0.0002 (0.001)	−0.001 (0.001)	0.003* (0.001)	0.004 (0.004)
Rent-free	−0.006*** (0.002)	0.002 (0.004)	0.001 (0.003)	0.001 (0.007)
Number of observations	*62,931*	*62,931*	*32,092*	*32,092*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

Further modelling replicated the approach outlined for Table 2 and applied it to the JH data (Table 3). No statistically significant relationship emerged for any of the tenure categories using the K6 measure. Only a mental health diagnosis showed a significant relationship with tenure, and predicted that those with a diagnosed mental health condition were less likely to be homeless (significant at the 5 per cent level).

This result was similar to findings by Johnson et al. (2015), who speculated that among the homeless and at-risk of homelessness cohort, people who have been diagnosed with a mental health condition are more likely to receive treatment and care, which lowers their chances of homelessness compared to those who do not have a mental health diagnosis.

Table 3: Average marginal effects multinomial logistic regression of housing tenure, JH

	Mild to moderate psychological distress *K6 = 5–12*	**Severe psychological distress** *K6 ≥13*	**Diagnosed with a mental health condition**	**No diagnosis but with symptoms** *K6 ≥13*
Reference = no symptoms				
Private rental or home owner	0.021 (0.015)	0.027 (0.022)	0.033* (0.020)	0.015 (0.043)
Social housing	–0.016 (0.013)	–0.031 (0.020)	0.001 (0.020)	–0.066 (0.045)
Homeless	–0.005 (0.012)	0.005 (0.017)	–0.034** (0.016)	0.051 (0.032)
Number of observations	*7,961*	*7,961*	*7,990*	*7,990*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

In summary, the above findings show that a mental health diagnosis is significantly related with housing tenure, but that this relationship differs depending on the population examined. Thus, a mental health diagnosis appears to have a slight protective effect for homelessness among the vulnerable JH cohort.

For the HILDA cohort, a mental health diagnosis reduces the likelihood of homeownership and increases the likelihood that a person is in private rental. Importantly, people who do not have a mental health diagnosis, but who have symptoms, are more likely to be public housing tenants.

6 Forced moves

HILDA

- The likelihood of a forced move within 12 months increased by 39 per cent for people who had a diagnosed mental health condition, and by 44 per cent for those who had no diagnosis but who had symptoms of mental ill-health (Table 6).
- The likelihood of a forced move increased by 9 per cent if a person's mental health score worsened by ten units (Table 4).
- Private renters whose mental health deteriorated over three years were 11 per cent more likely to experience a forced move in the next 12 months compared to those who did not experience worsening mental health (Table 10).
- Public housing tenants who experienced deteriorating mental health were 36 per cent more likely to experience a forced move in the next 24 months compared to public renters who did not experience worsening mental health (Table 10).

Journeys Home

- Severe psychological distress elevated the likelihood of a forced move within six months by 4 per cent (Table 5).

This part of the analysis examined the relationship between mental health and housing stability, as captured by the forced move variable.

A forced move indicates whether an individual was compelled to move in the next 12 or 24 months from the current period because of one of the factors outlined in Section 3.4.1. The mental health variables used to relate to the current period (level) or the change from the previous one, two or three years (deterioration). The other variables used in the model are for the current period.

6.1 Is current mental health status related to forced moves?

This modelling used the current observation (level) of mental health–as expressed by the MHI-5 and K6 measures–and analysed the relationship with forced moves within the next 12 and 24 months following the initial observation (Table 4).

Results for HILDA showed a statistically significant relationship between MHI-5 scores and forced moves in the subsequent 12 and 24 months. The marginal effects were of similar size. Thus, if an individual's MHI-5 score worsened by ten units, this predicted an increased likelihood of a forced move in the following one and two years by 9 per cent.

Analysis of the K6 measure used 'no symptoms' (K6 <5) as the base case and compared this to mild and severe psychological distress. Results showed that both mild (K6 = 5–12) and severe (K6 ≥13) psychological distress had a significant relationship with a forced move in the following one and two years.

Those with a K6 greater than 5 had an increased likelihood of a forced move in the following one and two years by 19.3 to 21.8 per cent respectively, compared to those with a K6 score of less than 5.

Individuals with a K6 score greater than or equal to 13 had an increased likelihood of a forced move in the following one and two years by 28.2 to 25.5 per cent respectively, compared to those with a K6 score of less than 5.

Table 4: Marginal effects at means of mental health levels on forced moves in the following one and two years, HILDA

	Forced moves			
	In one year		In two years	
MHI-5	0.009*** (0.001)		0.009*** (0.001)	
Reference = no symptoms (K6 <5)				
Mild to moderate psychological distress (K6 = 5–12)		0.193*** (0.069)		0.218*** (0.055)
Severe psychological distress (K6 ≥13)		0.282** (0.121)		0.255** (0.099)
Number of observations	*146,774*	*48,403*	*128,330*	*46,267*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

Table 5 presents the results for the analysis of the impact of the level of mental health on a forced move within the next six months among the JH cohort using the K6 measure. No symptoms (K6 <5) is the base case.

Only severe psychological distress was shown to significantly elevate the likelihood of a forced move within the next six months; those with severe distress were 4 per cent more likely to experience a forced move compared to those without symptoms.

Table 5: Marginal effects of mental health on forced moves, JH

	Forced moves
Reference = no symptoms (K6 <5)	
Mild to moderate psychological distress (K6 = 5–12)	0.020 (0.012)
Severe psychological distress (K6 ≥13)	0.041** (0.017)
Number of observations	*6,186*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

6.2 Does a mental health diagnosis affect forced moves?

This part of the analysis examined whether a diagnosed mental health condition was significantly related to forced moves.

The analysis of the HILDA data separated individuals into three groups:

- those without a diagnosed mental health condition and without symptoms (base case)
- those with a diagnosed mental health condition
- those without a diagnosed mental health condition but with symptoms (MHI-5 >48; K6 ≥13) (Table 6).

Regardless of the mental health measure used, there was a significant relationship between a diagnosed mental health condition and forced moves in the following one and two years. The consistency of the results suggests that the outcomes are robust. Analysis using the MHI-5 measure showed that the likelihood of a forced move within 12 months increased by 39 per cent for people who had a diagnosed mental health condition and by 44 per cent for those who had no diagnosis but who had symptoms of mental ill-health (Table 6). Analysis using the K6 measure showed a 34 per cent increase in the likelihood of a forced move occurring in the following 12 months for people who had a mental health diagnosis (Table 6).

Table 6: Marginal effects of a diagnosed mental health condition on forced moves in one and two years, HILDA

	Forced moves			
	In one year		In two years	
MHI-5				
Diagnosed with a mental health condition	0.385*** (0.135)		0.320*** (0.105)	
No diagnosis but have symptoms (MHI-5 >48)	0.440** (0.192)		0.291* (0.155)	
Reference = K6 <13 and no diagnosis				
K6				
Diagnosed with a mental health condition		0.340** (0.134)		0.292*** (0.104)
No diagnosis but have symptoms (K6 ≥13)		0.272 (0.286)		0.163 (0.234)
Number of observations	*19,116*	*19,116*	*18,298*	*18,298*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

Analysis of the JH dataset found no significant relationship in the likelihood of a forced move within the next six months between those with a diagnosis and those without a diagnosis but with symptoms (Table 7).

Hence, the findings for the more at-risk population (JH) contrast with the findings for the general population (HILDA). This difference in results indicates the need for different policy responses for the general population and the at-risk population.

Table 7: Marginal effects of a diagnosed mental health condition on forced moves in six months, JH

K6	Forced moves
Reference = no symptoms (K6<13) and no diagnosis	
Diagnosed with a mental health condition	0.003 (0.013)
No diagnosis but have symptoms (K6 ≥13)	0.047 (0.032)
Number of observations	*6,186*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

6.3 Does deteriorating mental health affect forced moves?

This part of the analysis modelled the effects of deteriorating mental health on tenancy stability. A decline in mental health was indicated when an individual had a higher MHI-5 score in the current period than in the previous period.

The modelling used three variations of mental health deterioration (Table 8):

- The first variation was deterioration in mental health from the previous period.
- The second variation analysed the effects of a decline in mental health only for those who also had symptoms (MHI-5 >48).
- The third variation had three variables: a variable for deterioration in each of the past one, two or three years.

The results showed that both deteriorating mental health and deteriorating mental health for those with symptoms had a significant relationship with forced moves in one and two years. Individuals who experienced deteriorating mental health, had a 10 per cent increased likelihood of a forced move compared to those who did not experience a decline in mental health.

For those experiencing deteriorating mental health with symptoms (MHI-5 >48), the likelihood of a forced move increased by 30 per cent compared to those who did not have declining mental health. Modelling of deteriorating mental health over three years using HILDA produced mixed results. Having worse mental health in the current period than three years ago was a significant predictor of a forced move in the next 12 months.

Only deteriorating mental health the past year was significantly related (at the 10 per cent level) to a forced move in the next two years.

In sum, deteriorating mental health had a significant relationship with forced moves, with a deterioration in the past year for individuals with symptoms having the largest marginal effect.

Table 8: Marginal effect of deteriorating mental health on a forced move, HILDA

MHI-5	Forced moves					
	In one year			In two years		
Deterioration	0.101*** (0.036)		0.015 (0.049)	0.090*** (0.032)		0.082* (0.045)
Deterioration with symptoms (MHI-5 >48)		0.296*** (0.059)			0.294*** (0.056)	
Deterioration over time						
Two years			0.078 (0.050)			0.030 (0.046)
Three years			0.156*** (0.049)			0.055 (0.046)
Number of observations	*121,748*	*121,748*	*86,540*	*106,743*	*106,743*	*75,222*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

Modelling of the effects of deteriorating mental health using the K6 measure on forced moves for the JH cohort identified that deteriorating mental health had a significant relationship with forced moves within the next six months (significant at the 10 per cent level) (Table 9).

Individuals with deteriorating mental health and K6 scores greater or equal to 13 had a 3 per cent increased likelihood of experiencing a forced moved within the next six months (significant at the 5 per cent level). This result is compared to the base case of those with similar K6 scores but without deteriorating mental health.

These results showed that for an at-risk population, the level of mental health was not a predictor of a forced move (compare to Table 5). Rather it was deterioration in mental health that had a significant relationship with forced moves within the next six months (Table 7).

Table 9: Marginal effects of deteriorating mental health on forced moves, JH

K6	Forced moves in 6 months	
Deteriorating mental health	0.020* (0.011)	
Deteriorating mental health with symptoms (K6 ≥13)		0.027** (0.012)
Number of observations	*4,645*	*4,645*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

6.4 What is the impact of tenure on the relationship between deteriorating mental health and forced moves?

The analysis modelled the impact of deteriorating mental health on forced moves by tenure type for the HILDA dataset. For example, were homeowners who experienced a decrease in mental health in the past year more likely to experience a forced move in the following period compared to homeowners who did not experience a decrease in mental health? The analysis modelled the effect on forced moves in the next 12 and 24 months of deteriorating mental health using:

- the MHI-5 in the past year
- a worse mental health score in the current period than the one recorded three years ago
- deteriorating mental health in the past year with symptoms.

Results showed that homeowners who experienced deteriorating mental health of any type were significantly more likely to experience a forced move in the next 12 and 24 months compared to homeowners who did not have deteriorating mental health. This result was consistent for deterioration in the past year, past three years and deterioration with symptoms, hence is robust.

Only two other coefficients produced significant results. Private renters whose mental health deteriorated over three years were more likely to experience a forced move in the next 12 months compared to those who did not experience worsening mental health. Public housing tenants who experienced deteriorating mental health were more likely to experience a forced move in the next 24 months compared to public housing tenants who did not experience worsening mental health.

Table 10: Effects of deteriorating mental health on forced moves by tenure, HILDA

MHI-5	Forced moves in one year			Forced moves in two years		
	One year deterioration	*Three year deterioration*	*Deterioration and symptoms (MHI-5>48)*	*One year deterioration*	*Three year deterioration*	*Deterioration and symptoms (MHI-5>48)*
Home owner	0.202*** (0.065)	0.334*** (0.077)	0.731*** (0.097)	0.156*** (0.051)	0.135** (0.063)	0.579*** (0.086)
Private rental	0.069 (0.046)	0.111** (0.057)	0.102 (0.074)	0.056 (0.044)	0.091 (0.058)	0.085 (0.076)
Public housing	0.056 (0.214)	0.551* (0.288)	0.072 (0.279)	0.358** (0.177)	0.128 (0.239)	0.297 (0.233)
Community housing	−0.075 (0.408)	−0.154 (0.513)	0.438 (0.496)	−0.610* (0.367)	−0.502 (0.447)	0.131 (0.471)
Rent-free	−0.086 (0.169)	0.126 (0.204)	0.340 (0.252)	−0.191 (0.161)	−0.159 (0.199)	0.416 (0.254)
Number of observations	*121,748*	*86,540*	*121,748*	*106,743*	*75,222*	*106,743*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

7 Financial hardship

HILDA

- There is a strong relationship between mental ill-health and financial hardship.
- People experiencing severe psychological distress had an 89 per cent increased likelihood of experiencing financial hardship in the following year, and a 96 per cent increased likelihood of experiencing financial hardship in two years (Table 11).
- A mental health diagnosis predicts a significantly increased likelihood of financial hardship in the following year (44% more likely) and the following two years (46% more likely) compared to the base case of those with no diagnosis or symptoms (Table 13).
- People who experienced deteriorating mental health with symptoms had a 29 per cent increased likelihood of experiencing financial hardship in the next 24 months (Table 15).

Journeys Home

- Experience of severe psychological distress elevated the likelihood of financial hardship in the next six months by 8 per cent (Table 12).
- A mental health diagnosis elevated the likelihood of financial hardship in the next six months by 6 per cent (Table 14).

The analysis examined the effects of mental health status and deteriorating mental health on financial hardship using the same approach as detailed for forced moves. The independent variables and variations were the same–only the life event was different.

7.1 Does the current mental health status affect future financial hardship?

Analysis of the HILDA dataset showed that mental health status, as measured by K6, was significantly related to experience of financial hardship in the following 12 and 24 months (Table 11). People experiencing severe psychological distress had an 89 per cent increased likelihood of experiencing financial hardship in the following year and a 96 per cent increased likelihood of experiencing financial hardship in two years (Table 11). People experiencing mild to moderate psychological distress had a 43 per cent increased likelihood of experiencing financial hardship in the following year and a 40 per cent increased likelihood of experiencing financial hardship in two years (Table 11).

Table 11: Marginal effects at means of mental health levels on financial hardship in one and two years, HILDA

	Financial hardship in one year		Financial hardship in two years	
MHI-5	0.014*** (0.001)		0.015*** (0.001)	
Reference = no symptoms (K6 <5)				
Mild to moderate psychological distress (K6=6-12)		0.425*** (0.052)		0.397*** (0.055)
Severe psychological distress (K6≥13)		0.889*** (0.103)		0.958*** (0.115)
Number of observations	*127,623*	*36,567*	*97,706*	*32,982*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

Analysis of JH data showed that people experiencing mild to moderate psychological distress had a 4 per cent increased likelihood of financial hardship in the following six months. Those experiencing severe psychological distress had an 8 per cent increased likelihood of financial hardship in the following six months (Table 12).

Table 12: Marginal effects of mental health levels on financial hardship within the next six months, JH

	Financial hardship in the next six months
Reference = no symptoms (K6 <5)	
Mild to moderate psychological distress (K6 = 5–12)	0.040*** (0.013)
Severe psychological distress (K6 ≥13)	0.083*** (0.020)
Number of observations	*6,053*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

Overall, the analysis of housing instability showed that the level of mental health had more explanatory power in relation to financial hardship than for forced moves. In other words, there was a stronger relationship between a person's level of mental health and financial hardship in the next 12 and 24 months than there was for forced moves (Table 4 and Table 5). In relation to financial hardship, the modelling showed that all the coefficients were significant at the 1 per cent level (Table 11 and Table 12). Thus, the worse an individual's current mental health score, the greater was the likelihood that they would experience financial hardship in the next 12 or 24 months for all populations tested.

7.2 Does a mental health diagnosis affect financial hardship?

Modelling showed strong relationships between a mental health diagnosis and experience of financial hardship in the following 12 or 24 months. Modelling of HILDA data showed significant relationships at the 1 per cent level for most variables–with the exception of individuals without a mental health diagnosis but with symptoms using the K6 measure of mental health (Table 13).

Using the MHI-5 measure:

- people with a mental health diagnosis were 43 per cent more likely to experience financial hardship in the following year (46% in two years)
- people without a diagnosis but who were experiencing symptoms were 32 per cent more likely to experience symptoms in the following year (38% in two years).

Using the K6 measure:

- people with a mental health diagnosis were 41 per cent more likely to experience financial hardship in the following year (44% in two years)
- people without a diagnosis but who were experiencing symptoms were 34 per cent more likely to experience symptoms in the following year (36% in two years) (Table 13).

Table 13: Marginal effects of a diagnosed mental health condition on financial hardship, in one and two years, HILDA

	Financial hardship			
	In one year		**In two years**	
Reference = no symptoms and no diagnosis				
MHI-5				
Diagnosed with a mental health condition	0.435*** (0.078)		0.462*** (0.079)	
No diagnosis but have symptoms (MHI-5 >48)	0.324*** (0.119)		0.376*** (0.121)	
Reference = K6 <13 and no diagnosis				
K6				
Diagnosed with a mental health condition		0.413*** (0.077)		0.436*** (0.078)
No diagnosis but have symptoms (K6 ≥13)		0.337* (0.185)		0.360* (0.197)
Number of observations	*9,995*	*9,995*	*9,153*	*9,153*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

For the JH cohort, a diagnosed mental health condition predicted a 6 per cent increased likelihood of financial hardship in the next six months compared to those with no psychological distress or diagnosis (Table 14).

Table 14: Marginal effects of a diagnosed mental health condition on financial hardship within the next six months, JH

	Financial hardship in the next six months
Reference = no symptoms (K6<13) and no diagnosis	
Diagnosed with a mental health condition	0.063*** (0.018)
No diagnosis but have symptoms (K6 ≥13)	0.070* (0.040)
Number of observations	*4,645*

Notes: i) Standard errors are in parentheses. ii) *** p<0.01, ** p<0.05, * p<0.1 iii) Wave dummies are also included in the list of covariates.

7.3 Does deteriorating mental health affect financial hardship?

The research examined whether there was a significant relationship between deteriorating mental health and financial hardship.

Analysis of the marginal effects using HILDA data showed that individuals who had deteriorating mental health and who had symptoms had a 24 per cent increased likelihood of experiencing financial hardship in the following 12 months (29% in 24 months) (Table 15).

Table 15: Marginal effect of deteriorating mental health on financial hardship, HILDA

MHI-5	Financial hardship					
	In one year			In two years		
Deterioration	−0.002 (0.022)		−0.0003 (0.030)	−0.007 (0.026)		0.021 (0.036)
Deterioration with symptoms		0.244*** (0.041)			0.288*** (0.052)	
Deterioration over time						
Two years			0.003 (0.031)			−0.022 (0.037)
Three years			0.010 (0.031)			−0.017 (0.037)
Number of observations	*107,101*	*107,101*	*76,117*	*82,110*	*82,110*	*57,160*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

Analysis of JH data revealed a small and weak negative association (significant at the 10 per cent level) between deteriorating mental health and financial hardship. Individuals whose mental health deteriorated in the past six months were 2.3 per cent less likely to experience financial hardship in the next six months (Table 16).

Table 16: Marginal effect of deteriorating mental health on financial hardship within the next six months, JH

K6	Financial hardship
Deteriorating mental health	−0.023* (0.012)
Deteriorating mental health with symptoms (K6 ≥13)	−0.002 (0.013)
Number of observations	*4,544*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

7.4 Does housing tenure affect the relationship between deteriorating mental health and financial hardship?

This section examines whether tenure type affects the relationship between deteriorating mental health and financial hardship. For example, are homeowners whose mental health deteriorated in the past year more likely to experience financial hardship compared to homeowners who did not experience a decrease in mental health?

The modelling included mental health deterioration over the past year, the past three years and the effects of deterioration with symptoms on financial hardship in the next 12 and 24 months.

The results showed that deteriorating mental health, whether over one or three years, was not significantly related with financial hardship in the next 12 or 24 months (Table 17).

However, there were significant relationships between deteriorating mental health with symptoms and tenure type for home owners, private renters and those living rent-free:

- home owners were 35 per cent more likely to experience financial hardship in one year (30% in two years)
- private renters were 24 per cent more likely to experience financial hardship in one year (28% in two years)
- people living rent-free were 77 per cent more likely to experience financial hardship within one year (28% in two years).

Table 17: Effects of deteriorating mental health on financial hardship by tenure, HILDA

	Financial hardship 1 year			Financial hardship 2 years		
	Deterioration 1 year	*Deterioration 3 years*	*Deterioration with symptom*	*Deterioration 1 year*	*Deterioration 3 years*	*Deterioration with symptoms*
Home owner	0.029 (0.028)	0.024 (0.035)	0.247*** (0.053)	0.006 (0.031)	−0.009 (0.040)	0.301*** (0.064)
Private rental	−0.072* (0.040)	−0.010 (0.051)	0.243*** (0.071)	−0.032 (0.050)	−0.056 (0.067)	0.280*** (0.098)
Public housing	0.052 (0.104)	−0.044 (0.132)	0.096 (0.153)	0.107 (0.129)	−0.111 (0.170)	0.205 (0.204)
Community housing	−0.161 (0.254)	−0.112 (0.304)	−0.537 (0.387)	−0.469 (0.324)	0.183 (0.381)	−0.940* (0.532)
Rent-free	0.011 (0.130)	0.068 (0.167)	0.768*** (0.220)	−0.145 (0.154)	0.161 (0.205)	0.582** (0.277)
Number of observations	*107,101*	*76,117*	*107,101*	*82,110*	*57,160*	*82,110*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

8 Does housing instability precede deteriorating mental health?

HILDA

- Financial hardship in the past 12 and 24 months elevates the likelihood that a person will experience deteriorating mental health to the point where the person experienced symptoms by 23 per cent and 21 per cent respectively.

The analysis examined whether a housing-instability event in the previous 12 and 24 months affected mental health status in the following period. In other words, did housing instability in the past affect mental health in the future?

Eleven variations were modelled (Table 18). The models included tenure in the current period and whether the individual had experienced a forced move or financial hardship in the 12 and 24 months prior to the current survey.

Results showed that when controls from all models were added (Table 18, column 11), only the financial hardship measure of housing instability was significantly related statistically (at the 1 per cent level) to deteriorating mental health in the following 12 and 24 months:

- People who had experienced financial hardship in the 12 months prior to the current survey were 23 per cent more likely to experience deteriorating mental health in the next year.
- People who had experienced financial hardship in the 24 months prior to the current survey were 21 per cent more likely to experience deteriorating mental health in the next 12 months.

Homeownership had only a modest protective effect against deteriorating mental health, with homeowners being 8 per cent less likely to experience deteriorating mental health in the next 12 months.

Table 18: Does housing predict deteriorating mental health with symptoms in the next period, HILDA

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
Reference = private rental											
Homeowner	−0.127*** (0.034)			−0.125*** (0.037)	−0.131*** (0.040)			−0.076** (0.035)	−0.082** (0.041)	−0.076** (0.038)	−0.076* (0.045)
Public housing	0.103 (0.070)			0.141* (0.075)	0.151* (0.080)			0.096 (0.072)	0.116 (0.084)	0.111 (0.077)	0.123 (0.089)
Community housing	0.089 (0.139)			0.127 (0.148)	0.108 (0.157)			0.123 (0.147)	0.252 (0.173)	0.173 (0.155)	0.234 (0.181)
Rent-free	−0.098 (0.082)			−0.088 (0.086)	−0.073 (0.092)			−0.102 (0.086)	−0.056 (0.098)	−0.070 (0.090)	−0.003 (0.103)
Forced move previous 1 year		0.040 (0.063)	0.077 (0.068)	0.014 (0.064)	0.051 (0.069)					−0.0002 (0.067)	0.009 (0.079)
Forced move previous 2 years			0.176*** (0.065)		0.138** (0.066)						0.139* (0.076)
Financial hardship previous 1 year						0.291*** (0.031)	0.229*** (0.039)	0.279*** (0.031)	0.219*** (0.039)	0.284*** (0.033)	0.225*** (0.042)
Financial hardship previous 2 years							0.231*** (0.038)		0.219*** (0.039)		0.214*** (0.042)
Number of observations	*138,648*	*123,094*	*107,988*	*123,027*	*107,928*	*127,255*	*97,031*	*127,189*	*96,983*	*112,374*	*85,243*

Notes: i) Standard errors are in parentheses; ii) *** p<0.01, ** p<0.05, * p<0.1; iii) Wave dummies are also included in the list of covariates.

9 Use of health services

HILDA

- Homeowners were more likely to use health services (32%) but less likely to use mental health services (17%) compared to private renters (Table 19).
- Those experiencing deteriorating mental health with symptoms who did not access health services were more likely (58%) to experience a forced move in the next 24 months, compared to those without deteriorating mental health (Table 21).
- People who experienced deteriorating mental health with symptoms who did not access health services were 65 per cent more likely to experience financial hardship in the next 12 months (69% in 24 months) (Table 22).
- People who experienced deteriorating mental health with symptoms who did not access mental health services were 36 per cent more likely to experience financial hardship in the next 12 months (35% in 24 months) (Table 22).

Journeys Home

- People who experienced deteriorating mental health with symptoms and who accessed mental health services were 8 per cent less likely to experience financial hardship in the next six months, compared to those without deteriorating mental health (Table 23).

The research analysed whether there was a significant relationship between the use of health services and tenure, and whether deteriorating mental health was related with forced moves or financial hardship.

9.1 Does tenure affect health services use?

Analysis of whether tenure could predict people's use of health services showed that only homeownership was significantly related with overall health service use, compared to the base case of private rental. Specifically, it was observed that homeowners were 17 per cent less likely to use mental health services, and were 55 per cent more likely to use dental services compared to private renters (Table 19). Public housing tenants were also more likely to use dental services (28%), as were those living rent-free (27%). This result may indicate that the financial stress of private rental constrains renters' ability to pay for and access dental services.

Table 19: Health service use, average marginal effects of logistic regression with cluster, HILDA

	All health services	Mental health services	GP	Dental services	Hospital stays
Reference = private rental					
Home owner	0.318*** (0.078)	−0.167** (0.071)	0.044 (0.051)	0.545*** (0.042)	−0.063 (0.040)
Public housing	−0.142 (0.179)	−0.131 (0.157)	−0.178 (0.128)	0.280*** (0.103)	0.050 (0.091)
Community housing	0.325 (0.508)	0.146 (0.321)	−0.052 (0.313)	−0.185 (0.215)	0.201 (0.182)
Rent-free	−0.159 (0.184)	−0.015 (0.185)	−0.168 (0.125)	0.274*** (0.103)	0.054 (0.097)
Number of observations	*32,087*	*32,085*	*32,083*	*32,061*	*32,081*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

JH provides detailed information on health service use, but the analysis revealed few significant relationships between tenure status and health service use. Only 'other tenure' was significantly related with use of all health services, and showed that those in other tenure were 5 per cent less likely to use health services overall than those in private rental (base case). Homeowners were 11 per cent more likely to visit a hospital doctor than renters among the JH cohort (Table 20), while public housing tenants were slightly less likely (3%) to experience a hospital stay.

Table 20: Health service usage, average marginal effects of logistic regression with random effects, JH

Housing tenure	All health services	GP	Hospital doctor	Mental health services	Specialist	Dental services	Hospital stays	Other health services
Reference = private rental								
Home owner	0.062 (0.063)	0.036 (0.062)	0.110** (0.053)	0.0002 (0.050)	−0.011 (0.040)	0.012 (0.045)	0.030 (0.054)	−0.041 (0.043)
Public housing	0.012 (0.018)	−0.0018 (0.019)	0.008 (0.017)	0.007 (0.015)	−0.001 (0.013)	0.002 (0.014)	−0.028* (0.016)	−0.009 (0.013)
Community housing	0.013 (0.023)	−0.017 (0.024)	0.020 (0.021)	0.009 (0.019)	0.004 (0.016)	−0.014 (0.018)	0.023 (0.020)	0.009 (0.016)
Homeless	−0.014 (0.014)	−0.024 (0.015)	0.013 (0.014)	−0.008 (0.012)	−0.003 (0.011)	−0.016 (0.012)	0.022* (0.013)	−0.005 (0.011)
Other	−0.047** (0.019)	−0.031 (0.021)	0.014 (0.021)	−0.014 (0.018)	−0.019 (0.017)	−0.012 (0.018)	0.028 (0.019)	−0.019 (0.016)
Number of observations	*7,988*	*7,989*	*7,984*	*7,982*	*7,983*	*7,983*	*7,987*	*7,982*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

9.2 Is deteriorating mental health and use of health services related to forced moves?

The research examined whether deteriorating mental health for those who also experienced symptoms and used health services was related to forced moves. The coefficients in Table 21 are for those who experienced deteriorating mental health with symptoms (MHI-5 >48), paired with health services use, and were compared to those without deteriorating mental health to ascertain if this group was significantly more likely to experience a forced move.

For example, the first row shows those with deteriorating mental health with symptoms who did not access health services. This cohort is compared to those without deteriorating mental health who did not use health services. This is done for each row.

The results show that people with deteriorating mental health and with symptoms, who did not access health services, were 58 per cent (significant at the 5% level) more likely to experience a forced move in the next 24 months, compared to those without symptoms and without deteriorating mental health who did not access health services.

Table 21: Impact of deteriorating mental health with symptoms and health service use on forced moves, HILDA

Effects of deteriorating mental health with symptoms (MHI-5 >48)	Forced moves	
	In one year	In two years
Did not see health services	0.539 (0.395)	0.582** (0.279)
Did see health services	0.401* (0.222)	0.327* (0.169)
Did not see mental health services	0.279 (0.250)	0.220 (0.184)
Did see mental health services	0.299 (0.320)	0.394 (0.250)
Number of observations	*14,778*	*14,240*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

9.3 Is deteriorating mental health and use of health services related to financial hardship?

The research modelled whether deteriorating mental health and the use of health services were related to financial hardship, using the same approach as in Section 9.2.

Results showed that people experiencing deteriorating mental health with symptoms but who did not access health services had a 65 per cent increased likelihood of financial hardship in the next year (69% in two years) (Table 22).

People who experienced deteriorating mental health with symptoms who did not access mental health services were 36 per cent more likely to experience financial hardship in the next 12 months (35% in 24 months) (Table 22).

These findings suggest that accessing health services and mental health services can protect from financial hardship people who experience deteriorating mental health with symptoms.

Table 22: Impact of deteriorating mental health with symptoms and health service use on financial hardship, HILDA

Effects of deteriorating mental health with symptoms (MHI-5 >48)	Financial hardship	
	In one year	In two years
Did not see health services	0.655*** (0.230)	0.684*** (0.243)
Did see health services	0.184 (0.131)	0.157 (0.131)
Did not see mental health services	0.364*** (0.133)	0.347** (0.146)
Did see mental health services	−0.188 (0.225)	−0.269 (0.237)
Number of observations	*8,005*	*7,450*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

9.4 Is deteriorating mental health and use of health services related to housing instability for at-risk cohorts?

The analysis modelled the effects of deteriorating mental health and use of health and mental health services for the JH cohort using the same approach as for sections 9.2 and 9.3. The K6 measure of mental health was used.

Results showed that the only significant coefficient at the 1 per cent level was for people who had experienced deteriorating mental health and who had accessed mental health services. This cohort had an 8 per cent decreased likelihood of experiencing financial hardship in the following period. This indicates that accessing mental health services may be a protective factor against financial hardship among the vulnerable JH cohort.

Table 23: Impact of deteriorating mental health and health service use on housing instability, JH

Effect of deteriorating mental health (K6)	Forced moves	Financial hardship	Entries into homelessness
Did not access health services	0.029 (0.022)	0.044* (0.026)	0.007 (0.019)
Did access health services	0.027* (0.014)	−0.020 (0.015)	0.012 (0.012)
Did not access mental health services	0.022 (0.014)	0.023 (0.015)	0.019 (0.012)
Did access mental health services	0.044* (0.025)	−0.078*** (0.025)	−0.013 (0.021)
Number of observations	*4,645*	*4,544*	*3,778*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

10 Is mental health status predictive of entries into homelessness?

Journeys Home

- People without a mental health diagnosis and who experienced symptoms were significantly more likely (6%) to enter into homelessness compared to those without a diagnosis and without symptoms (Table 24).
- Public housing tenants were 10 per cent less likely to enter homelessness compared to private renters (Table 26).
- Improved social support lowered the likelihood of entering homelessness (Table 27).

The research examined the factors that could affect entries into homelessness among the JH cohort, which is characterised by its high vulnerability and risk of homelessness.

Two models were used to analyse the effects of mental health status on entries into homelessness, and the K6 measure of mental health was used.

Model one tested the effect of mental health status on entries into homelessness among three groups:

- those without symptoms (base case)
- those experiencing mild psychological distress
- those experiencing severe psychological distress (Table 24).

Results showed a slightly elevated (3%) likelihood for those experiencing severe psychological distress to enter into homelessness. However, this was only a weak correlation (significant at the 10 per cent level) (Table 24).

Model two examined the effects of a mental health diagnosis on entries into homelessness. Results showed that compared to those without symptoms, individuals who were without a diagnosis but were experiencing severe psychological distress had a 6 per cent increased likelihood of entering into homelessness. There is no significant relationship between a mental health diagnosis and entries into homelessness (Table 24).

Table 24: Marginal effect of mental health status on entries into homelessness within the next six months, JH

	Model 1	Model 2
Reference = no symptoms (K6 <5)		
Mild to moderate psychological distress (K6 = 5–12)	0.017 (0.011)	
Severe psychological distress (K6 ≥13)	0.028* (0.015)	
Reference = no symptoms (K6<13) and no diagnosis		
Diagnosed with a mental health condition		–0.011 (0.012)
No diagnosis but have severe psychological distress symptoms (K6 ≥13)		0.058** (0.025)
Number *of observations*	*4,923*	*4,948*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

Modelling examined the effects of deteriorating mental health on entries into homelessness (Table 25). The only significant relationship with entries into homelessness was for those with deteriorating mental health who were experiencing severe psychological distress (K6 ≥13) without diagnosis. This group had a 17 per cent increased risk of entering into homelessness compared to those not experiencing deteriorating mental health with K6 <13 and no diagnosis. However, this was only significant at the 10 per cent level.

Table 25: Marginal effect of deteriorating mental health on entries into homelessness within the next six months, JH

Entries into homelessness	Model 1	Model 2	Model 3
Deteriorating mental health	0.0084 (0.009)		
Deteriorating mental health with symptoms (K6 ≥13)		0.011 (0.010)	
Deteriorating mental health no diagnosis and no symptoms			0.010 (0.018)
Deteriorating mental health diagnosed with a mental health condition			0.002 (0.011)
Deteriorating mental health no diagnosis but have severe psychological distress symptoms (K6 ≥13)			0.172* (0.102)
Number of observations	*3,778*	*3,778*	*3,758*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

Table 26 models the link between tenure and the likelihood of entering homelessness. Results showed that compared to private rental, public housing decreased the risk of entry into homelessness by 10 per cent (significant at the 1% level). This result points to the protective effects of public housing for cohorts who are at high risk of homelessness, like the JH cohort. The other tenure types were not significantly different from private rental.

Table 26: Marginal effect of tenure on entries into homelessness within the next six months, JH

	Entry into homelessness
Reference = private rental	
Homeowner	−0.054
	(0.056)
Public housing	−0.104***
	(0.017)
Community housing	−0.010
	(0.016)
Other	−0.002
	(0.016)
Number of observations	*4,923*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

Individuals who identified as Indigenous in JH were significantly more likely (2.9%) to enter into homelessness (significant at the 5% level) compared to non-Indigenous people.

The greater the level of social support experienced by an individual, the lower was the chance of entering homelessness in the next six months. A one-unit increase in the social support index is associated with 1.5 per cent decreased likelihood of entry into homelessness.

Those with very good self-assessed general health were more likely to enter homelessness compared to those with poor self-assessed health. Those with very good health were 2.3 per cent more likely to experience entry into homelessness. However, this was only significant at the 10 per cent level. Those with poor self-assessed general health might have a better understanding of the systems and access to resources, and thus be better able to avoid entering into homelessness.

Table 27: Marginal effect of risk factors on entries into homelessness within the next six months, JH

	Entry into homelessness
Indigenous	0.029** (0.013)
Social support	–0.015** (0.007)
General health (very good health)	0.023* (0.013)
Long-term health condition	0.012 (0.010)

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

11 How long does mental ill-health persist?

HILDA

- Most individuals escaped mental ill-health with symptoms (MHI-5) within one year (66%); 89 per cent recovered within three years (Table 28).
- Women, young people, families with multiple children, those not working, those with poor self-assessed general health, residents of Victoria, and those with poor social support all had a significant relationship with longer periods in mental ill-health (Table 29).

HILDA data was used to model how long it takes an individual to recover from mental ill-health (Table 28).

Care needs to be taken when evaluating the results of this analysis–as the analysis considered only the first spell of mental ill-health. It is possible that individuals churn in and out of mental ill-health with symptoms. The HILDA sample is representative of the general population. Hence the results would be different if an at-risk sample group were selected.

Table 28 details the results of the analysis for the sample of 5,492 individuals who experienced a spell of mental health symptoms (MHI-5 >48) in HILDA. The 'Net loss' column shows the number of individuals who dropped out of the dataset, and for whom there is no information about when the spell of mental ill-health ended. The net loss numbers are small and do not affect validity of the analysis.

The column 'Spell ended' refers to individuals whose mental health improved to the point where they no longer experienced symptoms (MHI-5 <48).

The two key columns for discussion are the 'Survivor function' and 'p'. The survivor function is the probability that an individual will continue to experience symptoms beyond the current period, taking into consideration all previous periods. Hence, there was a 34 per cent chance of surviving beyond the first year with symptoms. By the tenth year, less than 2 per cent of the sample continued to experience mental ill-health.

The 'p' column shows the probability that an individual will escape mental ill-health symptoms in that period. Hence, in the first year of the analysis, the mental health of 66 per cent of the sample improved to the point where they no longer experienced symptoms. In the second year, a further 50 per cent of those remaining exited mental ill-health. The probability dropped to 37 per cent in the third year.

Overall, the results showed that the majority of individuals recovered from mental ill-health in the first year and that only 10 per cent of the overall sample was likely to remain in mental ill-health for longer than three years (refer survivor column).

Table 28: Recovery periods for people with mental health symptoms, HILDA

Year	Number of observations (MHI-5>48)	Spell of illness ended during that year	Net loss as no further information on individual	p *(probability of escape in that year)*	Survivor function	Standard error	Confidence intervals at 95% level
1	5,492	3625	134	0.66	0.3399	0.0064	0.3274–0.3525
2	1,733	870	79	0.50	0.1693	0.0052	0.1593–0.1796
3	784	293	39	0.37	0.106	0.0044	0.0977–0.1148
4	452	153	35	0.34	0.0701	0.0037	0.0631–0.0777
5	264	63	16	0.24	0.0534	0.0034	0.047–0.0603
6	185	45	8	0.24	0.0404	0.0031	0.0347–0.0467
7	132	32	8	0.24	0.0306	0.0028	0.0255–0.0364
8	92	18	7	0.20	0.0246	0.0026	0.02–0.03
9	67	12	7	0.18	0.0202	0.0024	0.0159–0.0253
10	48	8	5	0.17	0.0168	0.0023	0.0128–0.0218
11	35	1	6	0.03	0.0164	0.0023	0.0124–0.0213
12	28	4	4	0.14	0.014	0.0022	0.0102–0.0189
13	20	2	6	0.10	0.0126	0.0022	0.0088–0.0176
14	12	1	5	0.08	0.0116	0.0023	0.0078–0.0167
15	6	0	6	0	0.0116	0.0023	0.0078–0.0167

What factors affect the length of a spell of mental ill-health?

The research modelled whether personal characteristics, risk factors and location were significantly related with how long a person experienced mental ill-health.

The survival data was modelled using four semi-parametric models with different assumptions about the survival function shape (Table 29). The best fit model specification was the log-logistic semi-parametric form; the results are presented below. A positive estimate predicts that an individual will experience a longer spell of mental ill-health–and is thus a negative outcome.

The estimates in Table 29 compare to a base survival function. The base cases are male, aged 15–24, mean number of dependent children, not Indigenous, mean social support, employed, live in NSW, or have a long-term health condition and have self-reported poor general health.

Results showed that gender was significantly related to survival function. It predicts that women will have a 5 per cent longer experience of mental health symptoms than men.

Older individuals are likely to experience shorter spells of mental ill-health. People aged 65 years or older are likely to experience 20 per cent shorter spells of mental ill-health compared to those aged 15–24 years.

The number of dependent children is significant in predicting the length of a spell of mental ill-health. Individuals with additional dependent children are likely to experience 2 per cent longer spells of mental ill-health than those who have a mean number of dependent children.

Table 29: Marginal effects of the log-logistic model for survival with mental health symptoms (MHI-5 >48) concerning personal characteristics and risk factors, HILDA

	Variables	Estimates
Gender		
	Female	0.051** (0.022)
Age		
Reference = 15–24 years of age		
	25–44 years	–0.071** (0.031)
	45–64 years	–0.100*** (0.032)
	65+ years	–0.206*** (0.044)
Dependent children		
Number of dependent children		0.026** (0.011)
Indigenous	Indigenous	0.005 (0.057)
Social connectedness	Social support	–0.057*** (0.007)
Labour force status		
Reference = employed		
	Not in labour force	0.097*** (0.027)
State of residence		
Reference = NSW		
	Victoria	0.088*** (0.028
	WA	0.072* (0.041)
Health		
Reference = poor self-assessed general health		
	Good general health	–0.052** (0.026)
	Very good general health	–0.085*** (0.029)
Reference = no long-term health condition		
	Long-term health condition	0.007 (0.024)

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1

Social support is important in assisting in recovery from mental ill-health. Modelling shows that individuals with social support are likely to experience 6 per cent shorter spells in mental ill-health.

Not being in the labour force is associated with the likelihood of experiencing 10 per cent longer spells in mental ill-health, compared to those who are working.

Modelling of the impact of location on length of spell in mental ill-health produced interesting results. Compared to NSW, individuals residing in Victoria are likely to experience 8.8 per cent longer spells in mental ill-health (significant at the 1 per cent level), while those in WA are likely to experience 7 per cent longer spells in mental ill-health (significant at the 10 per cent level). These results hold even when other personal characteristics are added as controls. This result strongly suggests a policy response is required for Victoria, and that the NSW approach facilitates shorter spells in mental ill-health than the Victorian approach.

Long-term health conditions are not significantly related to length of spell in mental ill-health. Vice versa, compared to people with poor general health, people with good or very good self-assessed general health have 5 per cent and 8.5 per cent shorter spells in mental ill-health, respectively.

12 Non-housing risk factors

HILDA

- Social support had a strong protective effect on reducing the likelihood of forced moves, financial hardship and deteriorating mental health (Table 30).
- The marginal effects showed that a one-unit increase in social support decreased the likelihood of a forced move by 5 per cent and decreased the likelihood of financial hardship by 10 per cent (Table 30).
- A one-unit increase in social support decreased the likelihood of deteriorating mental health with symptoms occurring in the next year by 32.7 per cent when using MHI-5 measure (Table 30).
- People with excellent self-assessed general health were less likely to experience forced moves (10%), financial hardship (34%) and deteriorating mental health (80%) in the following period, compared to those with poor self-assessed general health (Table 30).

The research explored the impact of risk factors on forced moves, financial hardship and deteriorating mental health with symptoms using the MHI-5 measure in the next one year and two years. The housing instability measures are the same as elsewhere, being forced move and financial hardship.

The non-housing factors included in the model are Indigenous status, level of social support, self-assessed general health and long-term health condition.

Table 30: Risk factors for housing and mental health instability, HILDA

	Forced move		Financial hardship		Deteriorating mental health with symptoms (MHI-5>48)
	1 year	2 years	1 year	2 years	
Indigenous	0.064 (0.084)	0.241** (0.112)	0.503*** (0.105)	0.918*** (0.157)	0.121 (0.104)
Social support	-0.047*** (0.013)	-0.051*** (0.013)	-0.103*** (0.010)	-0.098*** (0.012)	-0.327*** (0.012)
Very good general health	-0.101* (0.054)	-0.111** (0.054)	-0.343*** (0.039)	-0.302*** (0.048)	-0.807*** (0.050)
Long-term health condition	0.149*** (0.042)	0.175*** (0.042)	0.212*** (0.030)	0.242*** (0.036)	0.376*** (0.040)
Number of observations	*146,774*	*128,330*	*127,623*	*97,706*	*85,243*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

12.1 Indigenous status

There was a significant relationship between Indigenous status and financial hardship in the following 12 and 24 months. The marginal effect for financial hardship was twice that in the second year than it was in the first 12 months. In other words, there was a 92 per cent increase in the likelihood that Indigenous people would experience financial hardship in the next two years, compared to non-Indigenous people.

Indigenous status was significantly related (at the 5 per cent level) to a forced move within 24 months. Indigenous people were 24 per cent more likely than non-Indigenous people to experience a forced move within two years.

Indigenous status did not have a significant relationship with deteriorating mental health with symptoms in the following period.

12.2 Social support

The social support index is constructed using a set of 10 questions from HILDA, which ask about people's social networks and support. The higher the value in the index, the higher the level of social support for the individual.

People often draw on the financial and emotional support of friends and family during crises. The symptoms of mental illness can cause individuals to withdraw from or overtax their support networks, thereby eroding the informal resources available to them in times of crisis (Gaebel et al. 2016; O'Brien et al. 2002).

The marginal effects showed that a one-unit increase in social support decreased the likelihood of a forced move by 5 per cent and decreased the likelihood of financial hardship by 10 per cent.

A one-unit increase in social support decreased the likelihood of deteriorating mental health with symptoms occurring in the next year by 32.7 per cent when using MHI-5 as the measure.

12.3 Self-assessed general health

People with very good self-assessed general health had a 10 per cent decreased likelihood of a forced move in the following period (11% in two years) and a 30 per cent decreased likelihood of financial hardship in the next period (34% in two years), compared to those with poor self-assessed general health.

Very good self-assessed general health was a strong protective factor for deteriorating mental health with symptoms. Individuals with self-assessed good general health were 80 per cent less likely to experience worsening mental health with symptoms in the next period compared to those with poor self-assessed general health.

12.4 Long-term health condition

Individuals with a long-term health condition were more likely to experience a forced move (15% in one year; 17.5% in two years), and more likely to experience financial hardship (21% in one year; 24% in two years) compared to those without a long-term health condition.

Those with a long-term health condition were 37.6 per cent more likely to experience deteriorating mental health with symptoms in the next year compared to those without a long-term health condition.

12.5 Additional non-housing risk factors for high-risk cohorts

Journeys Home

- Illicit drug use (regular and irregular) and experience of violence or abuse (as a child or recently) increased the likelihood of financial hardship and entry into homelessness in the following six months (Table 31).
- Irregular illicit drug use increased the likelihood of a forced move by 4 per cent (Table 31).
- Having been in state care increased the likelihood of entry into homelessness by 2.3 per cent (Table 31).

The research analysed the impact of non-housing risk factors–violence, drinking, drug use, abuse, detention, state care–on housing stability in the next six months using data from JH.

Results showed a significant relationship between irregular illicit drug use and forced moves; none of the other risk factors had a strong statistically significant relationship with forced moves. Illicit drug use (regular and irregular) and experience of violence or abuse (as a child or recently) increased the likelihood of financial hardship and entry into homelessness in the following six months.

Having been in state care slightly elevated the risk of entry into homelessness by 2 per cent (significant at the 5 per cent level).

Interestingly, detention was not statistically significantly related to any of the housing instability measures.

Table 31: Other risk factors as a predictor of housing instability, JH

	Forced moves	Financial hardship	Entry into homelessness
Recent violence (Reference = has not experienced violence in the last six months)			
Experienced recent violence or abuse	0.014 (0.013)	0.040** (0.016)	0.021* (0.011)
Average drinks per day	0.002* (0.001)	0.0003 (0.002)	0.002 (0.001)
Substance use (Reference = did not use illicit substances)			
Irregular illicit drug user	0.042*** (0.012)	0.079*** (0.015)	0.025** (0.011)
Regular illicit drug user	0.030* (0.017)	0.100*** (0.023)	0.031** (0.014)
History of abuse (Reference = did not experience abuse or violence as a child)			
Experienced abuse or violence as a child	0.005 (0.014)	0.075*** (0.020)	−0.02* (0.012)
History in detention (Reference = never in detention)			
Ever in detention	0.014 (0.013)	0.009 (0.012)	0.010 (0.012)
History in state care (Reference = never in state care)			
Ever in state care	0.015 (0.013)	−0.011 (0.020)	0.023** (0.011)
Number of observations	*6,186*	*6,053*	*4,923*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

13 Life events

- Most life events affected mental health status in the first year following the event.
- Serious personal injury or illness negatively impacted on mental health status for up to three years and increased the likelihood of a forced move in the following 12 months by 16 per cent.
- Being a victim of physical violence negatively affected mental health status for up to three years, increased the likelihood of a forced move in the next 12 months by 37 per cent, and increased the likelihood of financial hardship by 5 per cent.
- Separation from spouse negatively affected mental health status for up to two years.
- A change in job in the past 12 months increased the likelihood of a forced move in the next 12 months by 27 per cent and in the next 24 months by 29 per cent.

The research used HILDA data to ascertain how life events affected mental health status and housing stability. We modelled the following life events:

- death of a close relative or family member
- death of a spouse or child
- loss of employment
- serious injury or illness of a family member
- serious personal injury or illness
- job change
- retired from the workforce
- separation from spouse
- being a victim of physical violence.

13.1 How do life events affect mental health status and for how long?

The analysis used HILDA data to determine how life events affected a person's mental health status using the MHI-5 measure as the dependent variable and the life events as the independent variables, using a random effects model. We modelled the effects over six years (with years 1–3 presented in Table 32). The models included controls for individual characteristics and wave dummies, as per the other models presented in this report.

The emotional trauma of a sudden negative life event, such as those listed, can increase the risk of a person developing an anxiety condition. This can result in a loss of skills and opportunities, and being unable to participate in everyday activities such as work, study and socialising (Beyond Blue 2019). This leads to individuals increasing their likelihood of experiencing housing instability. With one in 10 Australians visiting a hospital emergency department every year due to a serious injury, an effective response here can improve outcomes down the track (Watson and Ozanne-Smith 2000).

The results showed a statistically significant effect on a person's mental health status (significant at the 1 per cent level) for each life event in the first year following the event, except for change of employment (Table 32).

The death of a close relative or family member was likely to lower a person's MHI-5 score by almost one point in the year following that death. The death of a spouse or child had a much greater impact on mental health, and was likely to lower a person's MHI-5 score by almost six points in the following year. However, results show that people tended to recover from these life events quickly and no statistically significant effects on the MHI-5 score were apparent three years after the event.

Serious injury or illness of a family member and serious personal injury both negatively affected mental health for up to three years. Having a seriously ill or injured family member lowered a person's MHI-5 score by about 1.2 points in the first year following the event and persisted to the third year, where MHI-5 scores were still lowered by around 0.2 points.

The effect was similar, though slightly more pronounced, for serious personal injury or illness. In the first year after the event, MHI-5 scores were about 2 points lower; by the third year they were still about 0.5 points lower.

Job loss lowered a person's MHI-5 score by about one point in the first year, but there were no statistically significant effects in years two to three–meaning that people tended to recover quickly from job loss. A change of employment affected a person's mental wellbeing after two years (around 0.2 points lower for that year but only at the ten per cent level).

Both separation from a spouse and being the victim of physical violence had lasting negative effects on a person's mental wellbeing. Separation reduced the MHI-5 score by about 4 points in the first year and by 0.7 points in the second year. Similarly, experience of physical violence reduced mental wellbeing by 4.2 points in the first year, 1.2 points in the second year and 0.9 points in the third year. This demonstrates the serious and long-lasting effects of physical violence on mental health.

On the other hand, retirement was likely to increase a person's wellbeing by around 0.6 points by the second year and this increase persisted for three years, demonstrating the long-lasting positive impacts of retirement on mental wellbeing.

Table 32: Marginal effects of life events on mental health status (MHI-5) over three years

Months	Model 1	Model 2	Model 3
Death of close relative/ family member			
Past 12	0.839***	0.881***	0.876***
	(0.095)	(0.101)	(0.110)
13 to 24		0.164	0.149
		(0.104)	(0.109)
25 to 36			0.185
			(0.113)
Death of spouse or child			
Past 12	5.690***	5.786***	5.865***
	(0.365)	(0.395)	(0.436
13 to 24		0.869**	0.656
		(0.406)	(0.432)
25 to 36			0.547
			(0.446)
Serious injury or illness of family member			
Past 12	1.157***	1.229***	1.251***
	(0.086)	(0.091)	(0.099)
13 to 24		0.160*	0.177*
		(0.093)	(0.098)
25 to 36			0.181*
			(0.100)
Serious personal injury or illness			
Past 12	2.085***	2.048***	1.998***
	(0.114)	(0.121)	(0.131)
13 to 24		0.424***	0.333**
		(0.123)	(0.131)
25 to 36			0.580***
			(0.135)
Separated from spouse			
Past 12	3.926***	4.152***	3.980***
	(0.171)	(0.191)	(0.214)
13 to 24		0.680***	0.714***
		(0.192)	(0.210)
25 to 36			0.070
			(0.211)
Victim of physical violence			
Past 12	3.814***	3.793***	4.211***
	(0.261)	(0.295)	(0.336)
13 to 24		1.131***	1.227***
		(0.294)	(0.326)
25 to 36			0.910***
			(0.326)

Months	Model 1	Model 2	Model 3
Change of employment			
Past 12	0.010	0.047	0.071
	(0.098)	(0.106)	(0.116)
13 to 24		0.181*	0.204*
		(0.106)	(0.114)
25 to 36			0.056
			(0.116)
Loss of employment or redundancy			
Past 12	0.925***	1.036***	1.079***
	(0.184)	(0.200)	(0.221)
13 to 24		0.0005	−0.076
		(0.202)	(0.217)
25 to 36			0.392*
			(0.222)
Retired from the workforce			
Past 12	−0.392*	−0.506**	−0.396
	(0.216)	(0.227)	(0.244)
13 to 24		−0.606***	−0.647***
		(0.231)	(0.243)
25 to 36			−0.589**
			(0.249)
Number of observations	*144,574*	*117,708*	*97,830*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

13.2 How do life events impact on housing stability?

HILDA data was analysed using a logit model to determine the marginal effect of a life event in the past 12 months on the likelihood of financial hardship and forced moves occurring in the next 12–24 months. The life events are based on events that occurred during the past three years.

Results showed that while statistically significant relationships existed between certain life events and financial hardship, the practical implications of this were likely to be minor. For example, the likelihood of financial hardship due to being fired or made redundant increased by only 3 per cent in the following year. Serious injury or illness to a family member, serious personal injury or illness, change in job, and separation from spouse were all significantly related to financial hardship–but increased the likelihood of this occurring only by between 1 and 2 per cent (Table 33).

Life events had a much larger marginal effect on the likelihood of a forced move occurring.

A change in job had an ongoing positive significant relationship with forced moves in the next 12 months. A change in job in the past 12 months increased the likelihood of a forced move in the next 12 months by 27 per cent. A change in job in the past 13 to 24 months increased the likelihood of a forced move in the next 12 months by 29 per cent (Table 34). Both results are significant at the 1 per cent level.

Serious personal injury or illness increased the likelihood of a forced move in the following 12 months by 16 per cent (significant at the 5 per cent level) (Table 34).

Being a victim of physical violence increased the likelihood of a forced move in the next 12 months by 37 per cent, and increased the likelihood of financial hardship by 5 per cent (Table 34).

Table 33: Logit model of the effect of life events on financial hardship, HILDA

Months	Model 1	Model 2
Fired or made redundant		
Past 12	0.036***	0.030***
	(0.006)	(0.006)
13 to 24		0.008
		(0.006)
Serious injury/illness to family member		
Past 12	0.007**	0.008***
	(0.003)	(0.003)
13 to 24		0.015***
		(0.003)
Serious personal injury/illness		
Past 12	0.016***	0.014***
	(0.004)	(0.004)
13 to 24		0.012***
		(0.004)
Changed job		
Past 12	0.027***	0.0216***
	(0.003)	(0.003)
13 to 24		0.020***
		(0.003)
Separated from spouse		
Past 12	0.027***	0.026***
	(0.005)	(0.006)
13 to 24		0.018***
		(0.006)
Victim of physical violence		
Past 12	0.057***	0.053***
	(0.008)	(0.009)
13 to 24		0.032***
		(0.009)
Number of observations	*110,462*	*91,679*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

Table 34: Logit model of the effect of life events on forced moves, HILDA

	Model 1	Model 2
Serious personal injury/illness		
Past 12	0.112*	0.168**
	(0.063)	(0.069)
13 to 24		-0.001
		(0.075)
Changed job		
Past 12	0.323***	0.271***
	(0.049)	(0.055)
13 to 24		0.292***
		(0.056)
Victim of physical violence		
Past 12	0.356***	0.369***
	(0.102)	(0.117)
13 to 24		0.212*
		(0.124)
Number of observations	*126,767*	*104,196*

Notes:
i) Standard errors are in parentheses.
ii) *** p<0.01, ** p<0.05, * p<0.1
iii) Wave dummies are also included in the list of covariates.

14 Policy implications

The key finding of the research is that there is a direct relationship between mental ill-health and housing instability, and that this relationship is affected by a range of mediators–both risk factors and protective factors. Diverging findings between the general population and the at-risk cohort suggest that different policy interventions are required for the two groups.

The research findings suggest that to be effective, policy responses must address housing and mental health issues, as well as mediating factors. This highlights the importance of holistic person-centred approaches that that offer support coordination.

Option 1

Improve the level of integration across service systems and between services

The research findings demonstrate a significant bidirectional relationship between mental health, deteriorating mental health and housing instability (particularly financial hardship). This points to the importance of addressing housing and mental ill-health issues at the same time. For this to occur effectively, greater integration is required across service systems and within service systems. The findings highlight that providing support to prevent financial hardship among those with mental ill-health is key to protecting from housing instability.

Option 2

Increase the use of health and mental health services by people experiencing mental ill-health

The research shows that not accessing health and mental health services is a risk factor for housing instability for people experiencing mental ill-health. It is therefore essential to increase the proportion of people with mental ill-health who access mental health and health services. This will involve lowering barriers to access to health and mental health services, as well as providing education and information to increase the awareness of available services.

Option 3

Develop person-centred approaches that integrate mental health, physical health and social support

The research shows that good physical health protects against mental ill-health and housing instability, and reduces the amount of time a person spends in mental ill-health. The research identified that social support is an important protective factor for mental ill-health, as it shortens the amount of time a person spends in mental ill-health. This highlights the importance of support coordination and integrated treatment plans.

Option 4

Immediately available support for life events

Negative life events–such as serious personal injury or illness, physical violence and separation from a spouse–increase the risk of mental ill-health and housing instability for up to three years. This finding shows that there are opportunities to provide support to mitigate against the negative effects of these life events to prevent mental ill-health and housing instability.

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A culture of inclusion for all.

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