



Australian Government

Australian Institute of Health and Welfare



Depression in residential aged care

2008–2012

AGED CARE STATISTICS SERIES

Number 39

Depression in residential aged care 2008–2012

Australian Institute of Health and Welfare
Canberra

Cat. no. AGE 73

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This publication is part of the Australian Institute of Health and Welfare's Aged care statistics series. A complete list of the Institute's publications is available from the Institute's website <www.aihw.gov.au>.

ISSN 1329-5705

ISBN 978-1-74249-500-2

Suggested citation

Australian Institute of Health and Welfare 2013. Depression in residential aged care 2008–2012. Aged care statistics series No. 39. Cat. no. AGE 73. Canberra: AIHW.

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Published by the Australian Institute of Health and Welfare

Please note that there is the potential for minor revisions of data in this report. Please check the online version at <www.aihw.gov.au> for any amendments.

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Acknowledgements

This report was written by Charles Hudson, Jessica Cargill, Evon Bowler and Kate Spyby of the Ageing and Aged Care Unit of the Australian Institute of Health and Welfare (AIHW). Thanks to Mark Cooper-Stanbury and Dr Pamela Kinnear for their valuable input. Thanks also to representatives from the Policy and Evaluation Branch of the Department of Health and Ageing (DoHA) for their contribution.

AIHW thanks the following members of the peer review group for their expert advice and valuable input:

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Abbreviations

ACAT	Aged Care Assessment Team
ACFI	Aged Care Funding Instrument
ACT	Australian Capital Territory
AIHW	Australian Institute of Health and Welfare
CSD	Cornell Scale for Depression
CSDD	Cornell Scale for Depression in Dementia
DoHA	Australian Government Department of Health and Ageing
ICD-10	International Statistical Classification of Diseases and Related Health Problems, 10 th revision
NSW	New South Wales
NT	Northern Territory
PAS-CIS	Psychogeriatric Assessment Scales-Cognitive Impairment Scale
Qld	Queensland
SA	South Australia
Tas	Tasmania
Vic	Victoria
WA	Western Australia

Symbols

%	per cent
—	nil or rounded to zero
..	not applicable
n.p.	not publishable because of small numbers, confidentiality or other concerns about the quality of the data
<	less than
>	more than

Summary

Entry into residential aged care can be challenging, with its changes to routine, loss of independence and physical relocation to a new environment. The presence of depression adds to this. Depression is a serious but manageable condition that can affect a person's quality of life, and may be associated with an increased risk of cognitive impairment (Baldwin 2008; Boyle & Wilson 2010).

This report looks at the prevalence of symptoms of depression in residential aged care and the characteristics of residents with symptoms of depression.

Over half of all permanent aged care residents had symptoms of depression

At 30 June 2012, just over half (52%) of all permanent aged care residents had a Cornell Scale for Depression (CSD) score that indicated symptoms of depression. There was a slightly higher rate in women (53%) than men (51%).

Just under half of people entering residential aged care for the first time had symptoms of depression

About 45% of people admitted for the first time to residential aged care from 2008 to 2012 had a CSD score that indicated symptoms of depression. In that period, the proportion of newly-admitted residents with symptoms increased by 21%. This related mainly to residents with mild symptoms, and as such may partly reflect slightly increased use of the CSD or improved recognition of symptoms. The proportion of newly-admitted residents with symptoms decreased with age.

Residents with symptoms of depression had higher care needs

Newly-admitted residents with a CSD score indicating symptoms of depression had higher care needs, with 73% classified as high care, compared with 53% of those without symptoms.

The odds of newly-admitted residents with symptoms of depression having behaviours that impact on care needs were more than double (139% higher) the odds for those without symptoms. Newly-admitted residents with symptoms of depression were also more likely than those without symptoms to be discharged sooner (including discharge due to death or to hospital), and to have a second Aged Care Funding Instrument appraisal sooner.

Just over two-thirds of permanent aged care residents who had symptoms of depression had a diagnosis or had one being sought

Women with a CSD score indicating symptoms of depression (69%) were more likely to have a diagnosis or have one sought than men (64%). The likelihood of newly-admitted residents with symptoms of depression having a diagnosis, or having one sought, decreased with age.

More than 1 in 10 (12,900) newly-admitted residents with symptoms of depression had moderate or major symptoms but were categorised for funding purposes as having mild symptoms.

Introduction

Depression is a mood disorder characterised by feelings of sadness, loss of interest or pleasure in nearly all activities, feelings of hopelessness and suicidal thoughts or self-blame (DHAC & AIHW 1999). It is a manageable condition, the symptoms of which can often be improved or resolved through non-medication and/or medication-related interventions (McSweeney et al. 2012). Despite this, depression is the second leading cause of burden of disease due to disability in Australia (IHME 2010). It is therefore important that depression affecting people in residential aged care is recognised and treated.

Recognising depression in older people is often difficult and it is commonly under-diagnosed and under-treated in both residential care and in the community (Rodda et al. 2011; Davison et al. 2007). Older people are less likely than younger people to recognise their own symptoms, often attributing them to normal ageing (Rodda et al. 2011), and are more likely to give priority to physical issues rather than emotional ones (Stanners et al. 2012). In later life, the higher prevalence of comorbidities makes recognition of depression more challenging, as the symptoms may be confused with those of other conditions (Stanners et al. 2012).

Although aged care staff are in a good position to act as informants, recognition of depression can be hindered by lack of awareness and training (Davison et al. 2008). Various programs and activities within the aged care sector are aimed at improving staff knowledge of depression and facilitating recognition. For example, the NSW Positive Living in Aged Care awards aim to recognise residential aged care providers who have strategies for the prevention and management of mental health conditions (ACS 2013).

The Australian Institute of Health and Welfare was contracted by the Department of Health and Ageing to conduct the first in-depth review of administrative data to explore the prevalence and characteristics of people with depression in residential aged care. This report uses data collected as part of Aged Care Funding Instrument (ACFI) appraisals. The mandatory administration of the ACFI upon entry to mainstream Australian Government-subsidised aged care facilities results in a large cohort for analysis. However, as ACFI appraisals do not generally expire, the times between each appraisal can vary significantly. To minimise the impact of this on the analysis, this report focuses mainly on people entering care for the first time.

The Aged Care Funding Instrument

In March 2008, the Australian Government introduced the Aged Care Funding Instrument (ACFI) as a basis for allocating funding (DoHA 2009b). Residential aged care providers must conduct an ACFI appraisal for each resident within two months of admission (see Appendix B for full rules). Appraisals are backdated to the time of admission by the service provider. For example, if a resident is admitted at the beginning of May, their appraisal may not be done until the end of July. However, it would be backdated to the admission date (in May). This may slightly affect the accuracy with which the data reflect client characteristics at the time of admission.

The ACFI data give an indication of the relative care needs of residents, and the associated differences in resident care costs. The appraisal consists of 12 questions about care needs,

with the questions grouped into three funding domains: *Activities of daily living, Cognition and behaviour* and *Complex health care needs* (DoHA 2009b).

Responses are rated A (nil or minimum need), B (low need), C (medium need) or D (high need). The combination of these determines the overall classification for each resident as either low care or high care and the related subsidy levels paid to the aged care facility (DoHA 2009b).

As well as these 12 questions, the ACFI has two separate diagnostic sections. The first – the *Mental and behavioural diagnosis* section – uses a single diagnostic code (550A) to identify depression, bipolar, and mood and affective disorders. Depression cannot be separately identified.

The second section – the *Medical diagnosis checklist* section – excludes depression and is focused on medical conditions other than mental and behavioural conditions. A very small number of diagnoses of depression are incorrectly recorded in this section; these were excluded from analysis in this report.

Identifying depression within the ACFI

There are a number of ways to identify depression in the data, each with advantages and limitations. A depression diagnosis can be either recorded in the *Mental and behavioural diagnosis* section or as part of Question 10, which specifically focuses on depression (see Appendix B). Question 10 assesses symptoms of depression using the Cornell Scale for Depression (CSD) assessment tool described below. It also flags whether a diagnosis or provisional diagnosis of depression has been received within the last 12 months, or if one is being sought by the residential aged care facility.

Cornell Scale for Depression

The assessment tool used in Question 10 of the ACFI is a slightly modified version of the *Cornell Scale for Depression in Dementia* (CSDD) originally developed as a tool to screen for symptoms of depression in people with cognitive impairment. People with higher scores are more likely to have depression, which can only be diagnosed from a full medical assessment. This has since been well validated for more general use in older people as a tool to identify depression (Alexopoulos et al. 1988a, 1988b). For this report, the term ‘Cornell Scale for Depression’ (CSD) is used as this is the terminology used in the ACFI.

The CSD tool consists of 19 questions covering five areas: mood-related signs, behavioural disturbance, physical signs, cyclic functions, and ideation disturbance. It is designed to be administered by a clinician to both the resident and an informant (nurse or carer). It is scored on a 38 point scale with a score of 0–8 indicating minimal or no symptoms of depression. In the ACFI, scores of 9–13, 14–18, and 19–38 are taken to indicate that symptoms of depression caused mild, moderate or major interference in regular activities, respectively. For brevity, in this report these categories have been referred to as ‘minimal or no symptoms of depression’ (less than 9), ‘mild symptoms of depression’ (9–13), ‘moderate symptoms of depression’ (14–18) and ‘major symptoms of depression’ (19–38). It is important to note that in this report, ‘symptom severity’ refers only to this categorisation of CSD scores. For example, ‘major symptoms’ does not necessarily refer to clinical symptoms of ‘severe depression’, but does suggest that medical assessment may be more warranted.

For ease of comparison, in some places in this report, residents with a score of 0–8 are referred to as ‘without symptoms of depression’ although some may have ‘minimal’

symptoms. Those with scores of 9–38 are referred to as ‘with symptoms of depression’. This cut-off has been validated as the most accurate for the definition of depression in the International Statistical Classification of Diseases and Related Health Problems, 10th revision (ICD-10) (Barca 2010). It is important to note that the CSD has been validated for use in Australian residential aged care settings by trained clinicians (McCabe 2006) but not aged care staff, and the training and experience of aged care staff administering the tool may vary (Davison et al. 2012).

This report uses the CSD scores to identify residents with symptoms of depression. This allows the inclusion of residents who have not been formally diagnosed but have measurable symptoms.

About this report

This study is the first analysis using comprehensive administrative data to explore the prevalence of symptoms of depression in residential aged care in Australia. Prevalence refers to the proportion of people with a particular condition at a specific point in time. Estimating the prevalence of symptoms of depression in residential aged care is challenging. Previous Australian studies have been smaller, and estimates have varied widely and are likely to have been underestimates (Snowdon & Fleming 2008, Davison et al. 2007).

This analysis uses two distinct denominator populations.

- All permanent aged care residents at 30 June 2012 (166,362 people);
- Residents admitted to permanent aged care for the first time between 20 March 2008 and 31 August 2012 (*newly-admitted residents*) (235,036 people).

Data from the most recent ACFI appraisal of all permanent residents are used for estimating prevalence at 30 June 2012. However, because appraisals are not completed at regular intervals, data from them may not accurately reflect the existence and severity of symptoms on a particular date. The estimates as at 30 June 2012 should therefore be interpreted with caution.

In parts, the second population of newly admitted residents is further restricted to those admitted in the first year of the study, or in each month.

Age-standardisation

Crude overall rates were not always suitable for making comparisons between groups with different age structures (for example, sex or residential care across time), because the likelihood of a person having depression appears to be associated with age (see Figure 3 and associated discussion). Age-standardised rates were calculated to effectively remove the influence of these differences in age structure (see Glossary for more details). Where these rates have been used, it is noted in the text.

Treatment of missing Cornell Scale for Depression scores

About a quarter (26%) of newly-admitted residents did not have a CSD assessment done upon admission. Although ACFI appraisals for newly-admitted residents are mandatory, a CSD assessment is not required if staff conducting the appraisal do not believe the person is depressed, or if it is considered that their depression symptoms are not impacting on care needs.

For most of the analysis in this report, residents without CSD scores were included in the symptom severity category allocated for them by the provider, reflected in the overall rating for Question 10. Almost all (99%) of these residents were allocated by the provider to the minimal or no symptoms category. Note that those without a CSD score were excluded when examining the distribution of CSD scores, to provide for finer detail (Figure 1).

While the CSD is widely thought to be the best tool for assessing symptoms of depression in residents with cognitive impairment, previous research has reported high rates of severe cognitive impairment in residents for whom a CSD assessment is not undertaken (Snowdon et al. 2011). This suggests that CSD assessments may sometimes be too difficult to carry out in residents with severe cognitive impairment. Given this, the ACFI information in relation to cognitive impairment was examined for the 26% of residents without CSD scores.

Data from the Psychogeriatric Assessment Scales–Cognitive Impairment Scale (PAS–CIS) indicated that for nearly 40% of residents for whom no CSD assessment was undertaken, it may have been difficult to carry out a CSD assessment due to severe cognitive impairment, speech impairment, sensory impairment, refusal or reasons relating to cultural or linguistic background (Table S1). It is possible that some residents for whom it was not possible to undertake a CSD assessment may actually have had symptoms of depression. The literature also suggests that without CSD assessments, aged care staff correctly identify only 42–65% of their care recipients who had a diagnosis of depression (Brühl et al. 2007). It is therefore also possible that some residents thought unlikely to be depressed may actually have had symptoms of depression. As a result, it is likely that prevalence estimates in this report are conservative.

For details of the limitations of the CSD and ACFI, see Appendix B. The information and data included in this report are based on the *2009 Aged Care Funding Instrument (ACFI) answer appraisal pack* (DoHA 2009a). This instrument is no longer the current version and has been superseded by a later version. For the latest version, please visit the Department of Health and Ageing website.

The full CSD is available as part of the *Aged Care Funding Instrument (ACFI) assessment pack* (DoHA 2007) and is available on the Department of Health and Ageing website.

Structure of this report

This report provides information on:

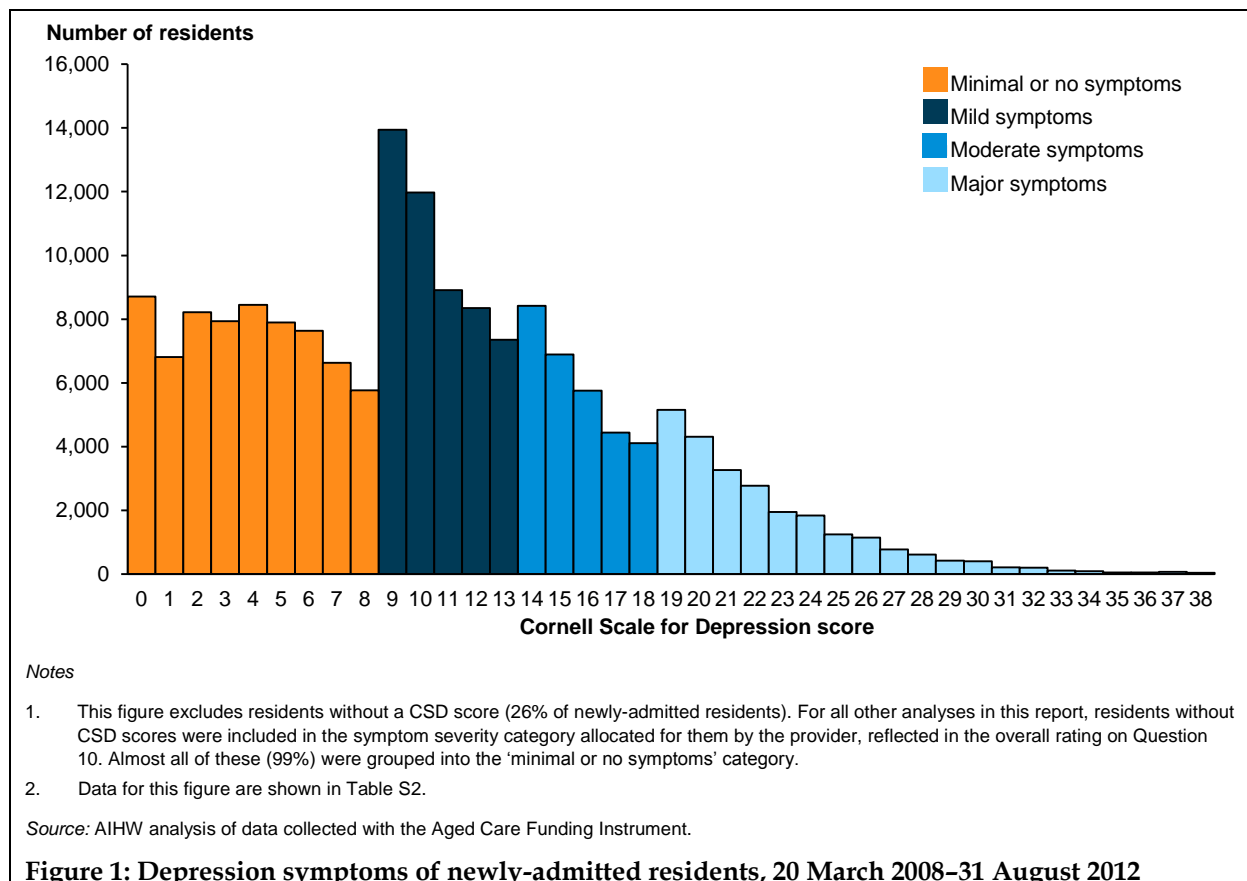
- CSD scoring patterns
- the prevalence of depression symptoms, both in all permanent aged care residents and more thoroughly in newly-admitted residents
- care characteristics of residents with depression symptoms – length of stay, level of care need, verbal and physical behaviours and medical diagnosis status
- reappraisals and changes in the severity of symptoms.

The report finishes with a discussion of findings and possible future analyses.

Detailed data tables are included in Appendix A of this report and in the supplementary online tables. A list of supplementary tables and other accompanying material is included at the end of the report. While the scope of the report is limited due to its exploratory nature, it is hoped that it will provide a foundation for more detailed analyses of depression in residential aged care using ACFI data.

Distribution of Cornell Scale for Depression scores

The distribution of CSD scores was analysed to examine scoring patterns. There were clear spikes in the number of residents (excluding those without a CSD score) with scores on the cusps between the categories (Figure 1; Table S2). This may reflect a tendency for residents on the cusps to be assessed with a cautionary approach, with the aim of ensuring that appropriate ongoing monitoring and treatment are available.



Interestingly, the proportion of newly-admitted residents with symptoms of depression (including of those residents without a CSD score) varied widely across residential facilities. About 12% (340 facilities) identified symptoms in 70% or more of their new admissions (Table A1). At the same time, about 12% (353 facilities) identified symptoms of depression in less than 20% of their new admissions. Variation across facilities could partially reflect different administration and scoring practices, but could also reflect differences in client groups.

Prevalence in permanent aged care residents

Just over half (52% or 86,736) of all permanent aged care residents at 30 June 2012 had mild, moderate or major symptoms of depression when they were last appraised (Table 1). This is higher than recent estimates from a smaller Australian study of about 35% (Snowdon & Fleming 2008). It also contrasts with estimates of around 10–15% of older people living in the community (Haralambous et al. 2009). People in residential aged care usually have more complex care needs, which may explain much of the higher prevalence rate compared with people in the community (Baldwin et al. 2002).

The rate of symptoms of depression was slightly higher in women (53%) than in men (51%) after age standardisation was used to account for age differences. The difference reflected slightly higher rates of moderate symptoms (16% in women and 15% in men) and major symptoms (13% and 12% respectively), but not mild symptoms (24% for both). Overall, just over two-thirds (68%) of those with symptoms of depression had a diagnosis or one being sought (Table 1). Women were more likely than men (69% compared with 64%) to have a diagnosis, or one being sought.

Table 1: Permanent aged care residents by depression symptom severity, diagnosis status, and sex, 30 June 2012 (per cent)

	Minimal or no symptoms	With symptoms of depression				Total	Diagnosis obtained or sought ^(a)
		Mild	Moderate	Major	All with symptoms		
Men							
Crude rate	48.6	23.9	15.1	12.4	51.4	100.0	65.5
Age-standardised rate	49.0	24.2	14.8	12.0	51.0	100.0	64.4
Women							
Crude rate	47.6	23.7	15.7	13.1	52.4	100.0	68.5
Age-standardised rate	47.3	23.6	15.8	13.3	52.7	100.0	68.9
Persons							
Crude rate	47.9	23.8	15.5	12.9	52.1	100.0	67.6
Age-standardised rate	47.9	23.8	15.5	12.9	52.1	100.0	67.5

(a) Per cent of those with symptoms.

Note: See Table S3 for additional data by age and sex.

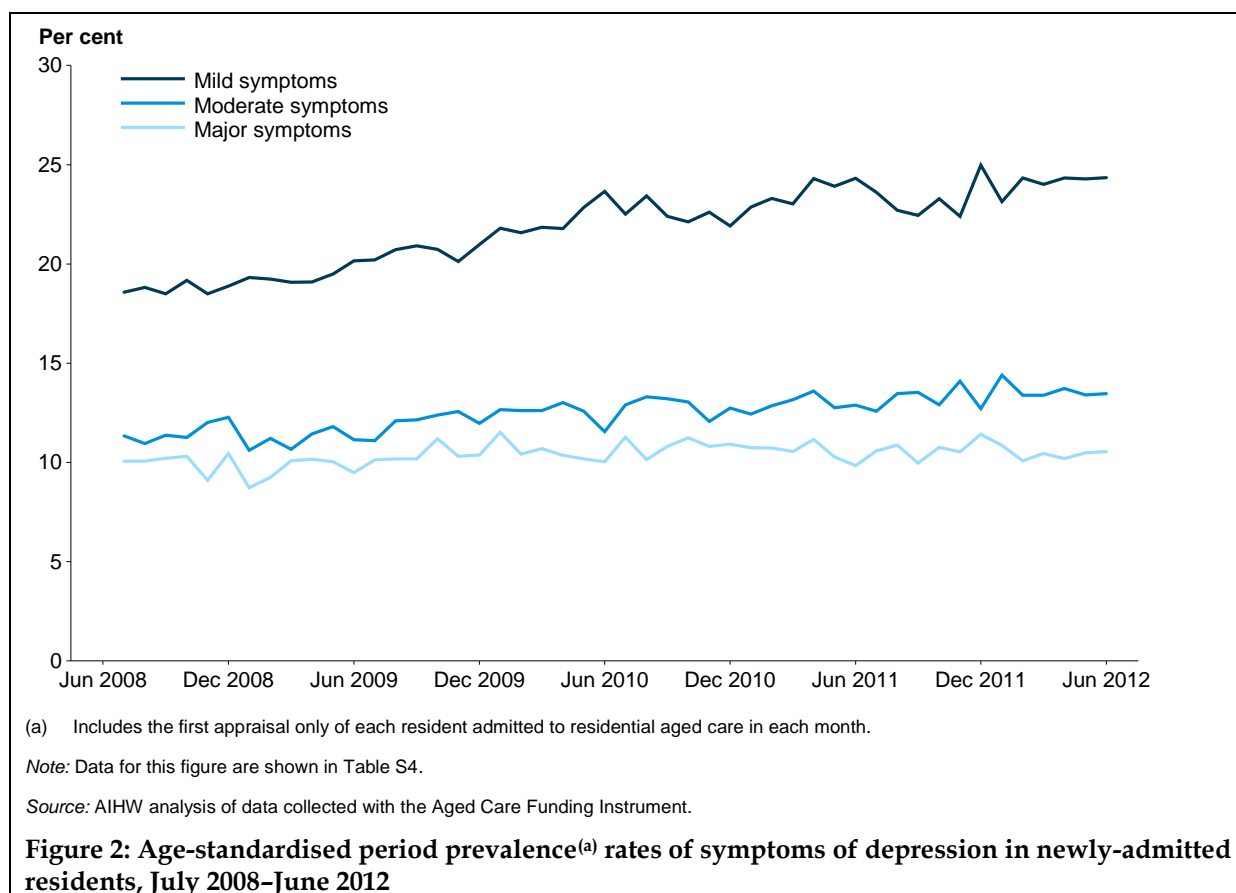
Source: AIHW analysis of data collected with the Aged Care Funding Instrument.

Prevalence in newly-admitted residents

About 45% (or 106,059) of residents admitted to permanent aged care for the first time between 20 March 2008 and 31 August 2012 (*newly-admitted residents*) had symptoms of depression. About 22% had mild symptoms, 13% had moderate symptoms, and 11% had major symptoms (Table A3).

Trends in prevalence

To ensure that the analysis for newly-admitted residents was limited to recent appraisals (less than one month old), data were examined for each specific month separately (based on admission date) between July 2008 and June 2012. Over this period, the rate of symptoms of depression in newly-admitted residents increased 21% (from 40% in July 2008 to 48% in June 2012) (Table S4). This was mainly attributable to higher rates of mild symptoms, which increased from 19% to 24% (Figure 2). The changes in the rates of moderate and major symptoms were much less pronounced.



While it is theoretically possible that the increase in prevalence reflected a real increase in the population prevalence rate of symptoms of depression, such an overall increase would likely also be reflected in higher rates of both moderate and major symptoms. As this was not observed, the increase may partly reflect improved recognition of symptoms. The increase may also partly reflect the fact that the likelihood of the CSD being undertaken increased slightly over time (Table S4).

Age and sex

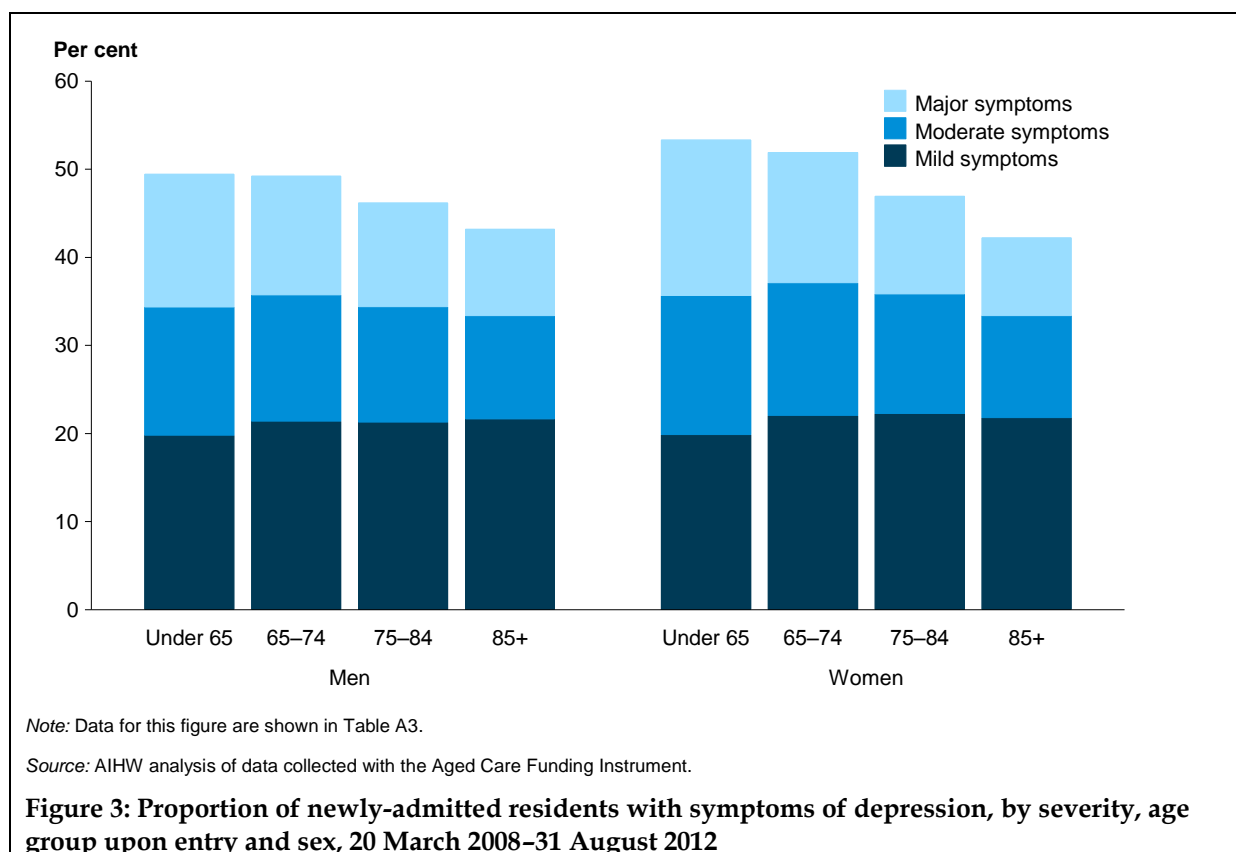
Overall, there was little difference in the age and sex profiles of newly-admitted residents with symptoms of depression, compared with those without symptoms (Table A2). Women accounted for about 6 in 10 newly-admitted residents, both with and without symptoms of depression. Some 4% of those with symptoms were under 65, 49% were aged 65–84 and 47% were aged 85 and over compared with 3%, 45% and 52% respectively for those without.

The proportion of newly-admitted residents with symptoms of depression decreased with age (Figure 3). This reflected the lower proportions of moderate or major symptoms in the older age groups, decreasing from 31% among those under 65, to 21% among those aged 85 and over and 18% among those aged 95 and over. In contrast, the proportion of people with mild symptoms was relatively stable (between 20–22%) across all age groups.

About 46% of men and 45% of women had symptoms of depression (Table A3). The pattern of decreased symptoms with age was more pronounced in women than in men. Although women under 65 were more likely (53%) than men (49%) to have a CSD score indicating depression, little difference was seen in those aged 85 and over (42% and 43% respectively). After age standardisation, the proportions of newly admitted men and women with symptoms of depression were the same (both 45%).

The finding that rates of depression symptoms declined with age may be unexpected, given the association between dementia and depression (Downing 2013). The decline may result from one or more of the following factors:

- Older residents might be less likely to be assessed using the CSD because of dementia or other reasons. However, rates of missing CSD scores did not increase with age, and newly-admitted residents with cognitive impairment were actually more likely to have a CSD undertaken than those without cognitive impairment. In addition, rates of mild depression symptoms were stable with age, suggesting that recognition of mild symptoms was not more difficult when admitting older residents.
- The scoring method of the CSD. The responses to the 19 questions are summed to provide the final score. Recent studies have demonstrated that even where residents have less severe cognitive impairment, staff often omit some questions due to concerns about residents' understanding, resulting in lower scores at higher age groups with higher rates of dementia (Davison et al. 2012, Snowden et al. 2011).
- There is evidence to support an association between depression and increased mortality in older people (Gallo et al. 2013). This may mean that those entering care at older ages are the 'healthy survivors' (Murphy et al. 2011) and less likely to have more severe symptoms of depression. Indeed, data from the Psychogeriatric Assessment Scales–Cognitive Impairment Scale (PAS–CIS) on the ACFI indicated that among residents being admitted to residential aged care for the first time, the proportion with severe cognitive impairment decreased with age upon admission.
- Lastly, some previous research has suggested that the risk of depression may be lower in older age groups, even when the increased mortality rates in people with depression are statistically controlled for (Jorm 2000), whether due to age-related effects such as increased emotional control, or cohort effects (the shared experiences of the generation which happens to be older at the time of analysis).



Indigenous status

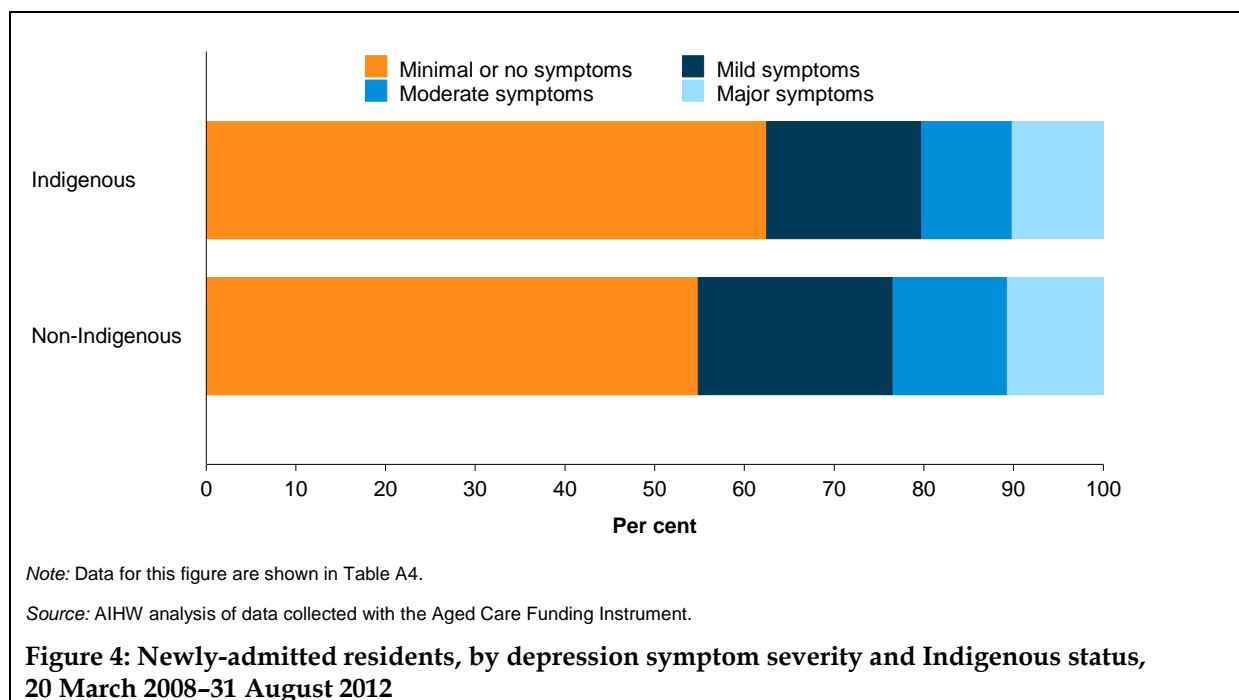
There is a dearth of previous research on the prevalence of symptoms of depression in older Indigenous populations (Haralambous et al. 2009). However because ACFI administration is mandatory in mainstream facilities, there was a cohort of 1,611 newly-admitted Indigenous residents for analysis in this report. Around 38% had a CSD score indicating symptoms of depression (Table A4), which was lower than their non-Indigenous counterparts (45%).

The greatest difference was seen in the proportions with milder symptoms. Around 17% of newly-admitted Indigenous residents had mild symptoms, 10% moderate, and 10% major, compared with 22%, 13% and 11% for their non-Indigenous counterparts (Figure 4).

These results were similar after age standardisation, with 37% of newly admitted Indigenous residents with symptoms of depression, including 19% mild symptoms, 9% moderate and 9% major (Table S5).

The lower levels of milder symptoms of depression identified in Indigenous residents may have been due to cultural or language barriers. Specifically, mainstream concepts of mental health may differ from those of Indigenous Australians (Ypinazar 2007). This can result in problems in recognition, assessment and diagnosis of depression, particularly milder forms of depression, in this group (Drew et al. 2010).

Less than 1% (or 605 people) of newly-admitted residents with symptoms of depression were Indigenous. However, it is important to note that the proportion of Indigenous permanent residents in aged care facilities, and in turn the number reported to have symptoms of depression in these facilities, is probably under-counted (AIHW 2012).



Location

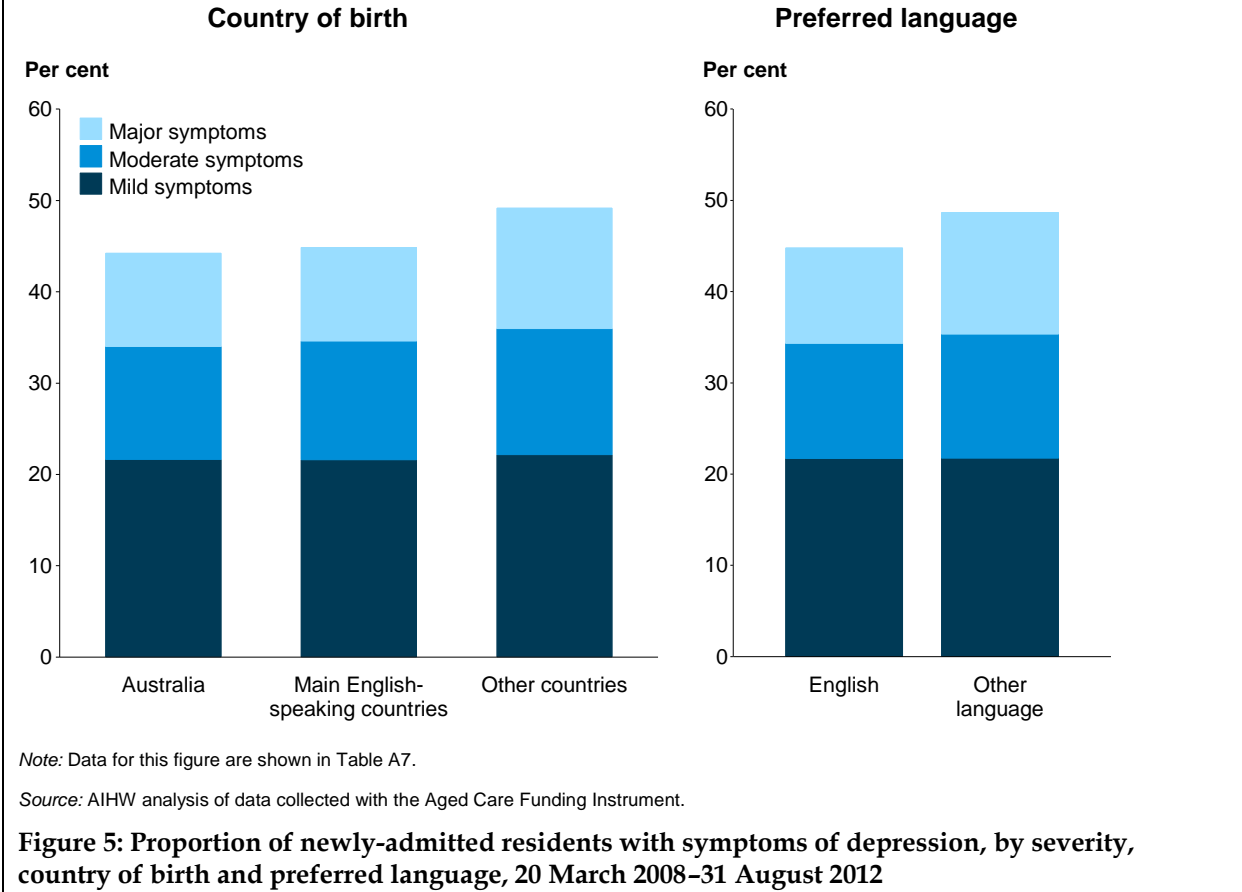
Although the distribution of newly-admitted residents with symptoms of depression broadly reflected the distribution of older people across the states and territories, an analysis of the proportions with depression symptoms in each state and territory revealed differences. The proportion was similar (around 45%) across the three most populous states (New South Wales, Victoria and Queensland), but varied across the other states; it was lower in Western Australia (40%), Tasmania (39%) and the Northern Territory (32%) and higher in South Australia (53%) and the Australian Capital Territory (48%) (Table A5). These results were very similar after age standardisation (Table S6).

The proportion of newly-admitted residents with symptoms of depression also varied with remoteness (Table A6). The proportion in *Remote* or *Very remote* areas (31%) was lower than in *Major cities* (47%), *Inner regional* (42%) and *Outer regional* (44%) areas. These results were similar after age standardisation (Table S7). The lower proportions of residents with symptoms of depression in remote areas and in the Northern Territory may have partially reflected the higher percentage of Indigenous people in these regions, because, as noted above, newly-admitted Indigenous residents were less likely to have symptoms of depression recorded than their non-Indigenous counterparts.

Country of birth and preferred language

The proportion of newly-admitted residents with symptoms of depression varied by country of birth and preferred language (Table A7). It was similar in those born in *Australia* and in other *Main English-speaking countries* (44% and 45% respectively), but higher in those from *Other countries* (49%). A similar trend was seen when analysing the data by preferred language. Those for whom English was not their preferred language were more likely to have symptoms of depression than those for whom English was their preferred language (49% compared with 45%). These results were similar after age standardisation (Table S8).

As seen in Figure 5, these differences were mainly attributable to those with moderate or major symptoms. The proportions with mild symptoms were similar across groups. Cultural and language barriers could result in the under-identification of residents with mild symptoms, because this level of depression may be especially difficult to identify in the presence of such barriers. Despite potential barriers, there appeared to be high identification of moderate and major symptoms.



Care characteristics

Length of stay and discharge destination

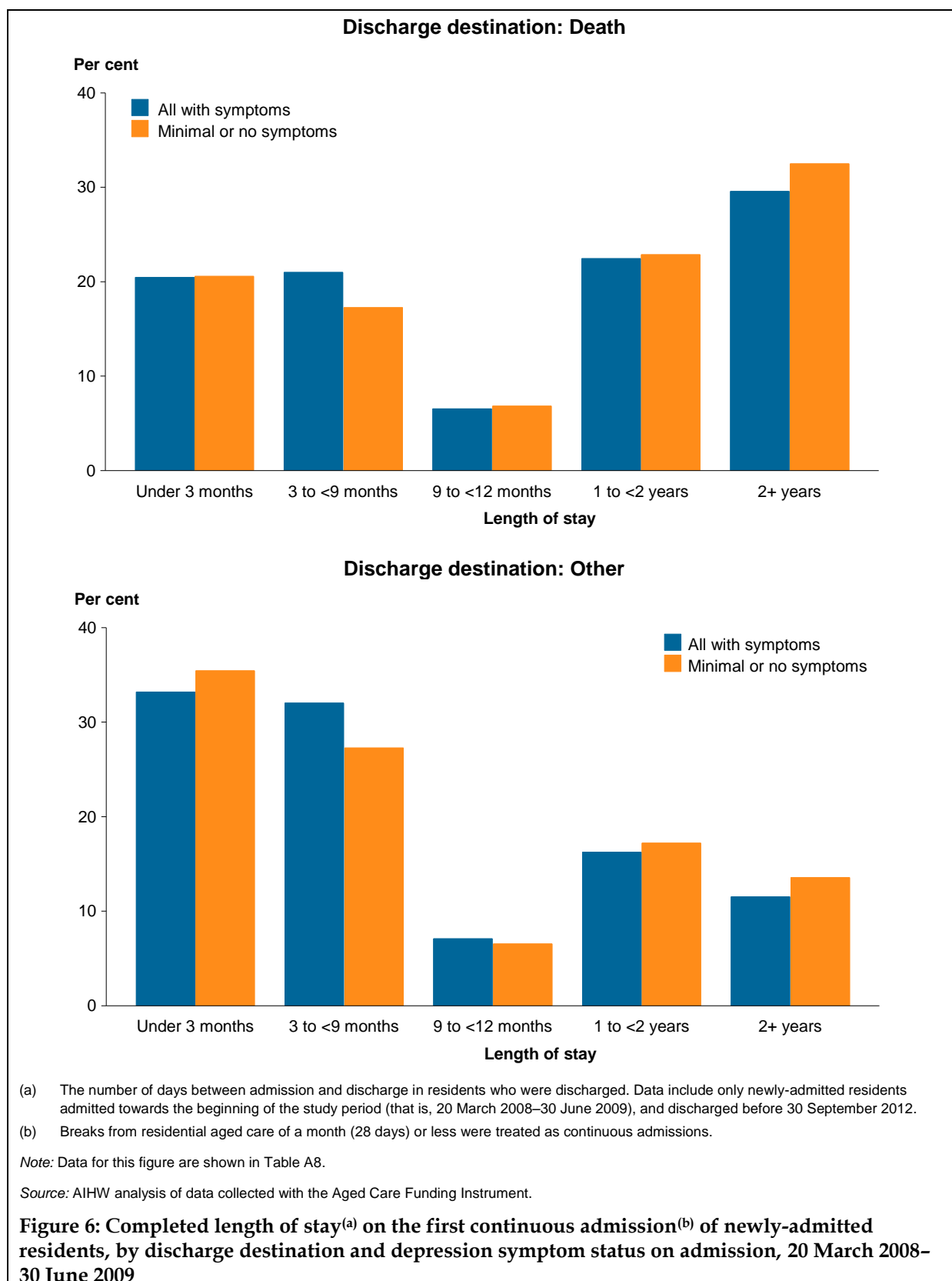
The majority (91%) of residents with symptoms of depression who were 'discharged' from residential aged care were discharged due to death. Other discharge destinations included 'hospital' (2%), 'residential aged care' (1%), 'community' (4%), and 'other' (1%). Breaks from residential aged care of one month or less were treated as continuous admissions, so immediate transfers to other residential aged care facilities were not analysed here.

Overall, 22% of newly-admitted residents were discharged within three months, with little difference seen between those with and without symptoms of depression. About one in five (21%) newly-admitted residents who died did so within three months (Table A8). Those discharged to other destinations were even more likely to be discharged within three months, with only a small difference between those with and without symptoms of depression (33% and 35% respectively).

However, the proportion of those with symptoms of depression who were discharged in less than three months increased with the severity of symptoms, from 17% of those with mild, to 20% of those with moderate, to 31% of those with major. Residents with major symptoms who died were about twice as likely (30%) to do so less than three months after admission than those with mild or moderate symptoms (16–19%). Similarly, residents with major symptoms who were discharged to other destinations were more likely to move less than three months after admission (39%) than those with mild or moderate symptoms (31–32%).

Of newly-admitted residents who stayed three months or more, those with symptoms of depression were more likely than those without to be discharged earlier. In particular, newly-admitted residents with symptoms were more likely to be discharged in 3 to 9 months (22%), compared with those without (18%) (Table A8). This pattern was similar whether residents died or were discharged elsewhere (Figure 6).

Looking at other specific discharge destinations, men who were discharged to another residential aged care facility and were admitted there after 28 days were much less likely to have symptoms of depression (34%) than women (44%) (Table S9). No such difference was observed across other discharge destinations. Compared with other discharge destinations, those with symptoms of depression who were discharged to a residential aged care facility were especially likely to have been discharged in under 9 months (58%) when compared with those without (47%).



Care needs

The ACFI consists of 12 questions about care needs that are grouped into three funding domains: *Activities of daily living*, *Cognition and behaviour* and *Complex health care* (DoHA 2009b). Responses are rated A (nil or minimum need), B (low need), C (medium need) or D (high need). There are 64 possible combinations of care need levels across the three domains. The most common combination for newly-admitted residents with symptoms of depression was to be high in all three domains (11%) while the most common combination for those without symptoms was to be low in all three (8%) (Table S10).

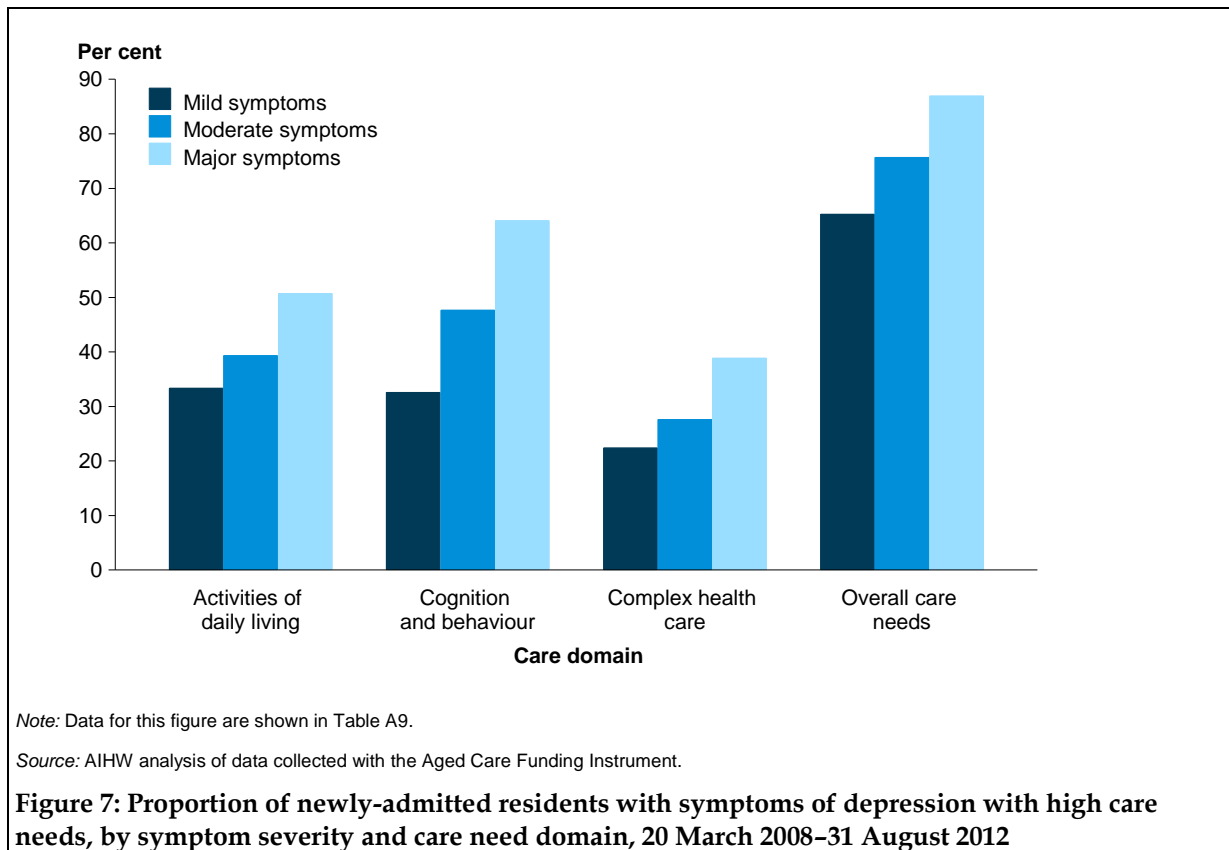
The combination of care needs determines the overall classification as a low care or high care resident (DoHA 2009b). Overall, newly-admitted residents with symptoms of depression had higher care needs, with 73% classified as high care residents, in contrast to 53% of those without symptoms.

Within the *Activities of daily living* domain, 4 in 10 (39%) of those with symptoms of depression had high care needs, and the assessed needs of most other residents were evenly distributed between medium and low care needs (Table A9). In contrast, 4 in 10 (39%) of those without symptoms of depression had low care needs, with most of the remainder evenly distributed between medium and high care needs.

In relation to the *Cognition and behaviour* domain, three-quarters (76%) of those with symptoms of depression had medium or high care needs, compared with 44% of those without. Those with symptoms of depression were twice as likely to have high care needs in this domain as those without (44% and 22% respectively). Note that to be allocated a rating of high care needs in the *Cognition and behaviour* domain, a person needed to have a mental or behavioural diagnosis (not limited to depression) recorded.

Those with symptoms of depression were also more likely than those without to have high care needs in the *Complex health care* domain (28% and 18% respectively), and were less likely than those without symptoms to have nil or minimal complex health care needs (11% and 20%).

Care needs increased with the severity of depression symptoms (Figure 7). While 65% of those with mild symptoms had high care needs overall, this figure was 87% in those with major symptoms. This was mirrored in each domain. In the *Activities of daily living* domain, one-third (33%) of those with mild symptoms had high care needs, compared with half (51%) of those with major symptoms. In the *Cognition and behaviour* domain, the proportion of residents with major symptoms with high care needs was nearly double that of residents with mild symptoms (64% and 33% respectively). In the *Complex health care* domain, newly-admitted residents with major symptoms were also more likely than those with mild symptoms to have high care needs (39% compared with 22%).



Care needs associated with behaviours

Verbal or physical behaviours that impact on care needs can be associated with a number of conditions including, but not limited to, depression. For this reason, these behaviours were analysed not only by whether the resident had symptoms of depression, but also by various combinations of symptoms and mental and behavioural diagnoses (see Glossary for definitions of verbal and physical behaviours).

In the ACFI, behaviours are rated according to frequency:

- A – ‘Not at all or less than once per week’
- B – ‘At least once in a week’
- C – ‘At least 6 days in a week’
- D – ‘Twice a day or more, at least 6 days in a week’.

For both verbal and physical behaviours, there was very little variation in the proportions of newly-admitted residents with and without symptoms of depression who had rating B or C. However, the proportions with the other two ratings varied substantially (Table 2).

Table 2: Verbal and physical behaviour ratings of newly-admitted residents, by depression symptom severity, 20 March 2008–31 August 2012 (per cent)

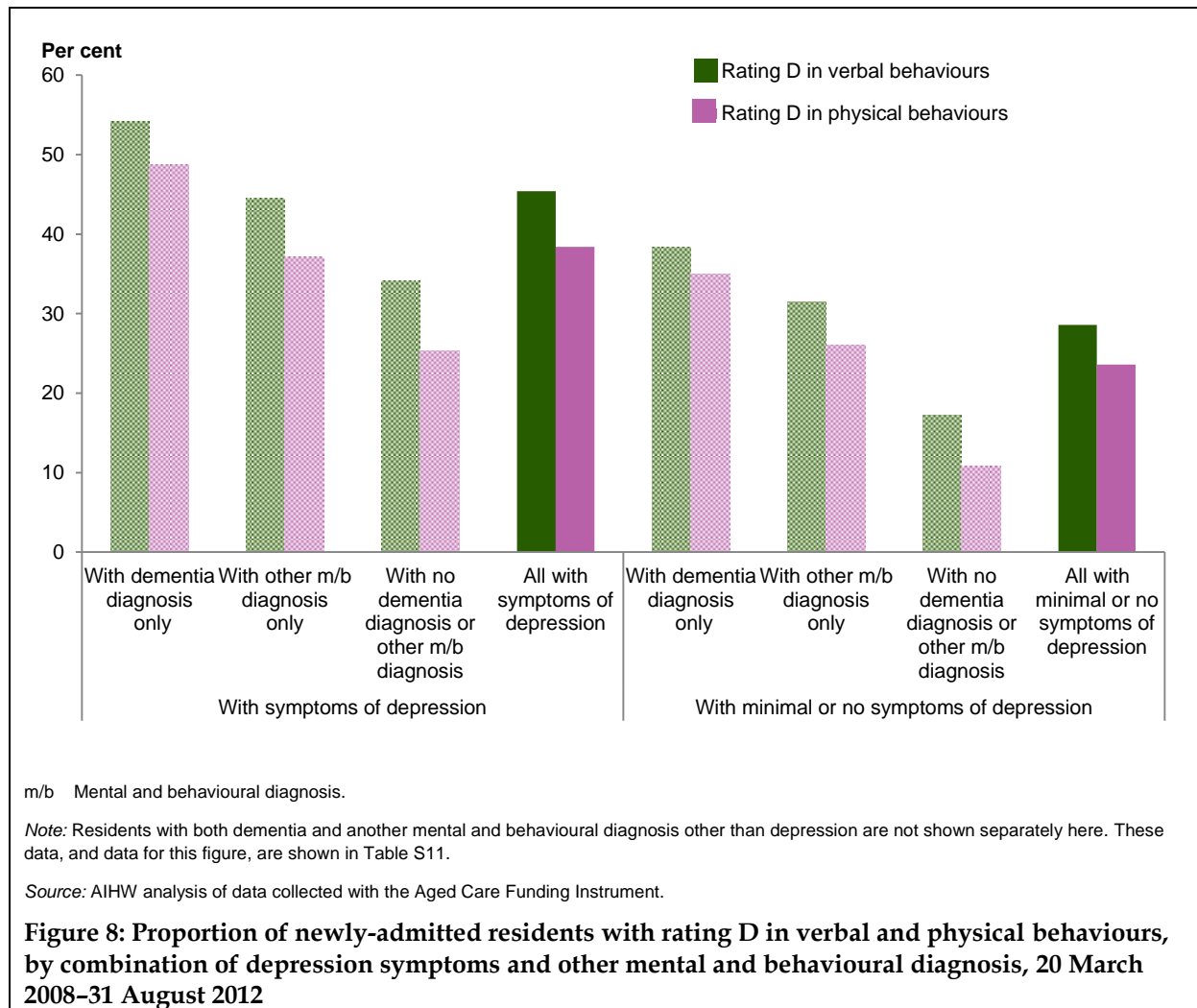
	Minimal or no symptoms	With symptoms of depression			
		Mild	Moderate	Major	All with symptoms
Verbal behaviours					
Rating A	37.5	22.4	20.9	16.7	20.6
Rating B	19.4	21.3	17.0	13.3	18.2
Rating C	14.6	17.1	15.7	12.9	15.7
Rating D	28.6	39.2	46.4	57.0	45.4
Total	100.0	100.0	100.0	100.0	100.0
Total (number)	128,977	50,990	29,859	25,210	106,059
Physical behaviours					
Rating A	52.0	37.8	33.8	27.0	34.1
Rating B	15.4	18.8	15.1	12.7	16.3
Rating C	9.0	11.4	11.6	10.1	11.1
Rating D	23.6	32.0	39.5	50.3	38.4
Total	100.0	100.0	100.0	100.0	100.0
Total (number)	128,977	50,990	29,859	25,210	106,059

Source: AIHW analysis of data collected with the Aged Care Funding Instrument.

Looking at verbal behaviours, residents with symptoms of depression were more likely to have a rating D than those without (45% compared with 29%), and less likely to have a rating A (21% compared with 38%). The proportion with rating D increased with the severity of symptoms, from 39% in those with mild symptoms to 57% in those with major symptoms (Table 2, Figure 8).

Looking at physical behaviours, residents with symptoms of depression were also more likely to have a rating D than those without (38% compared with 24%), and less likely to have a rating A (34% compared with 52%). Again, the proportion with rating D increased with the severity of symptoms, from 32% in those with mild symptoms to 50% in those with major symptoms (Table 2, Figure 8).

For newly-admitted residents with symptoms of depression, the likelihood of having a rating D for verbal or physical behaviours increased substantially if dementia or other mental and behavioural conditions were present (Figure 8). Even so, residents with symptoms of depression and without dementia or other mental and behavioural conditions were twice as likely as those without symptoms or any other mental and behavioural diagnosis to have rating D for verbal or physical behaviours (34% with verbal behaviours and 25% with physical behaviours compared with 17% and 11% respectively).



Influence of depression symptoms on verbal or physical behaviours

A statistical technique called ‘logistic regression modelling’ was used to examine the influence of depression symptoms on the presence of verbal or physical behaviours in newly-admitted residents, while controlling for a range of other factors (see Box 1).

The odds of verbal or physical behaviours were more than double (139% higher; odds ratio=2.39) for those with symptoms of depression than for those without. However, for those with symptoms, the severity of those symptoms had a much smaller effect. Each increase in severity category on the CSD increased the odds of verbal or physical behaviours by 6%.

Box 1: Logistic regression models

Logistic regression modelling involves calculating the probability of the event occurring for varying levels of characteristics in a study population. It is especially appropriate when the data do not form a bell curve (for instance, see the CSD score data in Figure 1).

The easiest way to interpret logistic regression models is to look at the 'odds ratios' of the variables. Odds ratios compare the odds of a specified event occurring (here, verbal or physical behaviours) in people with a particular characteristic (for example, symptoms of depression) with the odds in people without that characteristic, while controlling for all the other factors in the model.

In this report, two logistic models were fitted:

- **Model A** - This model looked at the association between the presence of mild, moderate or major symptoms of depression and any verbal or physical behaviours, controlling for a range of factors. These factors were age, sex, remoteness, Indigenous status, country of birth, preferred language, marital status, dementia diagnosis, other mental or behavioural condition diagnosis, and *Activities of daily living* care needs level (see Table A10).
- **Model B** - In those with symptoms of depression, this model looked at the association between the severity of depression symptoms and verbal or physical behaviours, controlling for the same factors as Model A (see Table A11).

Medical diagnosis status

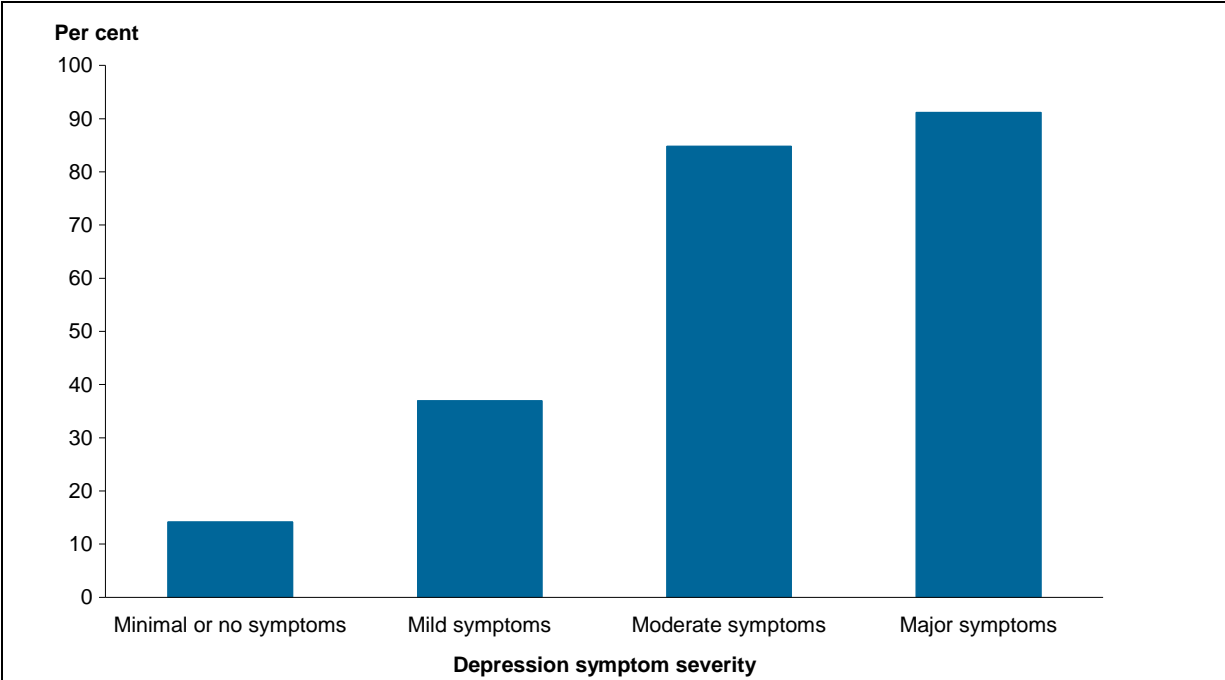
In this report, a resident was defined as having a diagnosis of depression if one was recorded in Question 10 of the ACFI or code 550A in the *Mental and behavioural diagnosis* section, or one was being sought (see also Glossary). Because code 550A includes diagnoses other than depression (for example bipolar), only residents with CSD scores indicating symptoms of depression were analysed.

About 40% of newly-admitted residents with a CSD score indicating symptoms of depression had a diagnosis recorded in both the *Mental and behavioural diagnosis* section and Question 10 (Table A12). About 13% had a diagnosis recorded in the *Mental and behavioural diagnosis* section only, and less than 2% had a diagnosis recorded in Question 10 only. Question 10 also captures whether a diagnosis of depression was being sought and would be made available upon request within three months. A diagnosis was being sought for about 9% of newly-admitted residents with a CSD score indicating symptoms of depression. In this section, the above responses have been combined to represent whether a diagnosis had been available and obtained, or the facility thought that one could be obtained within three months.

As expected, the likelihood of a newly-admitted resident with symptoms of depression having a diagnosis or one being sought increased with the severity of symptoms (Figure 9). Those with a CSD score indicating major symptoms were more than twice as likely (2.5 times) to have a diagnosis, or to have one being sought, than those with mild symptoms. About 38,900 (37%) newly-admitted residents with symptoms of depression (as measured by the CSD) did not have a diagnosis of depression and were not having a diagnosis sought (Table A12). The majority of these people had a CSD score that indicated mild symptoms.

Research suggests that routine guidelines on referring residents for a diagnosis can be helpful in aged care settings (Davison et al. 2013). Note that because the CSD is a screening

tool rather than a diagnostic tool, residents with a score indicating symptoms of depression may not be diagnosed with depression when medically assessed. It is possible that some of these residents may have been medically assessed previously but did not receive a diagnosis of depression; however the ACFI does not provide information on any such assessments.



Note: Data for this figure are shown in Table A12.
 Source: AIHW analysis of data collected with the Aged Care Funding Instrument.

Figure 9: Proportion of newly-admitted residents who had a depression diagnosis or had one being sought, by symptom severity, 20 March 2008–31 August 2012

Implications for funding categories

In Question 10, to be eligible for the higher funding ratings of C or D, residents need to have both moderate or major symptoms and have a diagnosis recorded on both Question 10 and the *Mental and behavioural diagnosis* section (or have one being sought). As described in the Introduction, a resident’s rating on question 10 contributes to the formula determining the subsidy level paid to the aged care facility for that resident.

More than 1 in 10 (12,900) newly-admitted residents with symptoms of depression had moderate or major symptoms but were categorised for funding purposes as having mild symptoms because they were not eligible for a rating C or D.

Of these, nearly 6,800 (6% of those with depression symptoms) newly-admitted residents had moderate or major symptoms but did not have a diagnosis (and were not having one sought).

Another 6,100 (6%) had moderate or major symptoms and had a diagnosis recorded, but were not eligible for the higher ratings of C or D because their diagnosis was recorded in either the *Mental and behavioural diagnosis* section or Question 10 only, rather than in both sections.

Diagnosis status by characteristics

Overall, women with symptoms of depression were slightly more likely than men to have a diagnosis, or one being sought (64% compared with 62% respectively) (Table A3). This difference was greatest in those aged under 75. The proportion with a diagnosis or having one sought tended to decrease with increasing age, with this tendency more marked in women than men. Among men under 65 with symptoms, 70% had a diagnosis of depression or were having one sought; this decreased to 58% in those aged 85 and over. Among women under 65 with symptoms, 75% had a diagnosis or were having one sought; this decreased to 60% in those aged 85 and over. The decreasing likelihood of diagnosis with increasing age may have been related to evidence that diagnosing depression in older age groups can be more difficult due to comorbid conditions (Stanners et al. 2012).

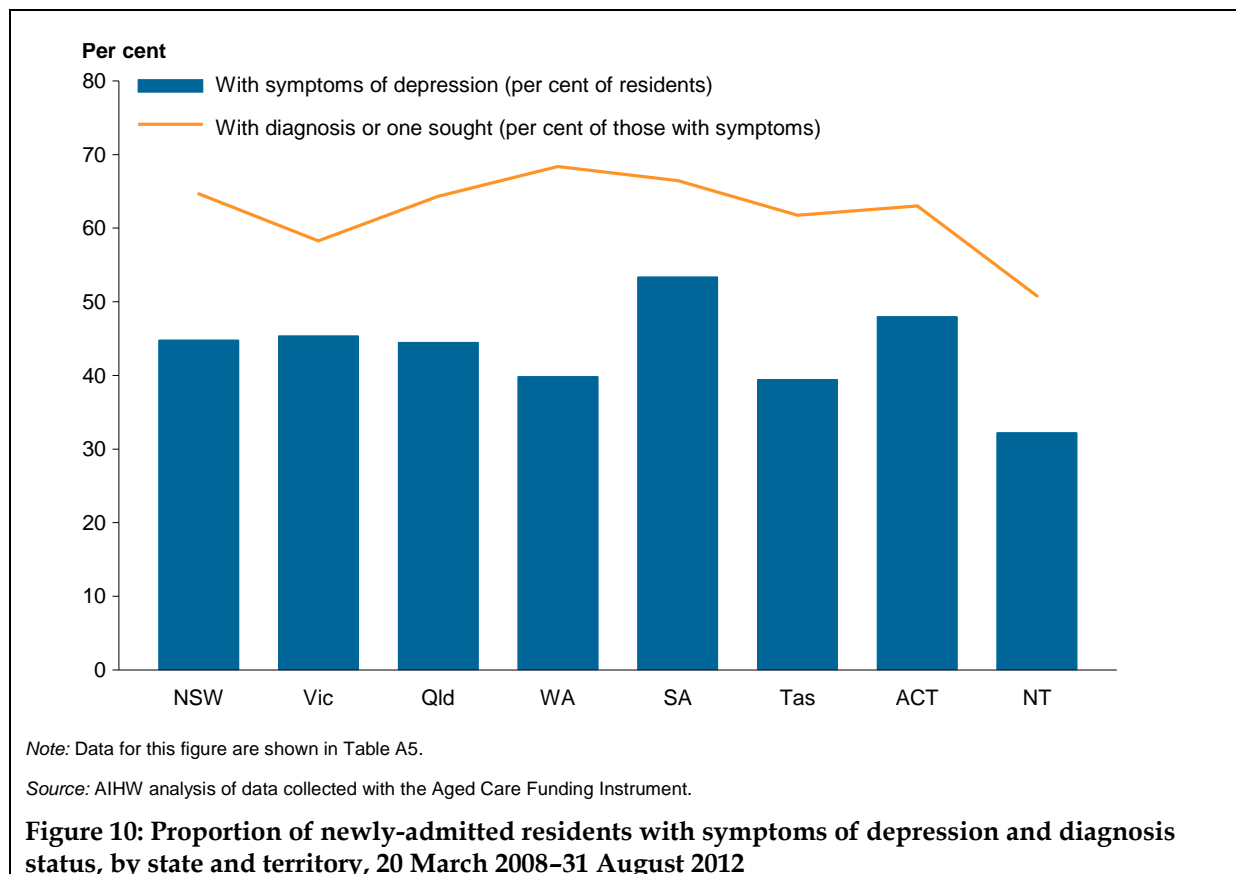
After age standardisation, women with symptoms of depression were still slightly more likely than men to have a diagnosis, or one being sought (64% compared with 61% respectively, see Table S12).

Although newly admitted Indigenous residents with symptoms of depression were slightly more likely than their non-Indigenous counterparts to have a diagnosis, or to have one being sought (65% compared with 63% respectively, see Table A4), after age standardisation this proportion was 63% in both groups (Table S12).

The proportions of newly-admitted residents with a CSD score indicating symptoms of depression who also had a diagnosis of depression (or for whom a diagnosis was being sought) varied across states and territories (Figure 10). Although Western Australia had a lower prevalence of newly-admitted residents with symptoms of depression, the likelihood that these people had a diagnosis or had one being sought (68%) was higher than in all other states. Victoria and the Northern Territory had the lowest likelihood of diagnosis or one being sought (58% and 51%, respectively). These results were similar after age standardisation (Table S12).

The proportion of newly-admitted residents with symptoms of depression who also had a diagnosis or for whom a diagnosis was being sought increased with remoteness, from 63% in *Major cities*, to 71% in *Remote* or *Very remote* areas (Table A6). After age standardisation, this increase was smaller (from 62% to 69% respectively, see Table S12). This trend may have reflected the younger age profile and the higher proportion of Indigenous residents in these areas, and the higher proportion with a diagnosis (or with one being sought) in Western Australia. Most of the increase was due to a higher proportion of residents who had obtained a diagnosis in *Remote/Very remote* areas (62% compared with 54–55% in other areas, or 53–54% after age standardisation.) The proportion having a diagnosis sought (9–10%) changed little with remoteness. When age standardised, this proportion was actually lower (7%) in *Remote/Very remote* areas compared with other areas (9–10%).

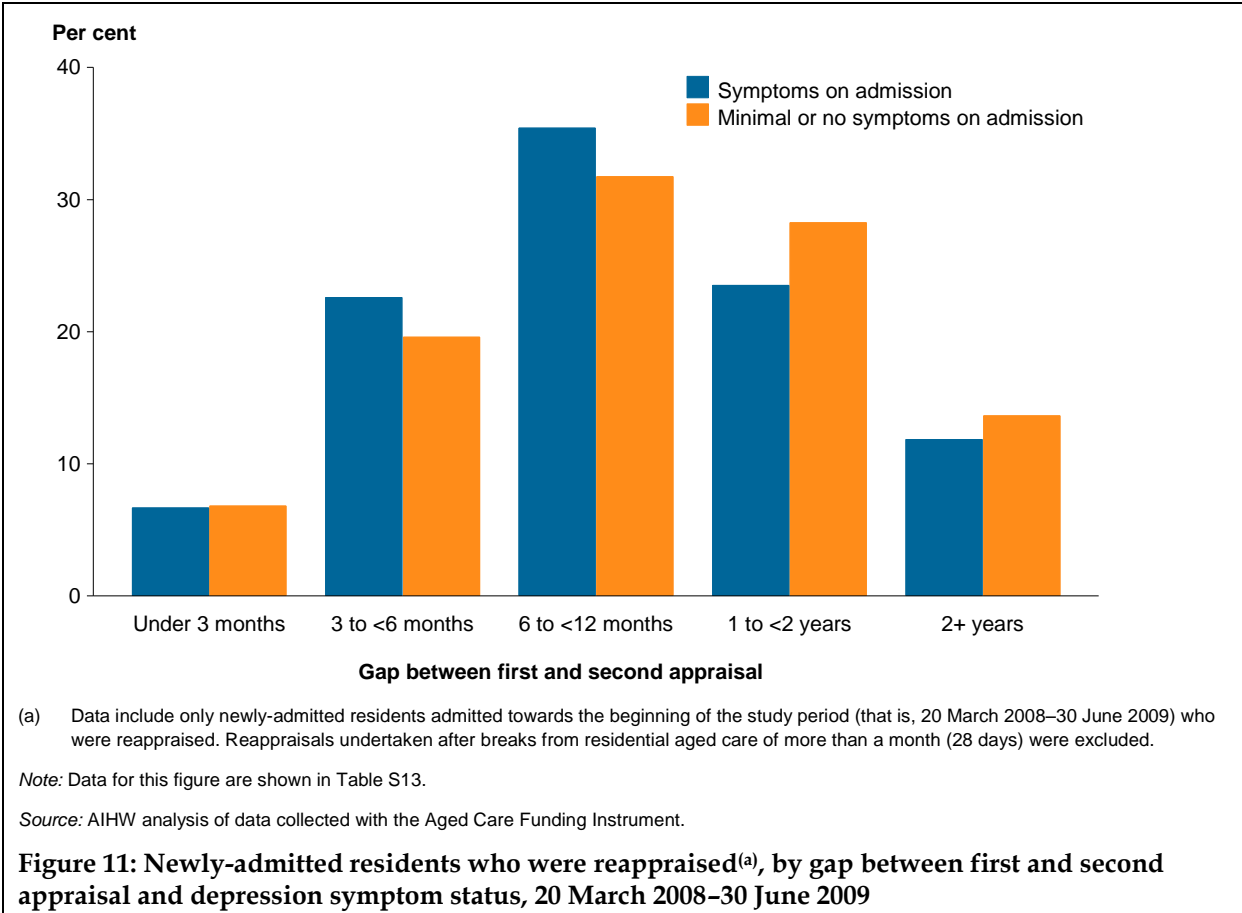
The likelihood of newly-admitted residents with symptoms of depression having a diagnosis or having one sought varied little by country of birth and preferred language (Table A7). Newly-admitted residents with symptoms of depression who were born in *Other countries* were slightly more likely (65%) to have a diagnosis (or have one being sought) than those born in *Australia* or in other *Main English-speaking countries* (both 63%). About 63% of newly-admitted residents with symptoms of depression who spoke English as their preferred language had a diagnosis or one being sought, compared with 64% of those with a different preferred language. These results were similar after age standardisation (Table S12).



Care need levels may have had an impact on the likelihood of a diagnosis. The proportion of newly-admitted residents with symptoms of depression who also had a diagnosis (or one being sought) increased with their overall level of care needs, from around 59% in low care residents to 65% in high care residents (Table A9). This result was similar after age standardisation (Table S12). An especially large increase was seen in the *Cognition and behaviour* care needs domain. About 48% of newly-admitted residents with symptoms of depression who had minimal or nil care needs in this domain had a diagnosis or one being sought, compared with 58% of those with medium, and 71% of those with high care needs. As noted earlier, one requirement for a resident to be rated as having high care needs in the *Cognition and behaviour* domain is a mental or behavioural diagnosis (not limited to depression). It is therefore not surprising that those with high care needs in this domain were more likely to have a diagnosis or have one being sought.

Reappraisals and changes in depression symptom severity

Residents can be reappraised for a range of reasons, such as when care needs change (see Appendix B). Of newly-admitted residents who were reappraised, those with symptoms of depression were more likely to be reappraised within 3–12 months than those without (Figure 11). It is important to note that due to the rules governing the timing of reappraisals (see Appendix B), residents reappraised within 12 months are likely to be less well than those reappraised after 12 months. Thus these data suggest that those with symptoms of depression were less well generally.



About half (48%) of newly-admitted residents with symptoms of depression who were reappraised had the same symptom severity level (mild, moderate or major) at the second appraisal. The severity level was higher at the second appraisal in 19% of those reappraised, and lower in 33% (Table 3). Note that these changes should be interpreted in the context of Figure 1, which suggests that those with scores near the severity level cut-offs may be more likely to be given scores above the cut-offs. The actual proportion increasing in severity level may therefore be underestimated and the proportion decreasing in severity level may be overestimated.

Among newly-admitted residents with minimal or no symptoms of depression on their first appraisal, nearly one-third (32%) who were reappraised had CSD scores indicating symptoms at the second appraisal (Table 3).

Table 3: Newly-admitted residents who were reappraised^(a), by depression symptom severity^(b) and change in depression symptom severity level between first and second appraisal, 20 March 2008–30 June 2009 (per cent)

Change in depression symptom severity	Minimal or no symptoms	With symptoms of depression			All with symptoms	Total
		Mild symptoms	Moderate symptoms	Major symptoms		
Decrease	. .	25.6	36.5	44.2	32.8	13.0
Same	67.6	46.1	44.5	55.8	47.8	59.8
Increase	32.4	28.4	19.0	. .	19.4	27.3
Total	100.0	100.0	100.0	100.0	100.0	100.0
Total (number)	25,828	8,373	4,793	3,738	16,904	42,732

(a) Data include only newly-admitted residents admitted towards the beginning of the study period (that is, 20 March 2008–30 June 2009) who were reappraised. Reappraisals undertaken after breaks from residential aged care of more than a month (28 days) were excluded.

(b) Depression symptom severity at first appraisal.

Source: AIHW analysis of data collected with the Aged Care Funding Instrument.

Discussion

This study is the first analysis of all ACFI data collected since 2008 and the largest analysis of depression symptom prevalence in Australian residential aged care facilities. It has demonstrated that the ACFI database is a powerful data source for analysing the care needs of residential aged care clients. With appropriate resourcing, more complex and detailed analysis than that presented here would be possible. The analyses here of depression symptoms in residential aged care have resulted in findings that would benefit from more detailed exploration.

- More than half (52%) of all permanent aged care residents at 30 June 2012 had symptoms of depression, as did 45% of people admitted for the first time to residential aged care between 2008 and 2012. These are likely to be underestimates because of the large proportion of missing CSD score data.
- The proportion of newly-admitted residents with symptoms of depression varied widely across facilities. This could partially reflect different administration and scoring practices, but could also reflect differences in client groups.
- The proportion of newly-admitted Indigenous residents with mild depression symptoms was lower than among their non-Indigenous counterparts. This suggests barriers to mild symptom recognition in these residents. Meanwhile, in newly-admitted residents overall, increasing proportions with mild depression symptoms over time suggest improved recognition of mild symptoms over time.
- Among newly-admitted residents, those born in countries other than *Australia* or other *Main English-speaking countries* and those with language preferences other than English had higher proportions of moderate and major depression symptoms (in combination with similar proportions with mild depression symptoms). This is notable given the limited Australian data previously available on depression in older people from cultural and linguistically diverse backgrounds (Haralambous et al. 2009).
- The proportions of residents being admitted to care for the first time with moderate and major depression symptoms were lower in older age groups. In combination with similar proportions with mild depression symptoms in these age groups, this suggests possible barriers to complex depression symptom recognition in very old Australians entering residential aged care, as well as older people with more significant depression having shorter life expectancy that leads to a lower likelihood of entering residential aged care.
- Nearly one-third of permanent aged care residents with symptoms of depression did not have a medical diagnosis, nor was one being sought. More than 1 in 10 newly-admitted residents who had moderate or major symptoms of depression were categorised for funding purposes as having mild symptoms.
- Newly-admitted residents with symptoms of depression had higher care needs and were more likely to have verbal or physical behaviours. They were also more likely to be discharged sooner and more likely to be reappraised sooner. In those with symptoms who were reappraised, two-thirds (67%) had the same or a higher CSD severity category.

Depression is thought to be undertreated in residential aged care (O'Connor et al. 2010). However, the introduction of the CSD as a screening instrument in a group of nursing home residents with dementia in the United States led to one-third of those receiving

antidepressants having their dose increased (Cohen et al. 2003). Using ACFI data, it may be possible, with appropriate resourcing, to further explore the 'trajectories of care' of residents with symptoms of depression in Australian residential aged care facilities, including indications that a resident may have received treatment. Because ACFI appraisals are not performed regularly and CSD assessments are not mandatory, analysing trajectories of CSD scores or diagnosis data would require quite complex statistical analysis. However, given the substantial amount of data collected over a number of years, and the excellent coverage of permanent residents in Government-subsidised residential aged care facilities, there is likely to be value in further exploring the dataset to determine what can be gained from a trajectory-focused study.

Appendix A: Additional tables

Table A1: Residential aged care facilities, by proportion of new admissions with depression symptoms of different severities, 20 March 2008–31 August 2012 (per cent)

Proportion of new admissions	Severity of symptoms			With symptoms of depression
	Mild	Moderate	Major	
0–9%	16.1	42.2	60.7	4.1
10–19%	32.6	41.5	25.7	8.0
20–29%	31.8	13.1	8.7	14.5
30–39%	12.5	2.5	2.7	18.0
40–49%	4.9	0.4	1.1	16.6
50–59%	1.6	0.2	0.4	16.1
60–69%	0.4	n.p	0.4	11.1
70–79%	0.1	—	n.p	6.9
80–89%	—	—	n.p	3.0
90–99%	n.p	—	n.p	1.2
100%	n.p	n.p	0.1	0.5
Total	100.0	100.0	100.0	100.0
Total (number)	2,924	2,924	2,924	2,924

Source: AIHW analysis of data collected with the Aged Care Funding Instrument.

Table A2: Characteristics of newly-admitted residents, by depression symptom severity, 20 March 2008–31 August 2012 (per cent)

	Minimal or no symptoms	With symptoms of depression			All with symptoms	Total
		Mild	Moderate	Major		
Sex						
Men	38.1	37.8	38.5	40.6	38.7	38.4
Women	61.9	62.2	61.5	59.4	61.3	61.6
Age						
Under 65	3.1	3.2	4.2	5.3	4.0	3.5
65–69	3.1	3.2	4.2	4.7	3.9	3.4
70–74	5.8	6.6	7.2	8.3	7.2	6.5
75–79	12.1	12.7	14.2	14.5	13.6	12.8
80–84	23.7	24.3	24.5	24.5	24.4	24.0
85–89	29.2	29.1	27.6	26.2	28.0	28.7
90–94	17.6	16.0	14.3	12.8	14.8	16.3
95+	5.3	4.9	3.7	3.6	4.2	4.8
Indigenous status						
Indigenous	0.8	0.5	0.5	0.7	0.6	0.7
Non-Indigenous	99.2	99.5	99.5	99.3	99.4	99.3
State^(a)						
NSW	34.8	32.5	34.8	37.5	34.3	34.6
Vic	25.4	27.6	24.0	23.6	25.6	25.5
Qld	18.1	18.0	18.0	16.7	17.7	17.9
WA	9.0	7.3	7.9	6.4	7.3	8.2
SA	8.0	10.6	11.5	11.9	11.2	9.4
Tas	3.2	2.6	2.5	2.5	2.5	2.9
ACT	1.1	1.2	1.2	1.3	1.2	1.1
NT	0.3	0.2	0.2	0.1	0.2	0.3
Remoteness^(b)						
Major cities	66.3	69.7	70.0	70.8	70.0	68.0
Inner regional	24.8	22.2	21.9	21.2	21.9	23.5
Outer regional	8.1	7.6	7.6	7.6	7.6	7.9
Remote/Very remote	0.8	0.4	0.5	0.4	0.4	0.6
Country of birth^(c)						
Australia	72.0	70.6	69.1	67.6	69.4	70.9
Main English-speaking countries	12.4	12.3	12.6	11.8	12.2	12.3
Other countries	15.2	16.7	17.8	20.2	17.8	16.4
Unknown	0.4	0.5	0.5	0.5	0.5	0.5

(continued)

Table A2 (continued): Characteristics of newly-admitted residents by depression symptom severity, 20 March 2008–31 August 2012 (per cent)

	Minimal or no symptoms	With symptoms of depression			All with symptoms	Total
		Mild	Moderate	Major		
Preferred language^(d)						
English	91.6	91.0	90.4	88.8	90.3	91.0
Other language	8.3	8.9	9.5	11.1	9.6	8.9
Not stated/ Inadequately described	0.1	0.1	0.1	0.1	0.1	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
Total (Number)	128,977	50,990	29,859	25,210	106,059	235,036

(a) Refers to the location of the facility rather than the previous address of the resident.

(b) Refers to the location of the facility rather than the previous address of the resident. Remoteness was classified using the Australian Standard Geographical Classification Remoteness Area classification (ABS 2011b).

(c) Main English-speaking countries were defined as New Zealand, Ireland, United Kingdom, United States of America, Canada and South Africa. Other countries include all other countries, countries not identified individually, 'Inadequately described', 'At sea', and 'Not elsewhere classified'. Country of birth was classified using the Standard Australian Classification of Countries (ABS 2011c).

(d) Preferred language was classified using the Standard Australian Classification of Languages (ABS 2011a).

Source: AIHW analysis of data collected with the Aged Care Funding Instrument.

Table A3: Age and sex of newly-admitted residents, by depression symptom severity and diagnosis status, 20 March 2008–31 August 2012 (per cent)

	Minimal or no symptoms	With symptoms of depression				All with symptoms	Total	Total (number)	Diagnosis obtained or sought ^(a)
		Mild	Moderate	Major					
Men									
Under 65	50.6	19.8	14.6	15.1	49.4	100.0	4,560	70.0	
65–74	50.8	21.4	14.4	13.5	49.2	100.0	11,825	67.3	
75–84	53.9	21.3	13.1	11.8	46.1	100.0	35,441	63.3	
85+									
85–89	55.6	22.0	12.0	10.3	44.4	100.0	23,491	59.2	
90–94	58.2	21.0	11.4	9.4	41.8	100.0	11,888	56.3	
95+	60.2	21.1	10.4	8.4	39.8	100.0	2,988	52.4	
<i>Total 85+</i>	56.8	21.6	11.7	9.9	43.2	100.0	38,367	57.8	
Total	54.5	21.4	12.7	11.4	45.5	100.0	90,193	62.0	
Age-standardised rate	55.4	21.4	12.4	10.9	44.6	100.0	..		
Women									
Under 65	46.7	19.8	15.8	17.7	53.3	100.0	3,710	74.5	
65–74	48.1	22.0	15.1	14.8	51.9	100.0	11,392	74.0	
75–84	53.1	22.2	13.6	11.1	46.9	100.0	50,977	67.2	
85+									
85–89	56.2	22.0	12.3	9.5	43.8	100.0	43,902	62.4	
90–94	59.6	21.3	11.0	8.0	40.4	100.0	26,462	57.0	
95+	60.5	22.0	9.6	7.8	39.5	100.0	8,400	51.2	
<i>Total 85+</i>	57.8	21.8	11.6	8.8	42.2	100.0	78,764	59.5	
Total	55.1	21.9	12.7	10.3	44.9	100.0	144,843	64.1	
Age-standardised rate	55.2	21.8	12.6	10.3	44.8	100.0	..		
Persons									
Under 65	48.8	19.8	15.1	16.3	51.2	100.0	8,270	72.1	
65–74	49.5	21.7	14.7	14.2	50.5	100.0	23,217	70.7	
75–84	53.4	21.8	13.4	11.4	46.6	100.0	86,418	65.6	
85+									
85–89	56.0	22.0	12.2	9.8	44.0	100.0	67,393	61.3	
90–94	59.2	21.2	11.2	8.4	40.8	100.0	38,350	56.7	
95+	60.4	21.8	9.8	8.0	39.6	100.0	11,388	51.5	
<i>Total 85+</i>	57.5	21.7	11.6	9.2	42.5	100.0	117,131	59.0	
Total	54.9	21.7	12.7	10.7	45.1	100.0	235,036	63.3	
Age-standardised rate	55.4	21.6	12.5	10.5	44.6	100.0	..		

(a) Per cent of those with symptoms.

Source: AIHW analysis of data collected with the Aged Care Funding Instrument.

Table A4: Indigenous status of newly-admitted residents by depression symptom severity and diagnosis status, 20 March 2008–31 August 2012 (per cent)

Indigenous status	Minimal or no symptoms	With symptoms of depression				Total	Total (number)	Diagnosis obtained or sought ^(a)
		Mild	Moderate	Major	All with symptoms			
Indigenous	62.4	17.3	10.1	10.2	37.6	100.0	1,611	65.0
Non-Indigenous	54.8	21.7	12.7	10.7	45.2	100.0	233,425	63.3
Total	54.9	21.7	12.7	10.7	45.1	100.0	235,036	63.3

(a) Per cent of those with symptoms.

Source: AIHW analysis of data collected with the Aged Care Funding Instrument.

Table A5: State and territory of newly-admitted residents, by depression symptom severity and diagnosis status, 20 March 2008–31 August 2012 (per cent)

State/territory ^(a)	Minimal or no symptoms	With symptoms of depression				Total	Total (number)	Diagnosis obtained or sought ^(b)
		Mild	Moderate	Major	All with symptoms			
New South Wales	55.2	20.4	12.8	11.6	44.8	100.0	81,323	64.7
Victoria	54.6	23.5	12.0	9.9	45.4	100.0	59,936	58.3
Queensland	55.5	21.8	12.7	10.0	44.5	100.0	42,161	64.3
Western Australia	60.2	19.3	12.2	8.3	39.8	100.0	19,322	68.4
South Australia	46.6	24.4	15.4	13.5	53.4	100.0	22,181	66.4
Tasmania	60.6	19.3	11.0	9.1	39.4	100.0	6,849	61.7
Australian Capital Territory	52.0	22.6	13.0	12.4	48.0	100.0	2,671	63.0
Northern Territory	67.8	19.1	7.9	5.2	32.2	100.0	593	50.8
Australia	54.9	21.7	12.7	10.7	45.1	100.0	235,036	63.3

(a) Refers to the location of the facility rather than the previous address of the resident.

(b) Per cent of those with symptoms.

Source: AIHW analysis of data collected with the Aged Care Funding Instrument.

Table A6: Remoteness of newly-admitted residents, by depression symptom severity and diagnosis status, 20 March 2008–31 August 2012 (per cent)

Remoteness ^(a)	Minimal or no symptoms	With symptoms of depression				All with symptoms	Total	Total (number)	Diagnosis obtained ^(b)	Diagnosis sought ^(b)
		Mild	Moderate	Major						
Major cities	53.5	22.2	13.1	11.2	46.5	100.0	159,789	54.3	8.8	
Inner regional	57.9	20.5	11.9	9.7	42.1	100.0	55,221	53.5	9.7	
Outer regional	56.3	21.1	12.3	10.3	43.7	100.0	18,513	54.9	9.8	
Remote/ Very remote	68.6	15.1	9.2	7.1	31.4	100.0	1,513	61.5	9.3	
Total	54.9	21.7	12.7	10.7	45.1	100.0	235,036	54.2	9.1	

(a) Refers to the location of the facility rather than the previous address of the resident. Remoteness was classified using the Australian Standard Geographical Classification Remoteness Area classification (ABS 2011b).

(b) Per cent of those with symptoms.

Source: AIHW analysis of data collected with the Aged Care Funding Instrument.

Table A7: Country of birth and preferred language of newly-admitted residents, by depression symptom severity and diagnosis status, 20 March 2008–31 August 2012 (per cent)

Country of birth ^(a)	Minimal or no symptoms	With symptoms of depression				All with symptoms	Total	Total (number)	Diagnosis obtained or sought ^(c)
		Mild	Moderate	Major					
Australia	55.8	21.6	12.4	10.2	44.2	100.0	166,524	62.9	
Main English-speaking countries	55.1	21.6	13.0	10.3	44.9	100.0	28,946	63.3	
Other countries	50.8	22.1	13.8	13.2	49.2	100.0	38,485	64.8	
Unknown	52.4	22.9	14.0	10.7	47.6	100.0	1,081	60.4	
Total	54.9	21.7	12.7	10.7	45.1	100.0	235,036	63.3	
Preferred language^(b)									
English	55.2	21.7	12.6	10.5	44.8	100.0	213,941	63.2	
Other language	51.3	21.7	13.6	13.4	48.7	100.0	20,899	63.9	
Not stated/ Inadequately described	55.6	18.4	15.3	10.7	44.4	100.0	196	69.0	
Total	54.9	21.7	12.7	10.7	45.1	100.0	235,036	63.3	

(a) Main English-speaking countries were defined as New Zealand, Ireland, United Kingdom, United States of America, Canada and South Africa. Other countries include all other countries, countries not identified individually, 'Inadequately described', 'At sea', and 'Not elsewhere classified'. Country of birth was classified using the Standard Australian Classification of Countries (ABS 2011c).

(b) Preferred language was classified using the Standard Australian Classification of Languages (ABS 2011a).

(c) Per cent of those with symptoms.

Source: AIHW analysis of data collected with the Aged Care Funding Instrument.

Table A8: Completed length of stay^(a) after first continuous admission^(b) of newly-admitted residents, by discharge destination and depression symptom severity, 20 March 2008–30 June 2009 (per cent)

	Other discharge destinations						Total
	Death	Hospital	Other residential care	Community	Other	Total other discharge destinations	
Minimal or no symptoms							
Under 3 months	20.6	32.6	24.2	43.0	28.4	35.4	21.9
3 to <9 months	17.3	24.4	22.9	29.2	32.3	27.3	18.1
9 to <12 months	6.8	6.9	8.0	5.9	6.3	6.5	6.8
1 to <2 years	22.9	18.6	24.4	13.8	17.2	17.2	22.4
2+ years	32.5	17.5	20.6	8.1	15.8	13.6	30.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total (number)	24,652	635	389	1,074	285	2,383	27,035
Mean (days)	523.9	353.7	424.5	236.9	334.5	310.3	505.0
Median (days)	446	213	299	119	208	174	415
Standard deviation (days)	423.6	364.7	393.5	289.8	345.2	343.2	421.5
Mild symptoms							
Under 3 months	16.0	25.6	26.7	37.0	21.4	30.8	17.2
3 to <9 months	19.9	25.1	24.8	36.2	31.0	31.1	20.9
9 to <12 months	7.0	12.3	7.9	7.8	6.0	8.8	7.1
1 to <2 years	24.8	18.2	20.8	13.9	25.0	17.3	24.1
2+ years	32.3	18.7	19.8	5.0	16.7	12.0	30.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total (number)	8,136	203	101	359	84	747	8,883
Mean (days)	537.5	380.9	396.2	226.4	404.1	311.3	518.5
Median (days)	463	261	245	145	261.5	194	430
Standard deviation (days)	412.3	364.5	381.4	242.6	376.8	325.9	410.5
Moderate symptoms							
Under 3 months	18.7	32.6	22.8	35.1	29.6	31.6	20.0
3 to <9 months	22.5	25.6	39.1	41.1	27.2	35.1	23.8
9 to <12 months	6.7	9.3	4.3	3.2	6.2	5.3	6.6
1 to <2 years	22.4	20.9	12.0	14.1	21.0	16.4	21.8
2+ years	29.6	11.6	21.7	6.5	16.0	11.6	27.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total (number)	5,099	129	92	248	81	550	5,649
Mean (days)	500.4	315.0	375.8	226.0	361.8	291.9	480.1
Median (days)	393	217	188	143	235	168.5	361
Standard deviation (days)	412.9	308.0	381.9	249.5	353.8	310.7	408.8
Major symptoms							
Under 3 months	29.8	40.0	31.1	38.5	42.9	38.6	30.6
3 to <9 months	21.1	26.2	32.8	33.7	24.3	30.0	21.9

Table A8 (continued): Completed length of stay^(a) after first continuous admission^(b) of newly-admitted residents, by discharge destination and depression symptom severity, 20 March 2008–30 June 2009 (per cent)

	Other discharge destinations					<i>Total other discharge destinations</i>	Total
	Death	Hospital	Other residential care	Community	Other		
Major symptoms (continued)							
9 to <12 months	5.6	9.7	4.9	5.3	4.3	6.4	5.7
1 to <2 years	18.6	16.6	16.4	12.5	14.3	14.5	18.2
2+ years	24.9	7.6	14.8	10.1	14.3	10.5	23.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total (number)	4,868	145	61	208	70	484	5,352
Mean (days)	426.2	244.5	335.3	249.0	292.9	264.9	411.6
Median (days)	264.5	121	140	120.5	170.5	123	246
Standard deviation (days)	413.0	273.0	395.3	294.3	324.2	307.8	407.3
All with symptoms of depression							
Under 3 months	20.5	31.9	26.4	36.8	30.6	33.2	21.6
3 to <9 months	21.0	25.6	31.9	37.1	27.7	32.0	22.0
9 to <12 months	6.5	10.7	5.9	5.8	5.5	7.1	6.6
1 to <2 years	22.5	18.4	16.5	13.6	20.4	16.2	21.9
2+ years	29.6	13.4	19.3	6.7	15.7	11.5	27.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total (number)	18,103	477	254	815	235	1,781	19,884
Mean (days)	497.1	321.6	374.2	232.1	356.4	292.7	478.8
Median (days)	394	210	196.5	137	232	167	363
Standard deviation (days)	415.2	328.3	384.2	258.6	355.2	316.8	411.5
Total							
Under 3 months	20.5	32.3	25.0	40.3	29.4	34.5	21.8
3 to <9 months	18.8	24.9	26.4	32.6	30.2	29.3	19.8
9 to <12 months	6.7	8.5	7.2	5.8	6.0	6.8	6.7
1 to <2 years	22.7	18.5	21.3	13.7	18.7	16.8	22.2
2+ years	31.2	15.7	20.1	7.5	15.8	12.7	29.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total (number)	42,755	1,112	643	1,889	520	4,164	46,919
Mean (days)	512.5	339.9	404.6	234.8	344.4	302.8	493.9
Median (days)	424	212	247	126	214	170	391
Standard deviation (days)	420.2	349.8	390.3	276.8	349.6	332.3	417.5

(a) Length of stay is defined as the amount of time a resident was in an aged care facility from admission until separation to: a hospital, another residential facility, the community or died.

(b) Residents with breaks between admissions of up to 28 days were regarded as being continuously admitted.

Source: AIHW analysis of data collected with the Aged Care Funding Instrument.

Table A9: Depression symptom severity and diagnosis status of newly-admitted residents, by care needs, 20 March 2008–31 August 2012 (per cent)

	Minimal or no symptoms	With symptoms of depression				Total	Diagnosis obtained or sought ^(a)
		Mild	Moderate	Major	All with symptoms		
Activities of daily living							
Minimal or nil	6.2	3.5	2.9	2.0	3.0	4.7	65.2
Low	38.9	33.4	27.6	19.0	28.3	34.1	61.7
Medium	27.1	29.8	30.3	28.3	29.6	28.2	62.4
High	27.9	33.3	39.3	50.7	39.1	32.9	65.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	63.3
Cognition and behaviour							
Minimal or nil	23.5	10.0	4.2	0.7	6.1	15.7	48.0
Low	33.0	23.6	17.2	9.2	18.4	26.4	57.6
Medium	22.0	33.9	31.0	26.0	31.2	26.1	58.3
High	21.5	32.6	47.6	64.0	44.3	31.8	71.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	63.3
Complex health care							
Minimal or nil	20.2	13.6	10.8	7.4	11.3	16.2	58.8
Low	39.2	39.1	34.7	27.2	35.0	37.3	61.9
Medium	22.4	25.0	27.0	26.6	25.9	24.0	63.7
High	18.1	22.3	27.5	38.8	27.7	22.5	66.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	63.3
Overall care needs^(b)							
Low	47.3	34.8	24.4	13.1	26.7	38.0	58.5
High	52.7	65.2	75.6	86.9	73.3	62.0	65.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	63.3
Total (number)	128,977	50,990	29,859	25,210	106,059	235,036	67,150

(a) Per cent of those with symptoms.

(b) Overall care needs level was defined according to the rules as of 1 January 2010 (DoHA 2009c).

Source: AIHW analysis of data collected with the Aged Care Funding Instrument.

Table A10: Model A – Logistic regression model of verbal or physical behaviours in newly-admitted residents (including the presence of depression symptoms), 20 March 2008–31 August 2012

Predictor variable	Odds ratio	Odds ratio CI	P-value ^(a)
Symptoms of depression : Mild/Moderate/Major vs. Minimal/None on CSD	2.39	2.33–2.44	<.0001
Age	1.00	0.99–1.00	<.0001
Sex: Male vs. Female	1.20	1.17–1.22	<.0001
Remoteness: Major cities vs. Inner regional vs. Outer regional vs. Remote or Very remote	0.91	0.90–0.93	<.0001
Indigenous status: Indigenous vs. Non-Indigenous	1.26	1.11–1.45	0.0007
Country of birth: Other countries vs. Australia or Other main-English-speaking countries	1.24	1.19–1.29	<.0001
Preferred language: Other language vs. English	1.16	1.10–1.23	<.0001
Marital status: Single vs. Not single	0.92	0.89–0.96	0.0002
Dementia diagnosis	2.50	2.45–2.56	<.0001
Other mental or behavioural condition diagnosis	1.75	1.70–1.80	<.0001
<i>Activities of daily living</i> care needs level: Nil/Minimal vs. Low vs. Medium vs. High	1.46	1.44–1.47	<.0001

CI 95% confidence interval using the profile-likelihood method.

(a) Wald chi-squared test, one degree of freedom. The full model had a maximum rescaled coefficient of determination (R^2) of .16 and a Hosmer–Lemeshow statistic with a p-value of <.0001.

Source: AIHW analysis of data collected with the Aged Care Funding Instrument.

Table A11: Model B – Logistic regression model of verbal or physical behaviours in newly-admitted residents with symptoms of depression (including the severity of depression symptoms), 20 March 2008–31 August 2012

Predictor variable	Odds ratio	Odds ratio CI	P-value ^(a)
Severity of depression symptoms: Mild vs. Moderate vs. Major on CSD	1.06	1.04–1.09	<.0001
Age	1.00	0.99–1.00	0.0002
Sex: Male vs. Female	1.25	1.20–1.30	<.0001
Remoteness: Major cities vs. Inner regional vs. Outer regional vs. Remote or Very remote	0.96	0.93–0.98	0.0008
Indigenous status: Indigenous vs. Non-Indigenous	1.60	1.21–2.17	0.0016
Country of birth: Other countries vs. Australia or Other main-English-speaking countries	1.17	1.09–1.25	<.0001
Preferred language: Other language vs. English	1.25	1.14–1.38	<.0001
Marital status: Single vs. Not single	0.86	0.80–0.93	0.0002
Dementia diagnosis	2.30	2.21–2.39	<.0001
Other mental or behavioural condition diagnosis	1.63	1.56–1.71	<.0001
<i>Activities of daily living</i> care needs level: Nil/Minimal vs. Low vs. Medium vs. High	1.59	1.56–1.62	<.0001

CI 95% confidence interval using the profile-likelihood method.

(a) Wald chi-squared test, one degree of freedom. The full model had a maximum rescaled coefficient of determination (R^2) of .09 and a Hosmer–Lemeshow statistic with a p-value of <.0001.

Source: AIHW analysis of data collected with the Aged Care Funding Instrument.

Table A12: ACFI location of depression diagnosis record in newly-admitted residents, by depression symptom severity, 20 March 2008–31 August 2012

Depression diagnosis location	Minimal or no symptoms	With symptoms of depression				Total
		Mild	Moderate	Major	All with symptoms	
Number						
Diagnosis obtained or sought	18,298	18,833	25,329	22,988	67,150	85,448
M/b diagnosis only or Q10 diagnosis only	13,238	8,897	3,315	2,833	15,045	28,283
M/b diagnosis and Q10 diagnosis	4,872	8,489	17,387	16,568	42,444	47,316
Diagnosis sought (Q10)	188	1,447	4,627	3,587	9,661	9,849
Diagnosis not obtained or sought	110,679	32,157	4,530	2,222	38,909	149,588
Total	128,977	50,990	29,859	25,210	106,059	235,036
Per cent						
Diagnosis obtained or sought	14.2	36.9	84.8	91.2	63.3	36.4
M/b diagnosis only or Q10 diagnosis only	10.3	17.4	11.1	11.2	14.2	12.0
M/b diagnosis and Q10 diagnosis	3.8	16.6	58.2	65.7	40.0	20.1
Diagnosis sought (Q10)	0.1	2.8	15.5	14.2	9.1	4.2
Diagnosis not obtained or sought	85.8	63.1	15.2	8.8	36.7	63.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

M/b Mental and behavioural diagnosis.

Q10 Question 10 of the ACFI.

Source: AIHW analysis of data collected with the Aged Care Funding Instrument.

Appendix B: Technical notes

Note 1: Interpreting ACFI data

The information and data included in this report are based on data collected using the 2009 *Aged Care Funding Instrument (ACFI) answer appraisal pack* (DoHA 2009a). This instrument is no longer the current version and has been superseded by a later version.

The ACFI data do not capture information about people:

- who accessed respite care in residential aged care facilities
- in residential care places under the Multi-Purpose Service Program or the National Aboriginal and Torres Strait Islander Flexible Aged Care Program
- who were in residential aged care facilities not subsidised by the Australian Government
- with a very short length of stay and who died or left residential aged care before an ACFI could be completed.

The ACFI data cover less than half of the total Australian Government-subsidised operational, permanent residential aged care places in *Very remote* areas because of the high proportion of places provided through the Multi-Purpose and Aboriginal and Torres Strait Islander Flexible Aged Care Programs in these areas.

The ACFI data have other limitations. Because the ACFI is a funding tool, the questions about care needs are focussed on those needs that contribute to the cost of care, not on all areas in which a resident may require care. In addition, diagnoses are only recorded if they are determined to be having an impact on the resident's care needs.

Because the frequency of ACFI appraisals is driven by a range of factors, they are applicable for varying lengths of time and are not performed regularly. As a result, there is potential error associated with prevalence estimates.

In addition, the lower coverage in more remote areas means that coverage of Indigenous residents is also likely to be underestimated. Finally, and importantly, the ACFI does not capture any information about treatment for depression.

Note 2: When an ACFI appraisal is conducted

- When a new resident enters residential aged care an ACFI appraisal cannot be carried out in the first 7 days (unless they are leaving care) and must be conducted within two months of entering care
- Six months after a new resident enters care directly from hospital
- On return from extended hospital leave (30 days or more)
- Six months after return from extended hospital leave (30 days or more)
- Six months after a significant change in the resident's care needs (refer to DoHA 2009d)
- When required by the Secretary of DoHA
- When a low care resident enters a high care facility for high dependency care leave (that is, leave from the low care facility).

Other situations in which an ACFI can be conducted

At any time 12 months or more after an existing classification took effect; when the resident has a significant change in care needs; at any time when a resident is classified at the lowest applicable classification level (that is, no or minimal needs in all three care domains); within 2 months of a resident transferring from another aged care service or 28 days if this resident has an ACAT approval limited to low care and is reappraised as high care.

Note 4: Question 10 and the Cornell Scale for Depression

Question 10 of the ACFI relates to symptoms associated with depression and dysthymia (chronic mood disturbance) (Figure 12).

ACFI 10 Depression

Symptoms of Depression Assessment Summary Assessment summary must be completed	Tick if yes	Score
No Cornell Scale for Depression (CSD) undertaken	<input type="checkbox"/> 10.1	
Cornell Scale for Depression (CSD)—enter score	<input type="checkbox"/> 10.2	
Clinical report provided supporting information for the ACFI 10 appraisal <small>Note: Cornell Scale for Depression must be completed</small>	<input type="checkbox"/> 10.3	

Symptoms of Depression Checklist Checklist must be completed	Tick if yes
CSD = 0–8 or no CSD completed Minimal symptoms or symptoms did not occur	<input type="checkbox"/> 1
CSD = 9–13 Symptoms caused mild interference with the person's ability to participate in their regular activities	<input type="checkbox"/> 2
CSD = 14–18 Symptoms caused moderate interference with the person's ability to function and participate in regular activities	<input type="checkbox"/> 3
CSD = 19–38 Symptoms of depression caused major interference with the person's ability to function and participate in regular activities	<input type="checkbox"/> 4
There is a diagnosis or provisional diagnosis of depression completed or reconfirmed in the past twelve months (diagnosis evidence required as per Mental and Behavioural Diagnosis)	<input type="checkbox"/> 5
Diagnosis or provisional diagnosis of depression being sought and will be made available on request within three months of the appraisal date	<input type="checkbox"/> 6

ACFI 10 Rating key

RATING A = yes to (item 1)

RATING B = yes to (item 2); you must complete and enclose the Cornell Scale for Depression (CSD)

RATING C = yes to (item 3) AND (item 5 or item 6); you must complete and enclose the CSD

RATING D = yes to (item 4) AND (item 5 or item 6); you must complete and enclose the CSD

Evidence requirement

For a rating of B, C or D you must complete and enclose the **Cornell Scale for Depression**.

Rating

Source: 2009 Aged Care Funding Instrument (ACFI) answer appraisal pack (DoHA 2009a).

Figure 12: Question 10 from 2009 Aged Care Funding Instrument (ACFI) answer appraisal pack

Responses to the checklist are used to assign an overall rating for Question 10 (A to D, with D indicating more severe symptoms). For symptoms to be recorded, they must impact on

care needs. When the Cornell Scale for Depression is used with a non-English speaker, the assessor must confer with an interpreter (who can be a family member or member of staff).

Note that a resident can only be given a C or D rating in Question 10 if they have a diagnosis or provisional diagnosis of depression. When such a diagnosis is not available, but the facility indicates that one is being sought, a C or D rating can be recorded, conditional upon the facility being able to make the diagnosis available upon request within three months.

Note 5: Limitations of the Cornell Scale for Depression

These include:

- it is lengthy to administer (20–30 minutes)
- administration is not mandatory, so estimates of depression symptom prevalence are likely to be conservative
- its reliability and validity are dependent on the assessor's awareness of and familiarity with depressive symptoms which are often complicated by comorbidities
- symptoms of comorbid conditions may influence the score
- it has not yet been validated in an Australian residential aged care setting when administered by aged care staff.

Appendix C: Data quality statement—Aged Care Funding Instrument

Summary of key data quality issues

- The Aged Care Funding Instrument (ACFI) is used to determine Australian government subsidies for permanent aged care residents. It is primarily focused on collecting information that is relevant to the costs of care for individual residents.
- ACFI appraisals are not conducted on a regular basis and have a focus on components of the resident's care needs that affect the cost of care. Consequently, inclusion of medical diagnoses may be affected by their relevance to care needs and the number of available diagnosis fields. Elements of the appraisal (for example, the Cornell Scale for Depression) may be affected by the appraiser's experience and skill with the tool).
- Health conditions listed in the ACFI are coded using the Aged Care Assessment Program code list. This code list is based on the ICD-10-AM classification and is comparable to the ABS 4-digit code used for the ABS Survey of Disability, Ageing and Carers.
- There have been two minor changes to the tool since it was introduced in March 2008.

Description

Since March 2008, the level of the basic subsidy for approved permanent aged care residents has been based on each resident's care needs as assessed using the ACFI.

The ACFI data is a comprehensive collection of all ACFI appraisals for permanent aged care residents living in mainstream aged care facilities.

The ACFI records information on each resident's care needs for the following areas:

- Up to 3 mental and behavioural health conditions
- Up to 3 other health conditions
- Activities of daily living (nutrition, mobility, personal hygiene, toileting and continence)
- Cognition and behaviour (cognitive skills, wandering, verbal behaviours, physical behaviours and depression) and
- Complex health care (need for assistance with medication, need for assistance with 18 specific complex health care needs).

People accessing permanent residential aged care must be assessed for eligibility for services by an Aged Care Assessment Team and approved to receive care by a Delegate. This assessment (the client's Aged Care Assessment Record which is recorded in the ACAP MDS) is a common source of diagnosed health conditions recorded in the ACFI, along with other medical sources.

Institutional environment

The majority of Australian Government-subsidised aged care services in Australia operate within the legislative framework provided by the *Aged Care Act 1997*.

ACFI appraisal data are used to determine the nominal level of subsidy paid by the Australian government for each resident, although the actual subsidy level is reduced by the amount of any income-tested care fee paid by the resident.

ACFI appraisals are submitted to the Health Insurance Commission (HIC), which has responsibility for payments to aged care facilities. They are held as part of the Aged Care administrative payments system.

The Australian Institute of Health and Welfare (AIHW) is a major national agency set up by the Australian Government under the *Australian Institute of Health and Welfare Act 1987* to provide reliable, regular and relevant information and statistics on Australia's health and welfare. It is an independent statutory authority established in 1987, governed by a management Board, and accountable to the Australian Parliament through the Health and Ageing portfolio.

The AIHW aims to improve the health and wellbeing of Australians through better health and welfare information and statistics. It collects and reports information on a wide range of topics and issues, ranging from health and welfare expenditure, hospitals, disease and injury, and mental health, to ageing, homelessness, disability and child protection.

The Institute also plays a role in developing and maintaining national metadata standards. This work contributes to improving the quality and consistency of national health and welfare statistics. The Institute works closely with governments and non-government organisations to achieve greater adherence to these standards in administrative data collections to promote national consistency and comparability of data and reporting.

One of the main functions of the AIHW is to work with the states and territories to improve the quality of administrative data and, where possible, to compile national datasets based on data from each jurisdiction, to analyse these datasets and disseminate information and statistics.

The *Australian Institute of Health and Welfare Act 1987*, in conjunction with compliance to the *Privacy Act 1988*, ensures that the data collections managed by the AIHW are kept securely and under the strictest conditions with respect to privacy and confidentiality.

For further information see the AIHW website <www.aihw.gov.au>.

Timeliness

ACFI data are submitted to the HIC on an ongoing basis as residents are appraised. An ACFI appraisal must be completed within 2 months of a resident entering care. A resident is generally re-appraised on a needs basis rather than an annual basis, although a facility can conduct a voluntary re-appraisal 12 months after the last ACFI appraisal or later. The Residential Care Manual sets out the conditions under which additional ACFI appraisals are required or may be submitted.

An annual snapshot of the aged care data, including the ACFI data, is provided to the AIHW in September/October each year, allowing around 3 months for ACFI appraisals for the previous financial year to be received.

The annual snapshot includes data on all ACFI appraisals undertaken since it was introduced in March 2008. (Before this, the resident subsidies were determined by an annual Resident Care Scale appraisal. After 20 March 2008, residents due for their annual reappraisal were appraised using the ACFI. Consequently, not all aged care residents in

2008–09 will have been appraised using the ACFI; 20 March 2009 is the first date that there would be ACFI coverage for all residents.

Information about the proportion of low and high care residents is published as part of the information on the provision of aged care services in the Report on the Operation of the Aged Care Act (published in the latter half of the year) and the Report on Government Services (January of the next year). These data are also used in AIHW statistical reports (for example, *Residential Aged Care in Australia*).

Accessibility

AIHW reports which include information from the ACFI can be downloaded free of charge from the Institute's website <www.aihw.gov.au>.

Data cubes for permanent residential aged care which are available on the AIHW website <<http://www.aihw.gov.au/aged-care-data-cubes/>> include data from the ACFI, including information on overall care level and care levels in the three care domains (activities of daily living, cognition and behaviour and complex health care).

Information from this data source can also be sought through the National Aged Care Data Clearinghouse <<http://www.aihw.gov.au/national-aged-care-data-clearinghouse/>>.

Requests that take longer than half an hour to compile may be charged for on a cost recovery basis.

Interpretability

Information on the ACFI is available on the Department of Health and Ageing's website <www.health.gov.au/acfi> The ACFI user guide provides clear explanation of the information collected.

Information may be available/published either at the level of responses to sub-questions in the ACFI, at the level of a rating of A (lowest need) to D (highest need) for each question, at the level of care need in individual care domains (nil or minimal, low, medium, high), or at the level of overall care needs (low care or high care).

Health conditions are reported in two groups (*Mental and behavioural diagnosis* and other *Medical diagnosis*) of up to three conditions. While conditions are listed in order of importance of care needs within each group, it is not possible to determine which is the most important for the resident out of all conditions listed.

Relevance

The ACFI collects information on the care needs of all people living in permanent residential aged care. It is, however, a funding tool and focuses on those aspects of the resident's care needs related to the cost of care. In addition, the timing of reappraisals is related to funding imperatives and changes in the care needs of the resident relevant to the cost of care.

These data provide valuable information about the health and functioning of residents. In some areas it provides more accurate information than the ABS Survey of Disability, Ageing and Carers, the only ABS survey which collects information on people in residential aged care.

The ACFI data do not contain information about the sociodemographic characteristics of the residents. However, the ACFI is a subset of Australian Government aged care administrative

data, which do include this information, including age, sex, indigenous status, preferred language, country of birth and location (state and remoteness). ACFI data are generally analysed in conjunction with such variables.

Health conditions in the ACFI are coded using the Aged Care Assessment Program code list. This code list is based on the ICD-10-AM classification and is comparable to the ABS 4-digit code used for the ABS Survey of Disability, Ageing and Carers.

Accuracy

ACFI appraisals are conducted over a 2 month period, and backdated to the beginning of the period. However, appraisals do not generally expire except in specific circumstances (such as 6 months after extended hospital leave or a 'significant' change in resident care needs; see Residential Care Manual for the definition of a significant change). Voluntary reappraisals cannot generally be carried out less than 12 months after the previous appraisal and moderate changes within that period may not be reflected in the current appraisal.

At any one time, a small number of residents may not have had an ACFI appraisal. These are generally new residents for whom an appraisal cannot be submitted until 28 days after admission.

ACFI appraisals are generally carried out by aged care staff. These appraisals include the use of specific assessment tools such as the modified Cornell Scale for Depression in Dementia (CSDD) and the Psychogeriatric Assessment Scales–Cognitive Impairment Scale (PAS–CIS). In some instances the appraiser may not be able to use the designated assessment tool, or may judge that it does not need to be used.

The CSDD was specifically designed and validated for administration by clinically trained staff rather than aged care workers. Staff knowledge about depression and skill in using the tool can influence the assessment. If staff judge that the resident is not depressed, they are not required to use the tool.

The PAS–CIS may not be used if the appraiser judges that the resident is not cognitively impaired or that the resident's condition makes it inappropriate. Reasons may include that the resident is too severely impaired, has sensory problems or cultural diversity issues make it inappropriate. Where this occurs, the provider will make a summary assessment for use in the ACFI and record that the tool was not used.

The Department of Health and Ageing undertake paper-based spot checks of ACFI appraisals using evidence held in files. These review appraisals are also included in the ACFI data. Where an ACFI appraisal is rejected, all data are retained but the appraisal is flagged as rejected and the reason for its rejection is recorded. In some instances the appraisal is rejected for administrative reasons such as being submitted before or after an appraisal is allowed. In most analyses of ACFI data it is necessary to filter out rejected appraisals, but appraisals rejected for purely administrative reasons may be useful in research on individual resident's care needs over time.

The proportion of records with missing Indigenous status is low, and there have been initiatives to improve Indigenous identification in aged care data. However, it should be noted that the coverage of aged care service provision in remote areas is likely to be lower because aged care services in more remote areas are more likely to use a flexible model of care. No information on care recipients is collected from flexible aged care services delivered through Multi-Purpose Services or the Aboriginal and Torres Strait Islander Aged Care

Program. These services are generally located in more remote areas and likely to have higher proportions of Indigenous clients.

For around 90% of residents, their ACFI appraisal records the maximum three Medical health conditions and so may not have the capacity to include other conditions of importance for the resident or for researchers seeking information on the prevalence of health conditions in residential aged care.

Health conditions included in the ACFI must be diagnosed, but only conditions relevant to the current care needs of the resident are included.

Coherence

Changes to the ACFI occurred in January 2010 and July 2013:

- From 1 January 2010 there was a change in the definition of a high care resident. This resulted in a small number of funding categories (9/65) changing from overall high care to low care. There was no change to the protocol used to assess care needs in individual care domains based on question ratings.
- From 1 July 2013, there were minor changes to 4 of the 12 ACFI questions that had the capacity to affect a resident's rating in those questions. However, the protocol to use the ratings to determine the care-need level within each domain, and whether a resident was considered a low care or high care resident did not change. Most changes related to the documentary evidence needed.

Glossary

Activities of daily living domain: ACFI care domain with questions on care needs for nutrition, mobility, personal hygiene, toileting and continence.

Age-specific rates: provide information on the number of events in a specified age group relative to the total number of people 'at risk' of that event in the same age group.

Age-standardised rate: Since the likelihood of a person having depression is associated with age, crude overall rates are not suitable for making comparisons between groups with different age structures (for example, sex or residential care across time). Two standardisation methods are commonly used to adjust for age: direct and indirect. The direct approach was used for this report. To calculate age-standardised rates, age-specific rates were multiplied against a constant population (namely, all permanent residents in residential aged care as at 30 June 2012). This effectively removes the influence of age structure on the rate and it is described as the age-standardised rate.

Cognition and behaviour domain: ACFI care domain with questions on care needs for cognitive skills, wandering, verbal behaviour, physical behaviour and depression.

Completed length of stay: The number of days between admission and discharge in residents who were discharged. Data include only newly-admitted residents admitted towards the beginning of the study period (that is, between 20 March 2008 and 1 July 2009), and discharged before 30 September 2012. Breaks from residential aged care of a month (28 days) or less were treated as continuous admissions.

Complex health care domain: ACFI care domain with questions on time needed to assist with medication management, and information on provision of 18 complex health care procedures.

Confidence interval: A range of values used to describe the uncertainty around an estimate. Generally speaking, confidence intervals describe how different the estimate could have been if the underlying conditions stayed the same but chance had led to a different set of data. Confidence intervals are calculated with a stated probability that is commonly 95%; using this probability, there is a 95% chance that the confidence interval contains the true value.

Diagnosis of depression: In this report, a person was defined as having a diagnosis of depression if a medical diagnosis (or provisional diagnosis of depression) was completed or reconfirmed in the last 12 months and recorded in Question 10 of the ACFI or code 550A in the *Mental and behavioural diagnosis* section, or one was being sought. Because some people with code 550A in the *Mental and behavioural diagnosis* section had bipolar or other mood disorders rather than depression, only residents with CSD scores indicating symptoms of depression were analysed.

High care and low care residents: Overall care needs level was defined according to the rules as of 1 January 2010 (DoHA 2009c).

Newly-admitted residents: Residents admitted to permanent aged care for the first time between 2008 and 2012.

Physical behaviours: In the ACFI, physical behaviour refers to physical conduct by a resident that is threatening and has the potential to physically harm another person, visitor

or member of staff or property (biting, grabbing, striking, kicking, pushing, scratching, spitting, throwing things, sexual advances, chronic substance abuse behaviours); socially inappropriate behaviour that impacts on other residents (inappropriately handling things, inappropriately dressing/disrobing, inappropriate sexual behaviour, hiding or hoarding, consuming inappropriate substances); or being constantly physically agitated, (always moving around in seat, getting up and down, inability to sit still, performing repetitious mannerisms).

Prevalence: the percentage of people with a particular condition at a specific point in time. Period prevalence is the percentage of people with a particular condition over a specific period of time.

Symptoms of depression: In this report, residents with a CSD score of at least 9 are referred to as residents with symptoms of depression. The ACFI uses this cut-off, which has been validated as most consistent with the ICD-10 definition of depression (Barca 2010). As per the ACFI user guide, mild symptoms are defined as a score of 9–13, moderate symptoms as a score of 14–18, and severe symptoms as a score of 19–38. In ICD-10-AM (NCCH 2008), depression is represented as two categories, depressive episodes (code F32) and recurrent depressive disorders (code F33).

Verbal behaviours: In the ACFI, verbal behaviour refers to a verbal refusal of care; verbal disruption (not related to an unmet need); paranoid ideation that disturbs others; or verbal sexually inappropriate advances directed at another person, visitor or member of staff.

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Supplementary material

The information and data included in this report is based on the *2009 Aged Care Funding Instrument (ACFI) answer appraisal pack* (DoHA 2009a), which is available on the Department of Health and Ageing website. Please note this is not the current ACFI answer appraisal pack; please refer to the Department of Health and Ageing website for the most current version. The CSD is available as part of the *Aged Care Funding Instrument (ACFI) assessment pack* (DoHA 2007) and is available on the Department of Health and Ageing website.

The following supplementary tables are also available on the AIHW website:
<<http://www.aihw.gov.au/aged-care>>.

- Table S1: Newly-admitted residents for whom a CSD assessment was not undertaken, by reason for not undertaking a cognitive assessment (PAS-CIS), 20 March 2008–31 August 2012
- Table S2: Depression symptoms of newly-admitted residents, by CSD score, 20 March 2008–31 August 2012
- Table S3: Permanent aged care residents, age-specific rates of depression symptoms and diagnosis of depression, by depression symptom severity and sex, 30 June 2012 (per cent)
- Table S4: Age-standardised period prevalence rates of depression symptoms and diagnosis of depression in newly-admitted residents, July 2008–June 2012 (per cent)
- Table S5: Indigenous status of newly-admitted residents, by depression symptom severity, 20 March 2008–31 August 2012 (age-standardised rate per 100)
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- Table S7: Remoteness of newly-admitted residents, by depression symptom severity, 20 March 2008–31 August 2012 (age-standardised rate per 100)
- Table S8: Country of birth and preferred language of newly-admitted residents, by depression symptom severity, 20 March 2008–31 August 2012 (age-standardised rate per 100)
- Table S9: Discharge destination after the first continuous admission of newly-admitted residents, by depression symptom status and sex, 20 March 2008–30 June 2009 (per cent)
- Table S10: Most common combinations of care needs among newly-admitted residents, by depression symptom status, 20 March 2008–31 August 2012 (per cent)
- Table S11: Verbal and physical behaviour ratings of newly-admitted residents, by combination of depression symptom status and other mental and behavioural diagnoses, 20 March 2008–31 August 2012 (per cent)
- Table S12: Characteristics of newly-admitted residents with symptoms of depression, by diagnosis status, 20 March 2008–31 August 2012 (age-standardised rate per 100)
- Table S13: Newly-admitted residents who were reappraised, by gap between first and second appraisal and depression symptom severity, 20 March 2008–30 June 2009 (per cent)

Related publications

Other AIHW publications on residential aged care in Australia can be downloaded for free from the AIHW website: <<http://www.aihw.gov.au/aged-care>>. The website also includes information on ordering printed copies.

The following AIHW publications might be of particular interest:

- AIHW 2011. Dementia among aged care residents: first information from the Aged Care Funding Instrument. Aged care statistics series no. 32. Cat. no. AGE 63. Canberra: AIHW.
- AIHW 2012a. Residential aged care in Australia 2010–11: a statistical overview. Aged care statistics series no. 36. Cat. no. AGE 68. Canberra: AIHW.
- AIHW 2012b. Younger people with disability in residential aged care: 2010–11. AIHW bulletin no. 103. Cat. no. AUS 155. Canberra: AIHW.

Entry into residential aged care can be a challenging experience and the presence of depression can add to this challenge. This report provides the first in-depth review of available administrative data to explore the prevalence and characteristics of people with symptoms of depression in residential aged care. In 2012, over half (52%) of all permanent residential aged care residents had symptoms of depression. Between 2008 and 2012, residents admitted to care for the first time who had symptoms of depression were more likely to have high care needs, and were more likely to have behaviours which impacted on care needs.