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Mental Health And Cognitive Function

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6

Mental Health And Cognitive Function

Key findings

- Depression is common among older adults in Ireland, with 10% of the population reporting clinically significant depressive symptoms with a further 18% reporting 'sub-threshold' levels of depression.
- Anxiety is more common than depression among older adults; 13% report clinically significant anxiety symptoms while 29% report sub-threshold levels of anxiety.
- There is evidence of under-diagnosis and hence under-treatment of depression and anxiety; 78% of older adults with objective evidence of depression do not report a doctor's diagnosis of depression. Similarly, 85% of older adults with objective evidence of anxiety do not report a doctor's diagnosis of anxiety.
- Depression is associated with disability. Nearly two-thirds of older adults with depression have a longstanding illness or disability compared to one-third of people who are depression free.
- Depression is associated with increased medication use. Of people aged 75 and over with depression, 56% are taking five or more medications compared to 36% of adults without depression.
- Older adults with depression have extremely low rates of labour force participation. Of adults aged 50-64 without depression, 60% are in employment compared to 30% of older adults with depression.
- Health service utilisation is increased in people with depression. Depressed adults aged 75 and over have an average of 7 visits to their GP in the past year compared to an average of 4 visits among the non-depressed older population.
- Cognitive impairment rises sharply with age. Of adults aged 80 and over, 35% have cognitive impairment compared to 4% of adults aged between 50 and 64.
- There was a high level of memory impairment in the sample, particularly in the older groups. Of adults aged 80 and over, 42% forgot to carry out an action they had earlier been instructed to perform raising concerns about activities such as remembering to take medication, pay bills or take safety precautions.

6.1 Introduction

6.1.1 Mental health

The promotion and protection of good mental health in old age is becoming a major societal concern. Good mental health is associated with greater economic success, better social relationships and reduced risk of physical illness. In addition it has a significant impact on a person's performance in the labour market. Individuals with poor mental health are less attached to the labour force, work fewer hours, lose more work days, and earn lower wages (1).

In Ireland, estimates suggest that the overall economic cost of mental health problems is €3 billion per annum; only cardiovascular disease is likely to contribute more to the overall burden of illness. Mental health care budgets have historically been determined on the basis of past precedent and political judgement rather than on the basis of an objective measure of population health needs (2). That is still the case, in part because ongoing accurate information on prevalence is not always available to inform resource allocation. Against this background this chapter reports on the prevalence of common mental health disorders in older adults and variations in prevalence between groups defined by a range of health, social and economic characteristics that have been previously associated with adult psychiatric morbidity.

6.1.2 Cognitive function

Cognitive function refers to an individual's perceptions, memory, thinking, reasoning and awareness. Along with physical decline, decline in cognitive function is a hallmark of ageing and is predictive of mortality (3). Independence in later life is as much determined by cognitive ability as by physical ability (4). Among older adults a broad spectrum of cognitive capability exists with dementia at one extreme and normal cognitive function at the other. Adequate cognitive functioning is required to perform simple activities of daily living such as dressing and bathing and more complex tasks such as managing money, paying bills and taking medications. Cognitive function also affects an individual's ability to work and plays a role in retirement planning and decisions around pensions and savings. The estimated cost of care for dementia in the UK today exceeds that of cancer, stroke and heart disease combined (5). Therefore, modifiable risk factors and early interventions to prevent cognitive decline and dementia are key priorities for policy-makers and for societies.

Despite its importance, the implications of declining cognitive functioning on older persons' daily lives are complex and not well understood. One reason is the lack of adequate data sources from which to derive population-based estimates of the prevalence and consequences of cognitive impairment. With an anticipated exponential expansion of the population that will develop dementia and the resulting costs to society, it is increasingly important to investigate and understand the mechanisms that promote optimal cognitive function in old age. This chapter

describes variation in cognitive function between age groups and between men and women. In addition the effect of education and the association between cognitive performance, employment and activities of daily living are explored. Over subsequent waves TILDA's capacity to identify determinants of successful cognitive ageing will inform prevention strategies to ensure optimal health and to prevent or delay cognitive impairment in old age.

6.2 Mental health

6.2.1 Measures of mental health

Measures of mental health presented in this chapter include self-rated emotional health, diagnosed mental illness and measures of symptomatic anxiety and depression, the most common mental health disorders affecting older people. Specifically:

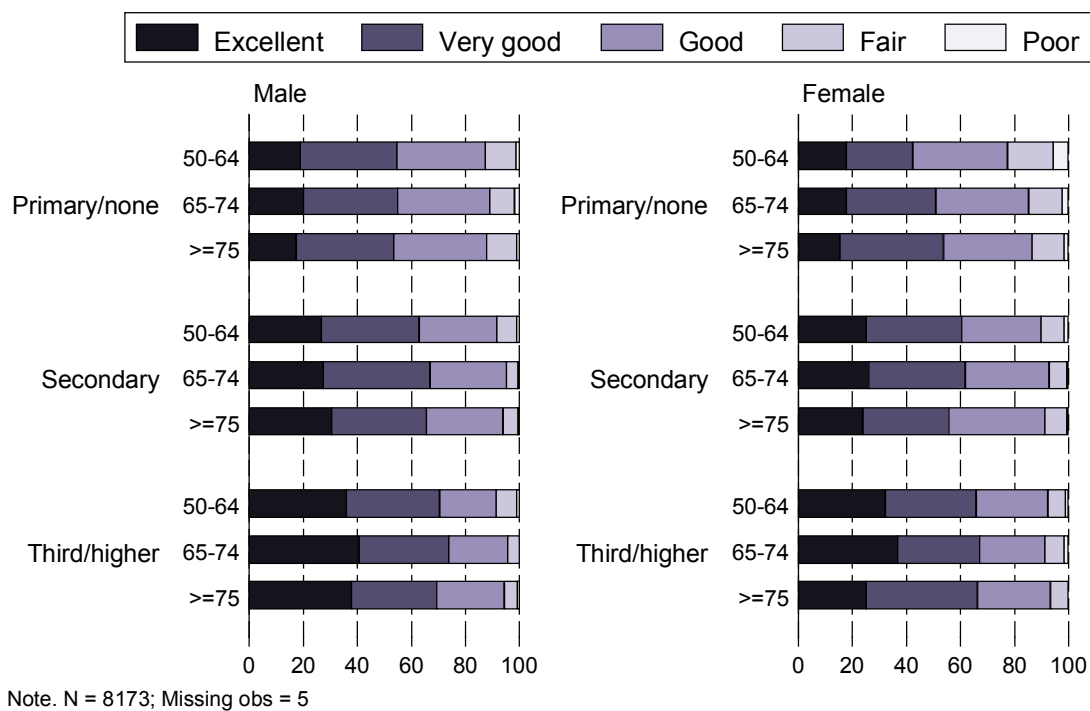
- Respondents rated their own emotional health directly using a global rating of emotional health as excellent, very good, good, fair, or poor.
- For diagnosed mental illness, respondents were asked whether a doctor had ever told them that they had any emotional, nervous or psychiatric problems.
- Center for Epidemiologic Studies Depression Scale (CES-D) - The 20 item CES-D scale (6) was administered during the CAPI and was used to estimate the prevalence of depression. The CES-D measures the degree to which respondents have experienced a wide variety of depressive symptoms within the past week. Each of the 20 items is measured on a four point scale leading to a total score of 60. A cutoff score of ≥ 16 is used to determine clinically significant (case level) depressive symptoms. Case level is indicative of depressive symptomatology. While the categorisation of specific subtypes and severity levels of depression is important for diagnostic purposes in older adults, it is increasingly important to recognise that any depressive symptoms that impair health, cognition or activities of daily living are clinically significant. This approach is especially relevant in older adults whose cognition and functional ability may be seriously impaired by a relatively small number of depressive symptoms. For this reason sub-threshold symptom levels of depression are also presented in this report. In line with previous literature these are defined as those respondents who reported between 8-15 symptoms on the CES-D (7).
- Hospital Anxiety and Depression Scale –Anxiety subscale (HADS-A) – This seven item scale was included in the self-completion questionnaire to measure current anxiety symptomatology. It generates a total score of 21. Borderline anxiety is defined as a score between 8-10 while a cutoff score ≥ 11 is used to determine clinically significant (case level) anxiety.

6.2.2 Self-rated mental health

Self-rated mental health is useful for monitoring the general mental health of the population. It is associated with a wide range of mental morbidity measures and captures individuals' perceptions of mental health, which have implications for service use and treatment compliance.

Overall, 90% of the older population rate their emotional health as excellent (25%), very good (35%) or good (30%), however a substantial proportion (11%) rate their emotional health as fair or poor (Table 6.A1). Women tend to report lower levels of emotional health compared to men and no difference in self-rated emotional health across age groups is observed (Figure 6.1). Higher education is associated with better self-rated emotional health although the effect is not as great as was observed for self-rated physical health in chapter 5. Of adults aged ≥ 75 years with third level education, 94% rate their health as excellent, very good or good compared to 86% of those with primary or no education.

Figure 6.1: Self-rated emotional health by age, sex and education



6.2.3 Depression

Depression is the most prevalent mental health condition in the older population and a leading cause of disability. Depression in late life is a recognised phenomenon but research suggests that depression is both under-recognised and under-treated

in older adults. Not only has depression a profound impact on quality of life but it is associated with an increased risk of mortality from suicide and vascular disease (8). Although much research has been undertaken into depressive disorders, most of the literature focuses on younger adults. The effects of ageing on the brain, the physiological and behavioural consequences of depression, and the impact of other diseases common in the elderly, make late-life depression a distinct entity requiring its own body of research.

6.2.3.1 Prevalence of depressive symptoms and diagnosed depression

Based on the CES-D, 10% of respondents reported clinically significant depressive symptoms while 18% reported sub-threshold depression. In contrast only 5% of respondents reported a doctor's diagnosis of depression. These figures highlight the under-diagnosis of depression in older Irish adults (Table 6.A2). Only 22% of respondents who were depressed according to the CES-D reported a doctor's diagnosis of depression. An unmet need for mental health services may, therefore, be experienced by up to 78% of adults aged 50 and older with depression.

This large unmet need for diagnosis and treatment reflects the nature of the disorder in older adults. Depression occurs in a complex medical and psychosocial context where signs and symptoms are frequently attributed to "normal ageing", vascular disease, dementia, or any of a host of other age-associated afflictions. Psychosocial factors such as loss, combined with declines in physical health and sensory impairment, can also divert attention from a diagnosis of depression. In addition older people are less likely to report sadness, depressed mood or worthlessness, which are often considered hallmarks of the diagnosis of depression.

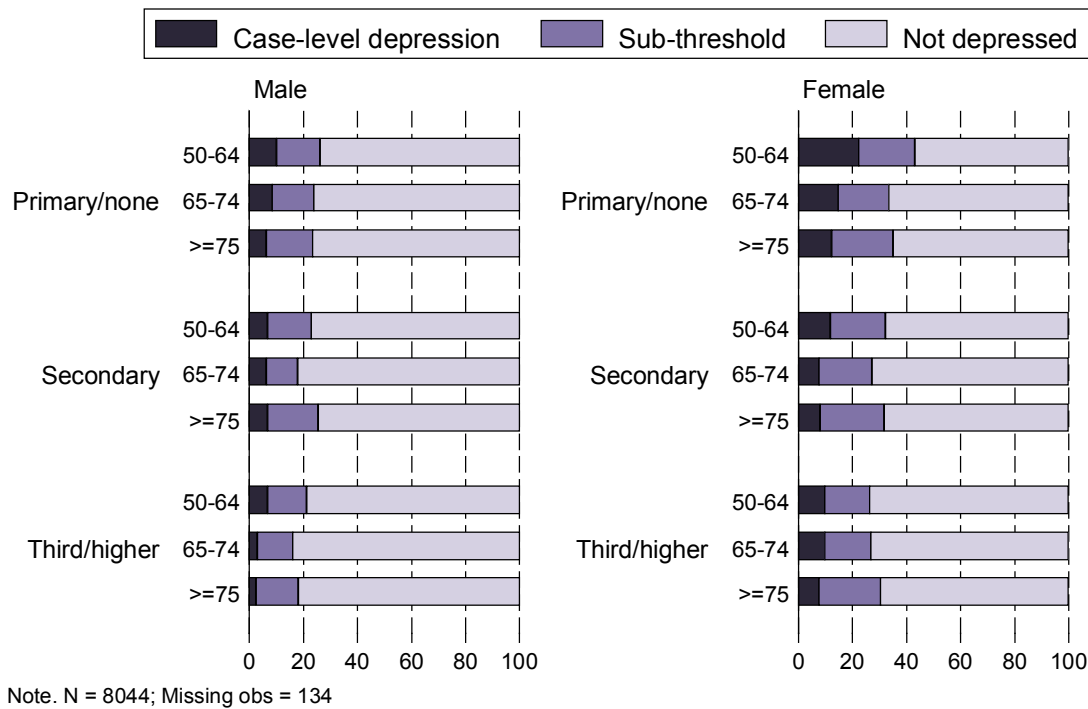
6.2.3.2 Age, sex, education and wealth

One of the most consistent findings in psychiatric epidemiology is the higher prevalence of depression among women. Rates of depression have been consistently shown to be higher in older women than in older men, but the sex difference is narrower in older people compared to the twofold difference seen across the rest of the adult lifespan. The relationship with age is also complex. Results from international studies show that the prevalence of major depression appears to diminish as people get older, however the incidence of 'sub-threshold' or 'minor' depression increases steadily with advancing age and rises steeply among those older than 80 years (9, 10).

Our results show that women are much more likely than men to suffer from depression (Table 6.A2). Overall, 13% of women reported case level depression, compared with 7% of men. Similarly, 20% of women reported sub-threshold depression, compared with 15% of men. The prevalence of case level depression was highest in the 50-64 year age group (11%) and decreases with advancing years, yet the prevalence of sub-threshold depression was highest in the oldest age group

(21%). As previously mentioned this pattern is consistent with findings from other international studies. Figure 6.2 presents the prevalence of depression by sex, age and education. For men and women in all age categories low education is associated with higher prevalence of depression. An association with wealth is also observed. Of adults in the lowest wealth quartile, 17% have case level depression compared to 4% in the highest wealth quartile (Table 6.A3).

Figure 6.2: Prevalence of depression by sex, age and education



6.2.4 Depression and disability

There is a strong bi-directional relationship between depression and disability. Current evidence suggests that late-life depression promotes disability, and that disability increases the risk of depression. Depression leaves older adults vulnerable to disability regardless of the presence of medical illness, and depression is projected to be the second leading cause of disability worldwide by 2020 (11).

Respondents in TILDA were asked whether they have any longstanding illness, disability or infirmity that has troubled them or that is likely to affect them over a period of time (including mental health problems). If the answer was yes, they were then asked whether the illness limited their activities in any way. From the answers to these questions a variable was derived to indicate the presence of a limiting longstanding illness.

Table 6.A4 shows the prevalence of disability by depression and sex. A clear association is observed. Nearly two-thirds of respondents with depression had a longstanding illness or disability compared to one-third of people who were depression free. The association between depression and activity limitation is stronger than the association with the presence of disease or disability; 52% of adults with case level depression had a limiting longstanding illness compared to 17% of people without depression. The association between depression and disability is similar in men and women. The absolute number of people with a disability in Ireland is likely to rise as the number of older people increases, therefore, understanding the causal link between depression and disability is important and a key focus of future waves of the study. This information will have considerable implications for health and social care providers.

6.2.5 Depression and sensory impairment

The prevalence of vision or hearing loss is expected to increase as the population ages. A strong association has been found between loss of vision and depression, with less consistent or weaker relationships between hearing loss and depression (12). TILDA respondents rated their vision (using glasses or contact lens) and hearing (with or without hearing aid) directly using a rating of excellent, very good, good, fair, or poor.

Figure 6.3 presents the association between depression, sensory function and age. A substantially larger proportion of persons with visual and hearing impairment experience depression than is observed in the general population. Of people with poor eyesight, 32% had case level depression compared to 6% of people with excellent vision. A similar pattern is seen for hearing. Of people with poor hearing, 26% had case level depression compared to 8% of people with excellent hearing.

6.2.6 Depression and health behaviours

6.2.6.1 Exercise

Several studies have revealed a direct relationship between physical inactivity and higher levels of depressive symptoms, however, many of these studies have focused on younger adults. The importance of studying these variables in older adults is highlighted by data suggesting age differences in the relationship between exercise and depression (13). Chapter 5 provides detail on how physical activity was assessed in TILDA.

Figure 6.4 presents the prevalence of physical activity by depression, age and sex. In all age groups a strong association between depression and low physical activity is observed. Overall, 47% of older adults with case level depression had low physical activity levels. This compares to 29% in non-depressed older adults (Table 6.A5). Depressed older women are more physically inactive than depressed older men.

Figure 6.3: Depression by sensory function

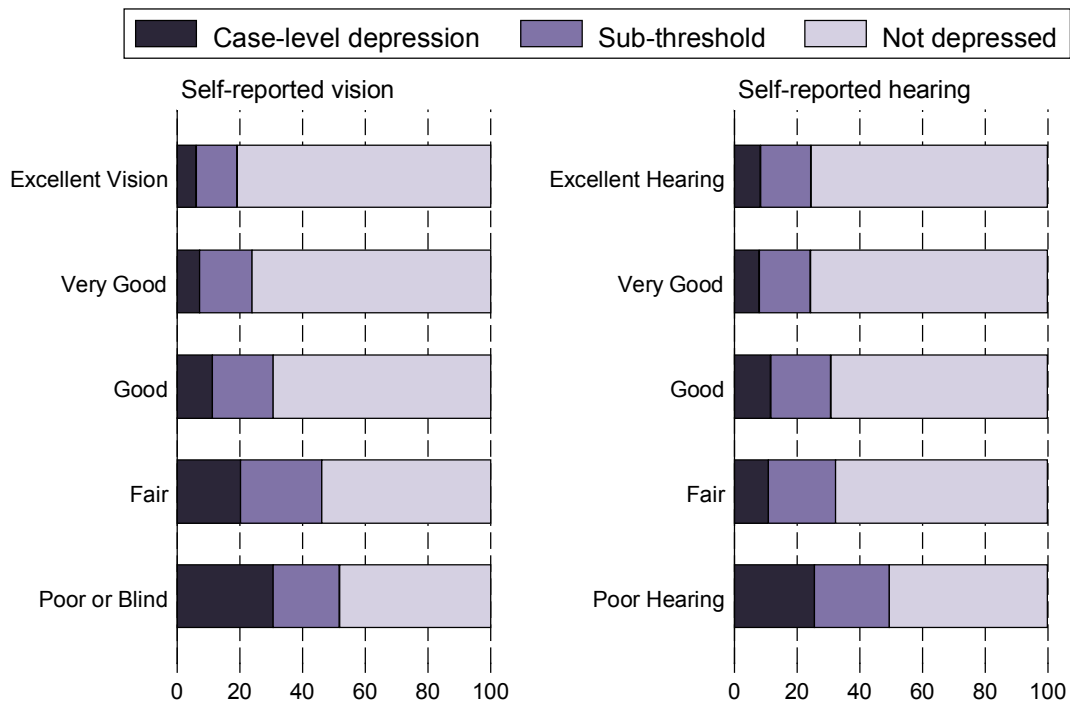
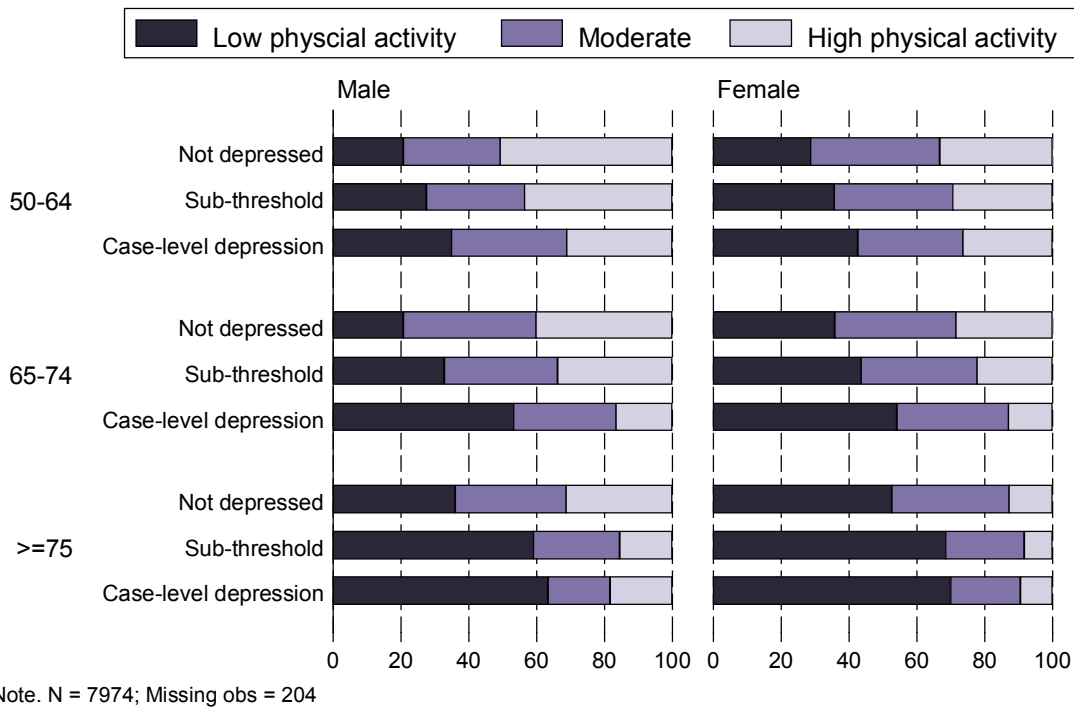


Figure 6.4 Physical activity by depression, age and sex



Although these associations do not prove causation, they suggest that increased physical activity is associated with lower levels of depressive symptoms among older adults. Future waves of TILDA will provide insights into the potential causal role of physical activity in reducing depression. The type, frequency, intensity, and duration of exercise that is most effective in treating depression in older adults is as yet unknown, so further research in this area is important. In addition, the in-depth assessment of psychological and physiological factors in TILDA will be invaluable in identifying mediators of the relationship between exercise and depression.

6.2.6.2 Sleep

Sleep disturbance is known to be a risk factor for depression among older adults (14).

Research on sleep has traditionally examined the effects of sleep quantity; however, a more recent distinction additionally incorporates sleep quality. Prospective studies have shown that insomnia, which was previously conceptualised as a symptom of depression, often precedes the onset of depression. The wider consequences of poor sleep quality include increased risk of falls, poor cognitive function and decreased quality of life (15, 16).

To examine sleep quality in TILDA, respondents were asked how often they had trouble falling asleep and how often they had trouble with waking up too early and not being able to fall asleep again. Response options were most of the time, sometimes, rarely or never. Table 6.1 presents the prevalence of sleep disruption by age. Our data suggest that ageing is not necessarily associated with poor or disrupted sleep as similar levels of sleep disruption are reported in all age groups.

Table 6.1: Prevalence of sleep disruption by age

	Trouble falling asleep		Trouble with waking up too early	
	%	(95% CI)	%	(95% CI)
50-64	10.7	(9.7-11.7)	16.3	(15.1-17.5)
65-74	11.5	(10.1-13.0)	16.3	(14.6-18.1)
>=75	11.5	(9.8-13.6)	17.3	(15.1-19.8)
Total	11.0	(10.3-11.8)	16.5	(15.5-17.5)

Depressed older adults have far greater disruption in sleep quality than the general population. Of respondents with depression, 33% had trouble falling asleep compared to 7% without depression. Similarly, 38% of respondents with depression had trouble waking up too early compared to 12% without depression (Table 6.A6). It is currently not possible to examine the direction of association for any of the

observations made however, data from future waves of the study will allow us to examine these associations in greater depth and identify causal relationships that are potentially modifiable.

6.2.7 Depression, polypharmacy and falls

As discussed in Chapter 5, polypharmacy is defined as the use of five or more drugs, including prescribed, over-the-counter, and complementary medicines. Older adults with depression are at increased risk of polypharmacy owing to the presence of comorbid medical conditions. The risk of falls is increased with polypharmacy (see Chapter 5) and depression. This association is partly due to the comorbidity for which the multiple medications are prescribed.

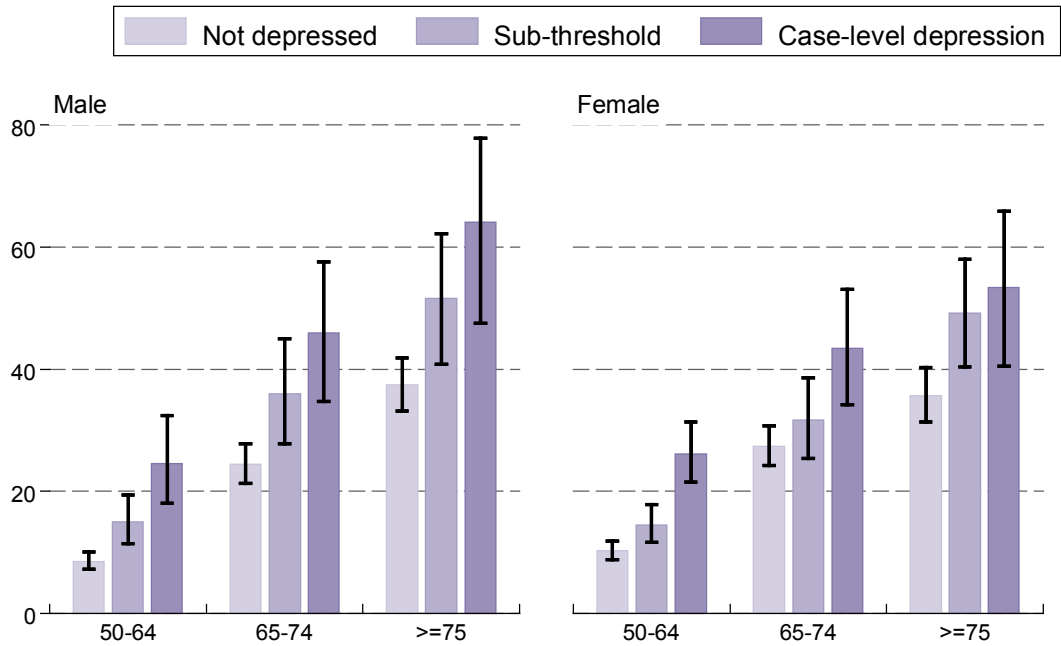
Figure 6.5a presents the association between polypharmacy, depression, age and sex. Regardless of age, older adults with depression have higher rates of polypharmacy compared to older adults who are depression free. Of people aged 75 and over with case level depression, 56% are taking five or more medications compared to 36% of adults without depression. The association between falls, polypharmacy, depression and age can be seen in Figure 6.5b. Overall 36% of respondents with both case level depression and polypharmacy fell in the past year compared to 25% of respondents with case level depression and no polypharmacy. Future waves of the study will explore whether it is the specific drugs prescribed to treat depression (e.g. psychotropics) or polypharmacy *per se* that increase the risk of falls, with the ultimate aim of identifying modifiable risk factors for falls in depressed older adults.

6.2.8 Economic consequences of depression

6.2.8.1 Employment

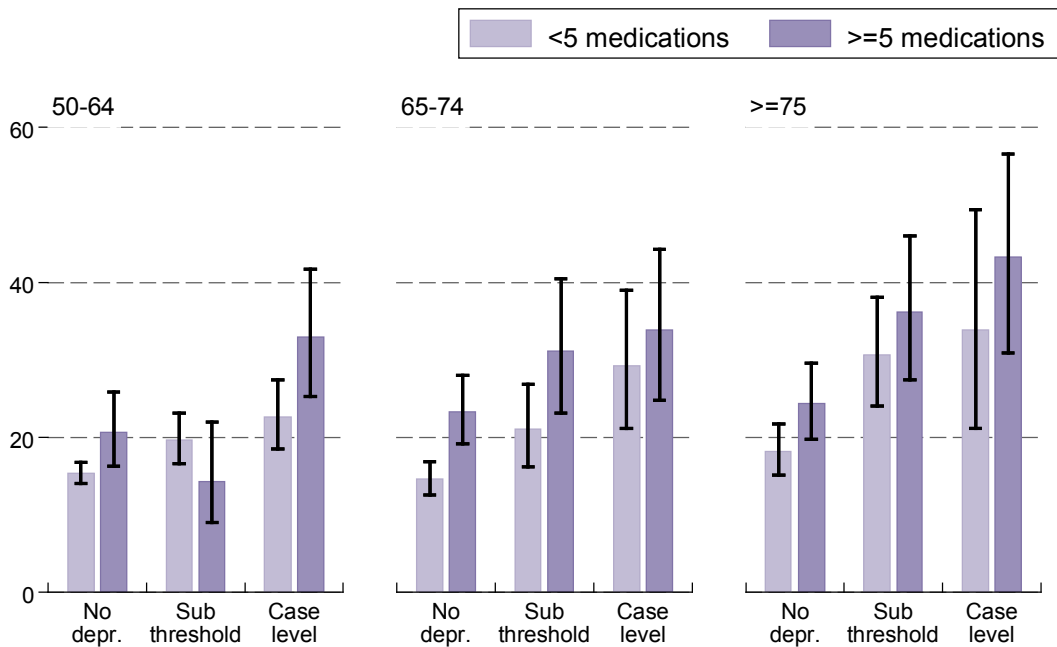
A major economic consequence of poor mental health is the effect on labour market participation. This is reflected in lost employment, absenteeism, lost productivity and premature retirement. Figure 6.6 presents the association between employment, depression and age. Respondents with depression have extremely low rates of labour force participation compared to the non-depressed older population. In the pre-retirement age category (those aged 50-64) 60% of respondents without depression are in employment compared to 30% of respondents with case level depression (Table 6.A7). While the direction of this effect is difficult to ascertain using this cross-sectional data, it is likely that a bi-directional association exists with depression being more likely to lead to removal from the labour market and continuation of employment into old age protecting against depression.

Figure 6.5a: Polypharmacy (regularly taking five or more medications) by depression, age and sex



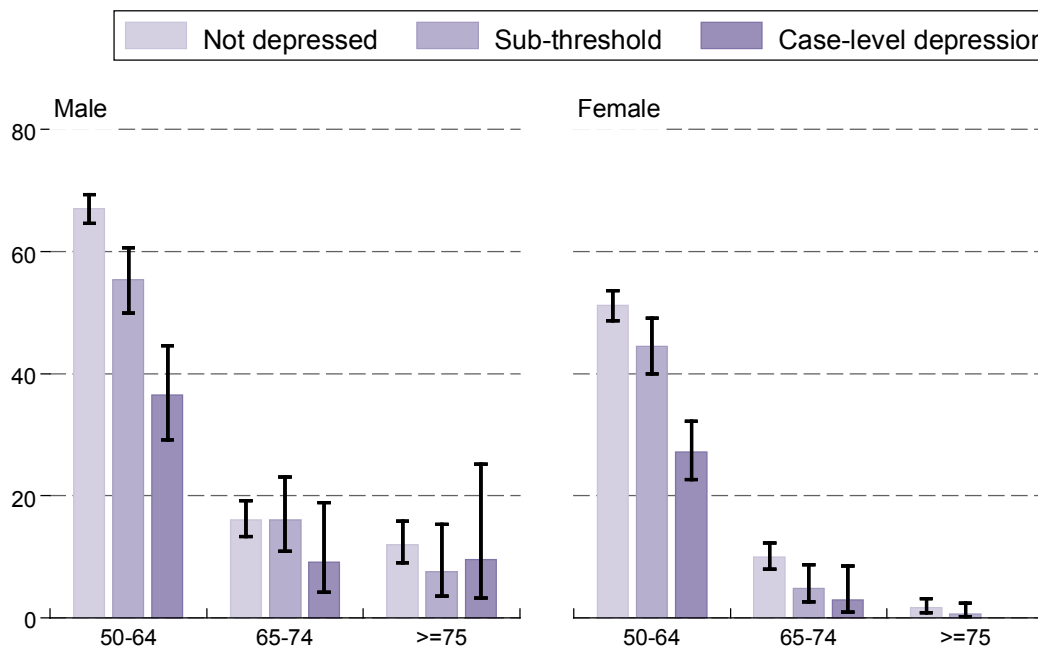
Note. N = 7968; Missing obs = 210; Error bars correspond to 95% confidence intervals

Figure 6.5b: Percentage of the population who fell in the last year by depression, polypharmacy and age



Note. N = 7967; Missing obs = 211; Error bars correspond to 95% confidence intervals

Figure 6.6 Percentage of the population currently at work by depression, age and sex



Note. N = 8047; Missing obs = 131; Error bars correspond to 95% confidence intervals

6.2.8.2 Depression and health service utilisation

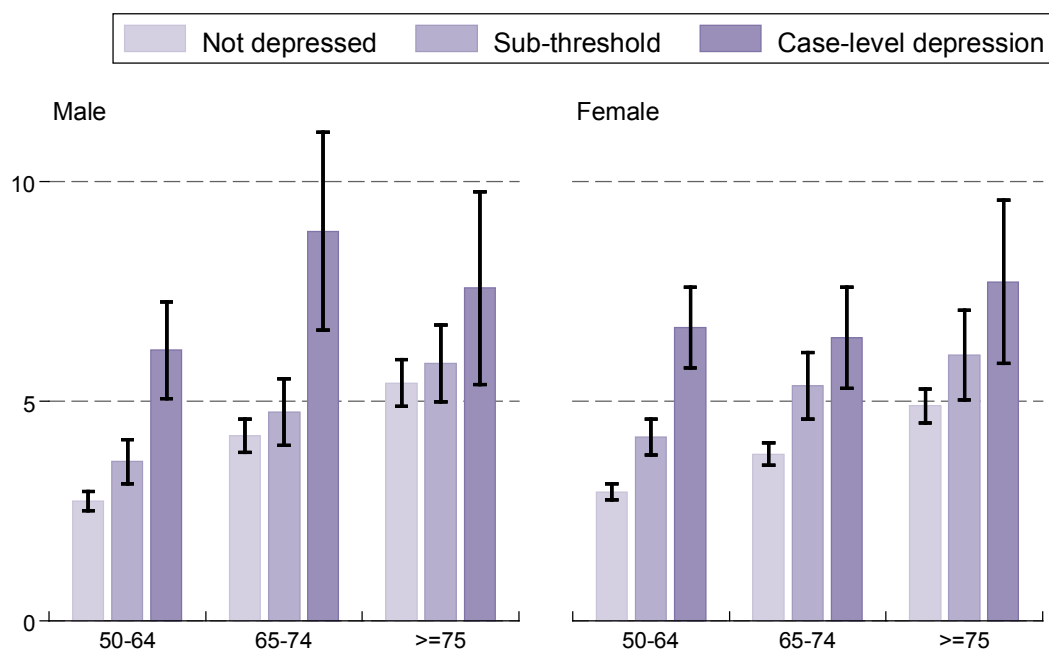
Depression is associated with increased health service utilisation in older adults (17). In all age groups utilisation of GP services is far greater among depressed adults (Figure 6.7). Respondents aged 75 and over with case level depression had an average of 7 visits to their GP in the past year. This compares to an average of 5 visits among the non-depressed older population (Table 6.A8). The opportunity for increased recognition and treatment of depression by primary care providers, therefore, exists given the high number of times depressed older adults attend their GP. As depression is often under-diagnosed, patients may continue to visit their GP without getting adequate treatment for their problem. Over utilisation of health services may therefore be a consequence and an indicator of undiagnosed depression.

6.2.9 Anxiety

6.2.9.1 Prevalence of anxiety symptoms and diagnosed anxiety

Anxiety is a general term for several disorders that cause nervousness, fear, apprehension, and worrying. These disorders affect how people feel and behave, and they can manifest as physical symptoms. Mild anxiety is vague and unsettling, while severe anxiety can be extremely debilitating, and have a serious impact on daily life. Research on the course and treatment of anxiety in older adults lags behind that of other mental conditions such as depression and Alzheimer's disease, yet recent evidence suggests that anxiety is at least as common as depression in older adults (18).

Figure 6.7: GP visits by depression age and sex



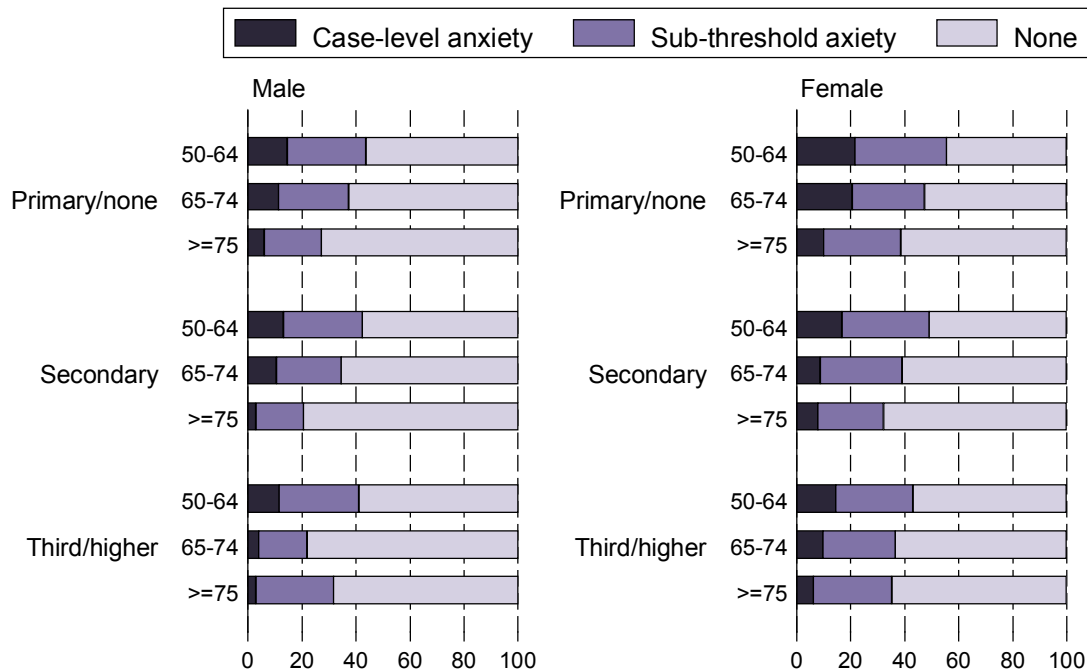
Note. N = 8037; Missing obs = 141; Error bars correspond to 95% confidence intervals

Figure 6.8 presents the prevalence of anxiety by age, sex and education. Overall, 13% of respondents experienced case level anxiety symptoms while 29% reported sub-threshold levels of anxiety. In contrast only 5% of respondents reported a doctor's diagnosis of anxiety suggesting a marked under-diagnosis of anxiety in older Irish adults. Only 15% of people who were classified as anxious according to the HADS-A reported a doctor's diagnosis of anxiety.

6.2.9.2 Age, sex, education and wealth

Similar to the patterns for depression, women are more likely than men to suffer from anxiety (Table 6.A9). Overall, 15% of women reported case level anxiety, compared with 11% of men. Similarly, 30% of women reported sub-threshold anxiety, compared with 27% of men. The prevalence of case level and sub-threshold anxiety was highest in the 50-64 year age group and decreases with advancing years. This is different to the pattern observed for depression where the prevalence of sub-threshold depression was highest in people aged 75 and older. For men and women in all age categories low education is associated with higher prevalence of anxiety (Table 6.A10). An association with wealth is also observed. Of adults in the lowest wealth quartile 17% have case level anxiety compared to 9% in the highest wealth quartile (Table 6.A11).

Figure 6.8 Anxiety by age, sex and education



Note. N = 6031; Missing obs = 231

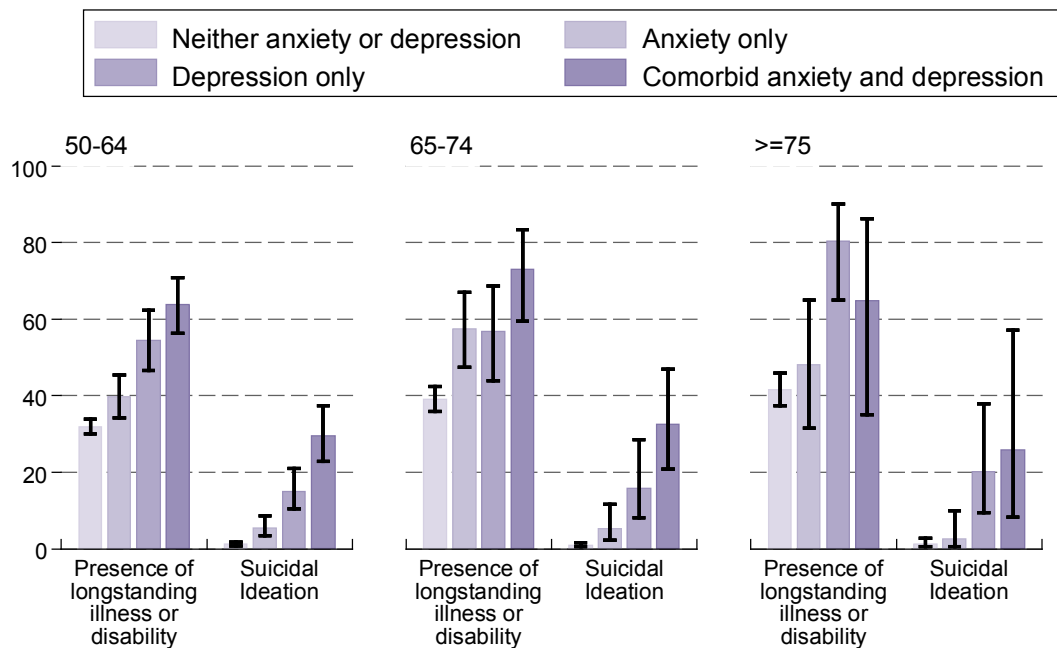
6.2.10 Anxiety and depression

There has been growing interest and concern about the high rates of co-occurring anxiety and depression (comorbidity), now clearly documented in both epidemiologic and clinical studies. The presence of comorbid depression and anxiety has a negative impact on prognosis, including elevated rates of suicide, greater severity of the primary disorder, greater impairments in social and occupational functioning, and poorer response to treatment (19).

The suicidal ideation indicator in TILDA is an item taken from the Euro-D scale (20). Respondents are asked 'in the past month, have you felt that you would rather be dead?'. Response options are: 'yes' participant has mentioned passive suicidal ideation versus 'no', no passive suicidal ideation mentioned.

Table 6.A12a and 6.A12b presents the prevalence of co-occurring anxiety and depression. Comorbidity is highly prevalent in the older Irish population. Of older adults with case level depression, 48% have co-occurring case level anxiety while 36% of people with case level anxiety have co-occurring case level depression. Figure 6.9 presents the association between suicidal ideation and disability by anxiety, depression and age. The additional risk associated with comorbidity can be clearly seen. Of people with both depression and anxiety, 66% have a longstanding illness or disability. This compared to 60% of people with depression only and 44% of people with anxiety only. The association is even more marked for suicide ideation. Of older adults with both depression and anxiety, 30% reported suicidal feelings, compared to 16% with depression and 5% with anxiety (Table 6.A13).

Figure 6.9: Disability and suicidal ideation by anxiety, depression and age



Note. N = 5935; Missing obs = 327; Error bars correspond to 95% confidence intervals

6.3 Cognitive function

Changes in cognitive function are common in normal ageing and occur across the life-span. Cognitive decline is characterised by impairments in memory and decision-making ability including planning, organisation and mental flexibility. As well as day-to-day difficulties, important decisions about retirement, health, housing and finances may also be compromised in cognitively impaired older adults. A full understanding of how individuals make the economic, social and lifestyle decisions associated with retirement requires an assessment of key aspects of cognitive function along with information about the factors that influence its maintenance or decline.

The cognitive processes that are examined in this chapter include learning and memory, executive function, and global cognitive function. Given the primacy of memory in age-related cognitive impairment, memory assessment comprises measures of both self-rated memory, immediate recall and prospective memory.

6.3.1 Measures of cognitive function

Self-rated memory: This measure provides an indication of whether the respondent is worried about their memory. Respondents are asked to rate whether their memory at the present time is excellent, very good, good, fair or poor.

Word-list learning: This is a test of verbal learning and recall, in which 10 common words are presented orally and the participant is asked to remember them. Recall is tested immediately after the words are presented.

Prospective memory: Sometimes referred to as 'remembering to remember', prospective memory concerns memory for future actions. Early in the cognitive assessment session, respondents were informed about an action that they should carry out at an appropriate time, later in the session. They were told that they would need to carry out the action without being reminded. The task was to remember to write their initials in the top left-hand corner of the page attached to the clipboard, when later handed the clipboard. When the appropriate point in the session was reached for the respondent to carry out the action, the interviewer waited for five seconds to see if the respondent performed the correct action without a prompt. If they failed to carry out the action spontaneously, the interviewer reminded them that they were going to do something, and recorded what the respondent then did. A correct response requires the respondent to carry out the correct action without being reminded.

Executive Function: Word-finding (verbal fluency) is a test of how quickly respondents can think of words from a particular category, in this case, naming as many different animals as possible in one minute. Successful performance on this test requires self-initiated activity, organisation and abstraction (categorising animals into groups such as domestic, wild, birds, dogs), and mental flexibility (moving to a new category when no more animals come to mind from a previous category).

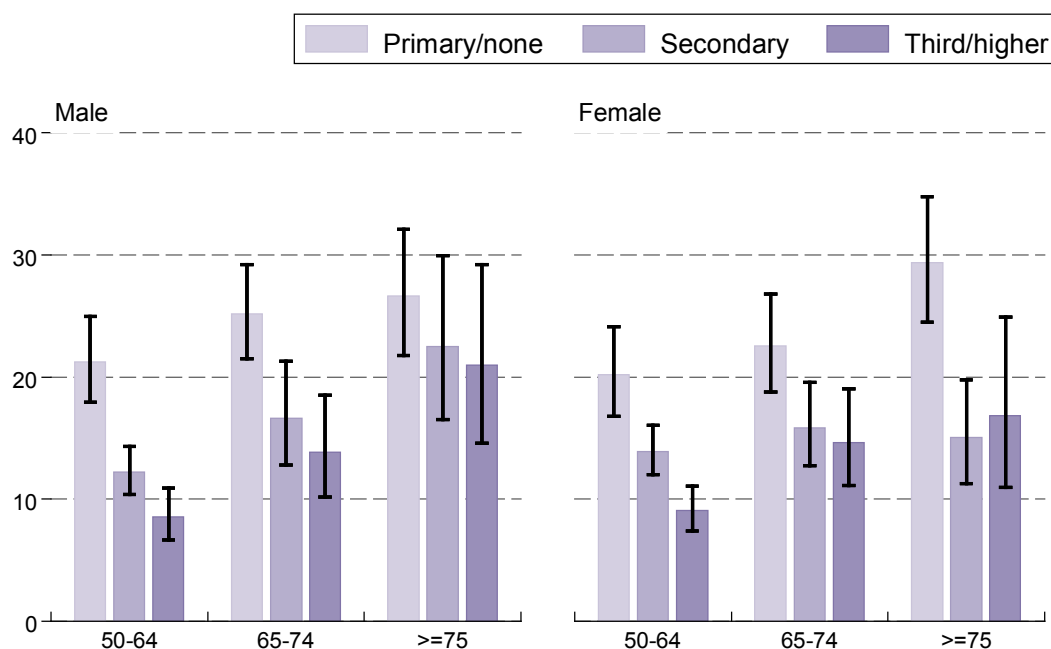
Global Cognitive Function: The mini-mental state examination (MMSE) is a brief 30-point test that is used to screen for cognitive impairment (21). It is commonly used in clinical practice to screen for dementia. It is also used to estimate the severity of cognitive impairment at a given point in time and to follow the course of cognitive changes in an individual over time. It assesses orientation, recall, attention, calculation language abilities and visuospatial ability.

6.3.2 Self-rated memory

Insight into one's own cognitive abilities is important as memory complaints in older adults predict future objective cognitive decline. Table 6.A14 presents self-reported memory by age and sex. Overall, 82% of people aged 50 and over perceive their memory as excellent (12%), very good (31%) or good (39%). 17% perceive their memory as fair (14%) or poor (3%). Self-reported poor memory increases with age and no difference in memory performance is reported between men and women. Low education is associated with poor memory. This association is most pronounced in the 50-64 year age group where 21% of older adults with primary or no education rated their memory as fair or poor compared to 8% of those with third level education (Table 6.A15). Wealth is associated with people's perception of their memory particularly in the oldest old. In the lowest wealth quartile 27% of people

aged 75 and over rated their memory as fair or poor compared to 11% in the highest wealth quartile (Table 6.A16)

Figure 6.10: Self-reported memory by age and sex



Note. N = 8171; Missing obs = 7; Error bars correspond to 95% confidence intervals

6.3.3 Word list learning

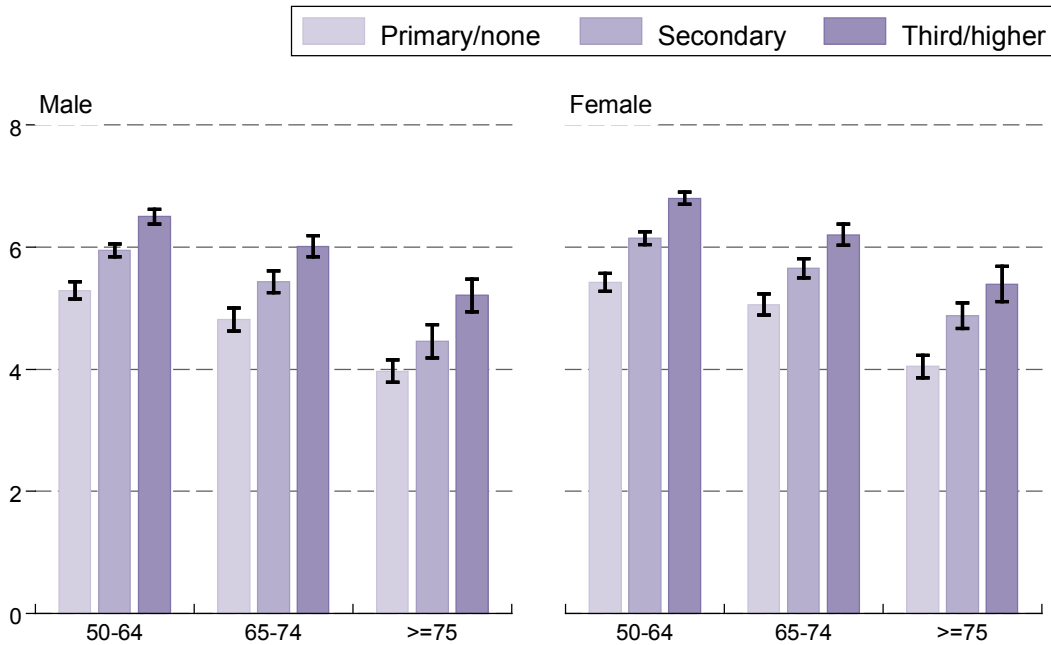
This task is important as it assesses people’s ability to remember events occurring in the past few minutes. Table 6.2 presents the mean number of words (out of a maximum of ten) recalled by age and sex. A marked age-related impairment of memory for the ten-word list is observed in men and women. Adults aged 50-59 on average remembered 2 more words than adults aged 80 and over. Older women have marginally better recall than older men.

Table 6.2: Mean number of words recalled by age and sex

	Male		Female		Total	
	Mean	95% CI	Mean	95% CI	Mean	95% CI
50-59	6.0	(5.9-6.1)	6.2	(6.1-6.3)	6.1	(6.0-6.2)
60-64	5.6	(5.5-5.8)	5.9	(5.8-6.1)	5.8	(5.7-5.9)
65-69	5.4	(5.2-5.5)	5.7	(5.5-5.8)	5.5	(5.4-5.6)
70-79	4.7	(4.6-4.9)	4.9	(4.8-5.0)	4.8	(4.7-4.9)
>=80	4.0	(3.7-4.2)	4.1	(3.9-4.3)	4.0	(3.9-4.2)
Total	5.5	(5.4-5.5)	5.6	(5.5-5.7)	5.5	(5.5-5.6)

Figure 6.11 shows the mean number of words recalled by age and education. In all age groups people with higher education have better immediate recall. Adults aged 75 and over with third level education have similar recall to adults aged between 50 and 64 with primary or no education.

Figure 6.11: Immediate recall (mean) by age and education



Note. N = 8153; Missing obs = 25; Error bars correspond to 95% confidence intervals

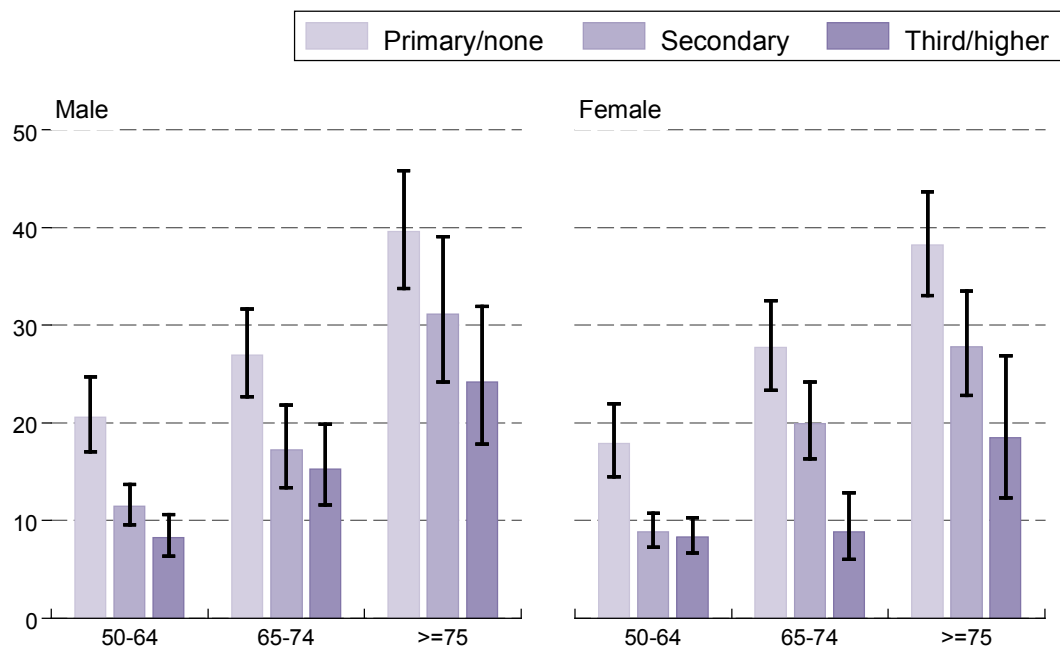
6.3.4 Prospective memory

Table 6.3 presents performance on the prospective memory task by age and sex. Age differences are particularly marked on the prospective memory test, which assesses the respondent's ability to remember to carry out an instruction given earlier in the session without being reminded. Adults aged 80 and over have a failure rate almost four times higher than adults aged 60 and under (42% versus 11%). Prospective memory is slightly worse in older men compared to older women.

Figure 6.12 shows the percent age of people who failed the prospective memory task by age, sex and education. In all age groups individuals with low levels of education performed worse on the prospective memory task. The association was most pronounced for those aged 80 and over, 45% of people with primary education failed the task compared to 26% of with third level education (Table 6.A17).

Table 6.3: Percentage who failed prospective memory task by age and sex

	Male		Female		Total	
	%	(95% CI)	%	(95% CI)	%	(95% CI)
50-59	12.5	(10.7-14.4)	10.3	(8.7-12.0)	11.4	(10.1-12.8)
60-64	15.0	(12.2-18.3)	12.0	(9.8-14.7)	13.5	(11.6-15.7)
65-69	20.8	(17.4-24.6)	17.8	(14.9-21.3)	19.3	(17.0-21.8)
70-79	27.0	(23.4-31.0)	26.4	(23.1-30.0)	26.7	(23.9-29.6)
>=80	41.3	(34.9-48.0)	41.9	(36.6-47.5)	41.7	(37.3-46.2)
Total	18.8	(17.2-20.4)	18.3	(16.8-19.8)	18.5	(17.3-19.8)

Figure 6.12: Prospective memory task (% failed) by age, sex and education

Note. N = 8174; Missing obs = 4; Error bars correspond to 95% confidence intervals

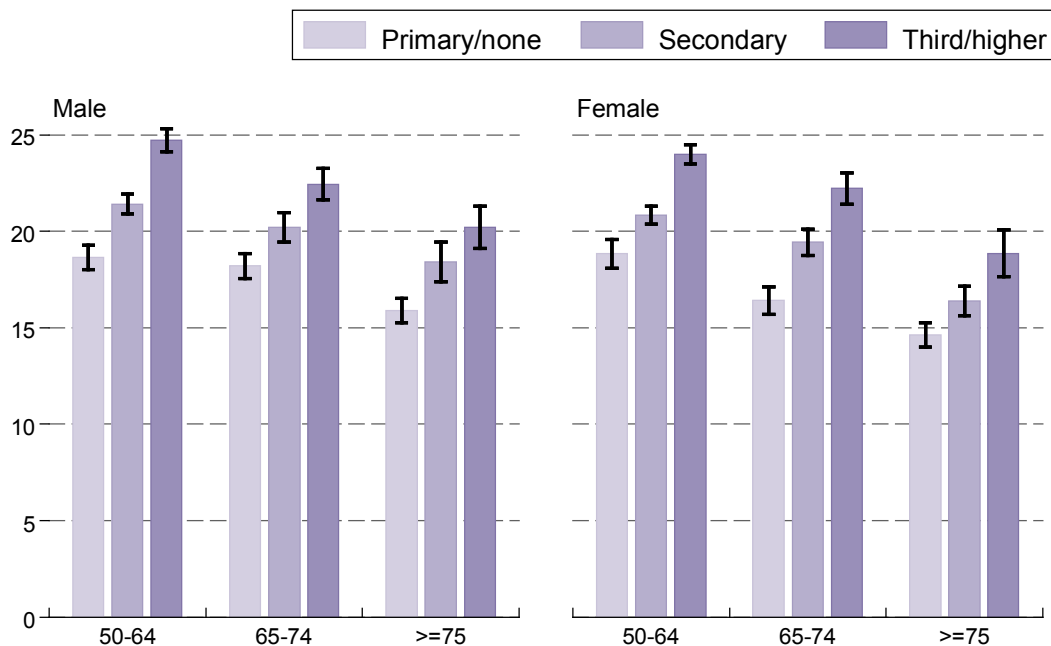
6.3.5 Verbal fluency

Verbal fluency tasks provide measures of a number of executive processes, including self-initiated activity, categorisation and mental flexibility. These processes regulate an individual's ability to organise thoughts and activities, prioritise tasks, manage time efficiently, and make decisions. The number of different animal names generated on the verbal fluency task ranged from 0 to 50, with an overall mean of 20. There was a large effect of age on fluency scores (Table 6.4). Adults aged 60 and under produced an average of 22 different animal names, compared to an average of 16 words in adults aged 80 and over. Verbal fluency decreases steadily with age in both men and women. Older men had better verbal fluency than older women (Table 6.4).

Table 6.4 Verbal fluency (mean number of animals named) by age and sex

	Male		Female		Total	
	Mean	95% CI	Mean	95% CI	Mean	95% CI
50-59	21.7	(21.2-22.1)	21.5	(21.1-21.9)	21.6	(21.2-22.0)
60-64	20.9	(20.3-21.5)	20.3	(19.8-20.8)	20.6	(20.1-21.0)
65-69	19.9	(19.3-20.6)	18.9	(18.2-19.5)	19.4	(18.9-19.9)
70-79	18.3	(17.8-18.8)	17.3	(16.8-17.8)	17.7	(17.3-18.1)
>=80	16.4	(15.6-17.1)	14.2	(13.6-14.9)	15.0	(14.5-15.6)
Total	20.3	(19.9-20.6)	19.3	(19.0-19.7)	19.8	(19.5-20.1)

Figure 6.13: Verbal fluency (mean) by age, sex and education



Note. N = 8133; Missing obs = 45; Error bars correspond to 95% confidence intervals

Figure 6.13 presents the mean number of animals named on the verbal fluency task by age, sex and education. In all age groups higher education was associated with better verbal fluency. The effect of education was consistent across all age groups. For example adults aged 80 and over with third level education generated 4 more words than adults of the same age with primary or no education (Table 6.A18).

6.3.6 Global cognitive function

Cognitive impairment (not dementia) has been receiving increased clinical and research attention during the last several years. Mild Cognitive Impairment (MCI) is a diagnosis given to individuals who have cognitive impairments beyond that expected for age and education, but that do not constitute a diagnosis of dementia.

It is considered to be the boundary or transitional stage between normal ageing and dementia. Although MCI can present with a variety of symptoms, when memory loss is the predominant symptom it is termed "amnesic MCI" and is a recognised risk factor for dementia (22).

TILDA employed the MMSE to assess global cognitive function and identify the presence of cognitive impairment in older adults. Scores on the MMSE range from 0 to 30, with scores of 26 or higher considered normal and scores of less than 15 indicating severe impairment. Here we define 'mild cognitive impairment' (MCI) as a score between 20 and 25, with 'moderate impairment' corresponding to a score less than 20.

People with known or suspected dementia were not recruited at baseline by TILDA thus as expected very few people are classified with moderate or severe cognitive impairment in our study. Table 6.5 presents levels of cognitive function by age and sex. The proportion with normal cognitive functioning is markedly reduced with age. For example, 96% of men aged 50-59 have normal function compared to 69% of men aged 80 and over. At all ages men and women had similar levels of cognitive impairment.

Figure 6.14 and table 6.A19 show the proportion of people who have cognitive impairment (MMSE<25) by age, sex and education. A marked association between cognitive impairment and low levels of education is observed. For example, 47% of adults aged 80 and over with primary education have cognitive impairment. This compares to just 17% of adults aged 80 and over with third level education. Although it is difficult to exclude all other explanations, this finding provides evidence toward the strong protective effect of education against cognitive impairment, an association which will be explored more fully in future TILDA analyses.

6.3.7 Cognitive impairment and employment

Cognitive function is important for a person's employment prospects, and it is possible that continuing employment past retirement age preserves cognitive function. The association between cognitive impairment and employment status is shown in Figure 6.15. Unemployed older adults performed worse on all measures of cognition. For example, 41% of adults aged 50-64 who are unemployed had poor recall compared with 31% of employed people of the same age (Table 6.A21).

Figure 6.16 presents the association between cognitive impairment, age and wealth. A consistent association between cognitive impairment and the lowest wealth quartile is observed for all measures of cognitive function. Of adults aged 64 and under in the lowest wealth quartile, 47% had poor recall compared to 25% of adults

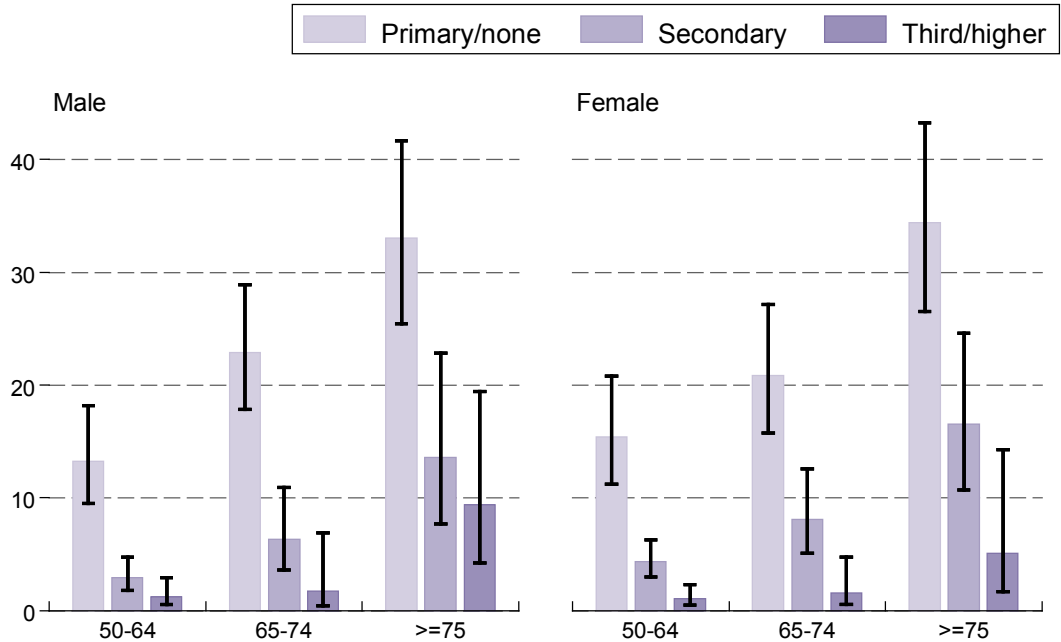
Table 6.5: Global cognitive function by age and sex

	Normal cognitive function (MMSE 26-30)		Mild impairment (MMSE 20-25)		Moderate impairment (MMSE <20)		Total	Number in sample
	%	95% CI	%	95% CI	%	95% CI		
Male								
50-59	96	(94-97)	4	(3-6)	0	(0-1)	100	819
60-64	94	(90-96)	5	(3-9)	1	(0-3)	100	351
65-69	89	(85-93)	9	(6-13)	2	(1-4)	100	337
70-79	82	(77-86)	16	(13-20)	2	(1-4)	100	412
>=80	69	(59-77)	25	(18-35)	6	(2-14)	100	105
Total	91	(89-92)	8	(7-10)	1	(1-2)	100	2024
Female								
50-59	94	(92-96)	5	(4-7)	1	(0-2)	100	985
60-64	94	(91-96)	6	(4-9)	0	-	100	455
65-69	92	(88-94)	8	(5-11)	0	(0-3)	100	348
70-79	83	(79-87)	15	(12-19)	2	(1-4)	100	410
>=80	62	(53-71)	31	(23-40)	7	(3-14)	100	132
Total	90	(88-91)	9	(8-11)	1	(1-2)	100	2330
Total								
50-59	95	(94-96)	4	(4-6)	0	(0-1)	100	1804
60-64	94	(92-95)	6	(4-8)	0	(0-1)	100	806
65-69	91	(88-93)	8	(6-11)	1	(0-2)	100	685
70-79	82	(79-85)	16	(13-19)	2	(1-3)	100	822
>=80	65	(58-71)	29	(23-35)	6	(4-11)	100	237
Total	90	(89-91)	9	(8-10)	1	(1-2)	100	4354

Note. CI = confidence interval; Missing observations = 0.56%

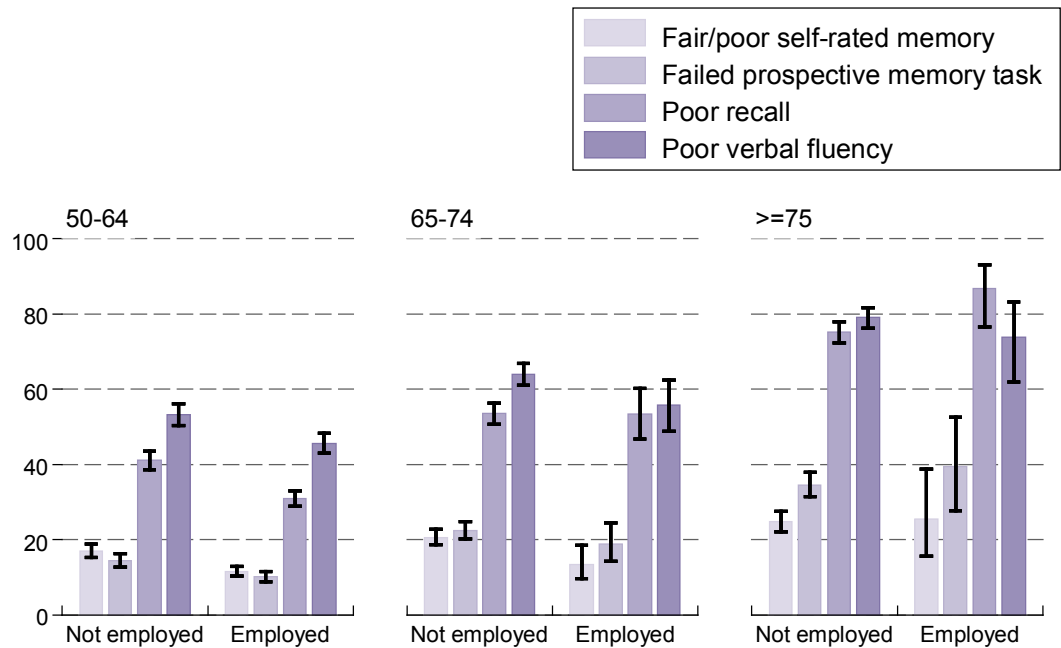
of the same age in the highest wealth quartile. Longitudinal analyses using later waves of TILDA will allow exploration of the possible mechanisms underlying these associations to be fully explored.

Figure 6.14: Cognitive impairment (MMSE<25) by age and education



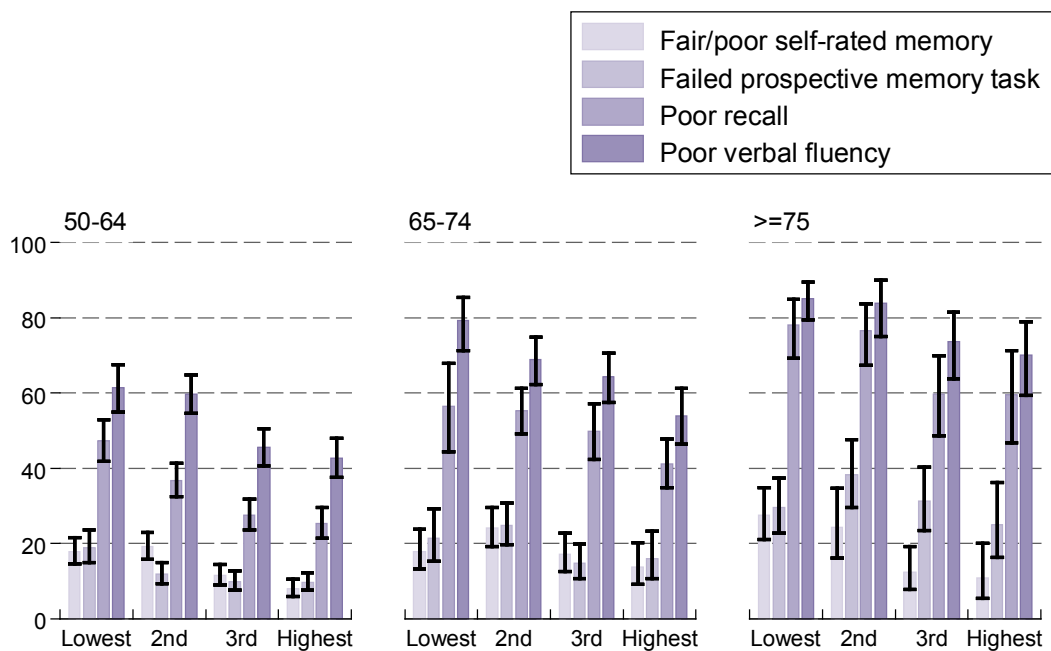
Note. N = 4360; Missing obs = 3818; Error bars correspond to 95% confidence intervals

Figure 6.15 Cognitive impairment (MMSE<25) by age and employment



Note. N = 8119; Missing obs = 59; Error bars correspond to 95% confidence intervals

Figure 6.16: Cognitive impairment by age and wealth



Note. N = 3924; Missing obs = 4254; Error bars correspond to 95% confidence intervals

6.3.8 Cognitive impairment and activities of daily living

The association between cognitive impairment and basic and instrumental activities of daily living (ADL/IADL) is presented in Table 6.5. Older adults with disability have far greater levels of cognitive impairment compared to older adults without disability. The association between IADL disability and poor verbal fluency is especially striking. IADL disability measures competency in activities critical to independent living in older adults i.e. managing money, shopping, telephone use and taking medications correctly. Of older adults with IADL disability, 80% have impaired executive function (as measured by verbal fluency). Impairments in executive functions impact the ability to perform such tasks as planning, prioritising, organizing, paying attention and remembering details. Although those with disability are older and would therefore be expected to have lower cognitive function, this association remains strong even when controlling for age. These results highlight the importance of identifying cognitive risk factors for function decline and confirm the social and economic impact conferred by levels of cognitive impairment that may not be clinically apparent and will not meet the clinical criteria for dementia.

Table 6.5: Cognitive impairment by disability level

	Fair/poor self-rated memory		Failed prospective memory task		Poor recall		Poor verbal fluency	
	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
Not disabled	15.4	(14.5-16.5)	18.0	(16.7-19.5)	46.8	(45.1-48.4)	57.8	(55.8-59.9)
ADL disability only	27.7	(23.1-32.8)	24.6	(19.7-30.2)	60.5	(55.2-65.6)	63.1	(57.3-68.5)
IADL disability only	38.4	(32.1-45.0)	34.5	(28.3-41.1)	73.0	(67.4-78.0)	80.2	(75.0-84.5)
IADL and ADL disability	41.1	(35.3-47.1)	39.5	(33.3-46.1)	78.7	(73.5-83.1)	83.0	(77.9-87.0)
Total	18.3	(17.3-19.4)	20.1	(18.8-21.6)	50.1	(48.6-51.6)	60.3	(58.3-62.2)

6.4 Conclusions

Given the rapid ageing of the Irish population, the potential public health burden of late-life mental health disorders will also grow, emphasising the importance of continued epidemiologic monitoring of the mental health status of older adults. There is a high prevalence of undiagnosed and therefore untreated depression and anxiety in the older Irish population. This represents a serious public health concern as older adults with depressive symptoms are at increased risk for subsequent functional and cognitive impairment, psychological distress and suicide. The need to manage these conditions is emphasised by the overwhelming effect of depression on employment status, disability and health service utilisation.

The results presented in this chapter show clear associations between depression and several risk factors that are potentially modifiable (e.g., sleep, exercise, sensory impairment, and polypharmacy). Effective recognition and treatment of these risk factors may be associated with functional improvement that may alleviate the economic burden of these disorders. Increased recognition of the high prevalence of co-occurring depression and anxiety is required since this is associated with increased levels of disability and suicidal ideation. A high prevalence of sub-threshold depression and anxiety was observed in our sample. These milder symptom levels are clearly significant in older adults as they have a marked negative impact on measures of health, employment and health service utilisation.

Cognitive capability or impairment of function is a key marker of population health and independence at all ages. TILDA provides the most comprehensive nationally representative data on cognitive function in older adults. This chapter has described variation in cognitive function between age groups and between men and women, and the effects of education on cognitive performance.

The observed high levels of prospective memory impairment is particularly alarming, since a very high percentage of older people live alone, and may be at increased risk of forgetting to carry out important actions such as taking medication, locking doors or paying bills. The negative impact of cognitive performance on activities of daily living (both ADL and IADL) is also worrying. Limitations in these abilities have economic consequences in the form of reduced efficiency in taking care of financial affairs and increased expenditures associated with formal health care and informal personal assistance. Recognition of cognitive risk factors for functional decline and early signs of functional impairment are, therefore, hugely important in older adults and are key priorities for future waves of the study.

The consistent finding that those with the highest education and greatest levels of wealth have the best cognition provides evidence that cognitive impairment may disproportionately affect those from the less privileged social classes, as well as suggesting that education and mental activity may be a way to protect against cognitive decline. These associations will be fully explored in future TILDA analyses.

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Appendix 6A – Tables on mental health and cognitive function

Table 6.A1: Self-rated emotional health by age and education

	Excellent		Very good		Good		Fair		Poor		Total	Number in sample
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI		
Primary/none												
50-64	18	(16-21)	31	(27-34)	34	(31-37)	14	(12-16)	3	(2-5)	100	957
65-74	19	(16-22)	34	(30-38)	34	(31-38)	11	(9-13)	2	(1-3)	100	865
>=75	16	(13-20)	37	(34-42)	33	(29-38)	12	(9-15)	1	(1-3)	100	684
<i>Total</i>	<i>18</i>	<i>(16-20)</i>	<i>34</i>	<i>(31-36)</i>	<i>34</i>	<i>(31-36)</i>	<i>12</i>	<i>(11-14)</i>	<i>2</i>	<i>(2-3)</i>	<i>100</i>	<i>2506</i>
Secondary												
50-64	26	(24-28)	36	(34-38)	29	(27-31)	8	(7-9)	1	(1-2)	100	2119
65-74	27	(23-30)	37	(34-41)	30	(26-33)	6	(4-8)	1	(0-1)	100	727
>=75	26	(22-31)	33	(28-38)	33	(28-38)	7	(5-10)	0	(0-2)	100	417
<i>Total</i>	<i>26</i>	<i>(24-28)</i>	<i>36</i>	<i>(34-38)</i>	<i>30</i>	<i>(28-31)</i>	<i>7</i>	<i>(7-8)</i>	<i>1</i>	<i>(1-2)</i>	<i>100</i>	<i>3263</i>
Third/higher												
50-64	34	(31-37)	34	(32-37)	24	(22-26)	7	(6-9)	1	(1-2)	100	1592
65-74	39	(35-43)	32	(28-36)	23	(20-27)	6	(4-8)	1	(0-2)	100	569
>=75	31	(25-38)	37	(31-43)	26	(21-32)	6	(4-10)	0	(0-3)	100	243
<i>Total</i>	<i>35</i>	<i>(32-37)</i>	<i>34</i>	<i>(32-36)</i>	<i>24</i>	<i>(22-26)</i>	<i>7</i>	<i>(6-8)</i>	<i>1</i>	<i>(1-1)</i>	<i>100</i>	<i>2404</i>
Total												
50-64	26	(24-28)	34	(33-36)	29	(27-31)	9	(8-10)	2	(1-2)	100	4668
65-74	25	(22-27)	35	(32-37)	31	(29-33)	8	(7-9)	1	(1-2)	100	2162
>=75	20	(18-23)	36	(33-39)	33	(30-36)	10	(8-12)	1	(1-2)	100	1346
<i>Total</i>	<i>25</i>	<i>(23-26)</i>	<i>35</i>	<i>(33-36)</i>	<i>30</i>	<i>(29-32)</i>	<i>9</i>	<i>(8-10)</i>	<i>2</i>	<i>(1-2)</i>	<i>100</i>	<i>8176</i>

Note. CI = confidence interval; Missing observations = 0.02%

Table 6.A2: Prevalence of depression by age and sex

	Not depressed		Sub-threshold		Case-level depression		Total	Number in sample
	%	95% CI	%	95% CI	%	95% CI		
Male								
50-64	77	(75-79)	16	(14-17)	8	(7-9)	100	2062
65-74	79	(76-82)	14	(12-16)	7	(5-9)	100	1046
>=75	77	(73-80)	17	(14-21)	6	(4-8)	100	588
<i>Total</i>	<i>77</i>	<i>(76-79)</i>	<i>15</i>	<i>(14-17)</i>	<i>7</i>	<i>(6-8)</i>	<i>100</i>	<i>3696</i>
Female								
50-64	67	(64-69)	20	(18-21)	14	(12-16)	100	2549
65-74	70	(67-73)	19	(16-22)	11	(9-13)	100	1074
>=75	66	(62-70)	23	(20-26)	11	(9-14)	100	728
<i>Total</i>	<i>67</i>	<i>(65-69)</i>	<i>20</i>	<i>(19-22)</i>	<i>13</i>	<i>(11-14)</i>	<i>100</i>	<i>4351</i>
Total								
50-64	72	(70-73)	18	(16-19)	11	(10-12)	100	4611
65-74	74	(72-77)	16	(15-18)	9	(8-11)	100	2120
>=75	71	(67-73)	21	(18-23)	9	(7-11)	100	1316
<i>Total</i>	<i>72</i>	<i>(71-74)</i>	<i>18</i>	<i>(17-19)</i>	<i>10</i>	<i>(9-11)</i>	<i>100</i>	<i>8047</i>

Note. CI = confidence interval; Missing observations = 1.60%

Table 6.A3: Prevalence of depression by age and wealth

	Not depressed		Sub-threshold		Case-level depression		Total	Number in sample
	%	95% CI	%	95% CI	%	95% CI		
Lowest								
50-64	56	(51-62)	22	(18-26)	22	(18-27)	100	556
65-74	70	(61-77)	19	(13-26)	12	(8-17)	100	240
>=75	68	(59-75)	22	(15-31)	10	(6-16)	100	177
<i>Total</i>	<i>62</i>	<i>(57-67)</i>	<i>21</i>	<i>(18-25)</i>	<i>17</i>	<i>(14-20)</i>	<i>100</i>	<i>973</i>
2nd								
50-64	68	(64-73)	18	(14-21)	14	(11-18)	100	578
65-74	76	(69-81)	15	(11-20)	10	(6-14)	100	264
>=75	62	(52-71)	27	(19-37)	11	(6-18)	100	143
<i>Total</i>	<i>69</i>	<i>(65-72)</i>	<i>19</i>	<i>(16-22)</i>	<i>12</i>	<i>(10-15)</i>	<i>100</i>	<i>985</i>
3rd								
50-64	73	(68-77)	19	(15-22)	9	(7-11)	100	585
65-74	74	(66-80)	18	(13-24)	9	(6-13)	100	257
>=75	73	(61-83)	21	(13-32)	6	(3-11)	100	123
<i>Total</i>	<i>73</i>	<i>(69-76)</i>	<i>19</i>	<i>(16-22)</i>	<i>8</i>	<i>(7-10)</i>	<i>100</i>	<i>965</i>
Highest								
50-64	79	(76-82)	16	(13-19)	5	(3-7)	100	631
65-74	85	(79-89)	13	(9-18)	2	(1-5)	100	255
>=75	76	(64-86)	18	(10-30)	6	(3-12)	100	94
<i>Total</i>	<i>80</i>	<i>(77-83)</i>	<i>15</i>	<i>(13-18)</i>	<i>4</i>	<i>(3-6)</i>	<i>100</i>	<i>980</i>
Total								
50-64	72	(70-74)	17	(16-19)	11	(10-12)	100	4611
65-74	75	(72-77)	16	(14-18)	9	(8-11)	100	2120
>=75	71	(67-74)	21	(18-24)	8	(7-10)	100	1316
<i>Total</i>	<i>72</i>	<i>(71-74)</i>	<i>18</i>	<i>(17-19)</i>	<i>10</i>	<i>(9-11)</i>	<i>100</i>	<i>8047</i>

Note. CI = confidence interval; Missing observations = 1.60%

Table 6.A4: Prevalence of disability by depression and sex

	No long term illness		Long term illness		Limiting long term illness		Total	Number in sample
	%	95% CI	%	95% CI	%	95% CI		
Male								
Not depressed	69	(67-71)	14	(13-16)	17	(15-18)	100	2877
Sub-threshold	54	(49-58)	14	(11-17)	32	(28-36)	100	563
Case-level depression	36	(31-43)	11	(7-15)	53	(46-59)	100	254
<i>Total</i>	<i>64</i>	<i>(62-66)</i>	<i>14</i>	<i>(13-15)</i>	<i>22</i>	<i>(20-23)</i>	<i>100</i>	<i>3694</i>
Female								
Not depressed	66	(64-68)	16	(15-18)	18	(16-19)	100	2974
Sub-threshold	53	(49-57)	15	(13-18)	32	(28-35)	100	851
Case-level depression	36	(32-41)	12	(9-15)	52	(47-56)	100	523
<i>Total</i>	<i>59</i>	<i>(58-61)</i>	<i>16</i>	<i>(14-17)</i>	<i>25</i>	<i>(24-26)</i>	<i>100</i>	<i>4348</i>
Total								
Not depressed	67	(66-69)	15	(14-17)	17	(16-18)	100	5851
Sub-threshold	53	(50-57)	15	(13-17)	32	(29-35)	100	1414
Case-level depression	36	(33-40)	11	(9-14)	52	(48-56)	100	777
<i>Total</i>	<i>62</i>	<i>(60-63)</i>	<i>15</i>	<i>(14-16)</i>	<i>23</i>	<i>(22-25)</i>	<i>100</i>	<i>8042</i>

Note. CI = confidence interval; Missing observations = 0.06%

Table 6.A5 Physical activity by depression and age

	Low physical activity		Moderate		High physical activity		Total	Number in sample
	%	95% CI	%	95% CI	%	95% CI		
50-64								
Not depressed	24	(23-26)	33	(31-35)	43	(40-45)	100	3283
Sub-threshold	32	(29-35)	32	(29-36)	36	(32-40)	100	794
Case-level depression	40	(35-45)	32	(28-36)	28	(24-33)	100	484
<i>Total</i>	<i>27</i>	<i>(26-29)</i>	<i>33</i>	<i>(31-34)</i>	<i>40</i>	<i>(38-42)</i>	<i>100</i>	<i>4561</i>
65-74								
Not depressed	28	(25-31)	37	(35-40)	35	(31-38)	100	1589
Sub-threshold	39	(34-45)	34	(29-40)	27	(22-33)	100	340
Case-level depression	54	(46-61)	32	(26-39)	14	(10-20)	100	181
<i>Total</i>	<i>32</i>	<i>(30-34)</i>	<i>36</i>	<i>(34-39)</i>	<i>31</i>	<i>(29-34)</i>	<i>100</i>	<i>2110</i>
>=75								
Not depressed	45	(42-49)	34	(30-37)	21	(18-24)	100	932
Sub-threshold	65	(59-71)	24	(19-30)	11	(7-15)	100	265
Case-level depression	68	(58-77)	20	(13-29)	12	(7-20)	100	106
<i>Total</i>	<i>52</i>	<i>(48-55)</i>	<i>30</i>	<i>(28-33)</i>	<i>18</i>	<i>(16-21)</i>	<i>100</i>	<i>1303</i>
Total								
Not depressed	29	(27-31)	34	(33-36)	37	(35-39)	100	5804
Sub-threshold	41	(38-43)	31	(28-33)	29	(26-32)	100	1399
Case-level depression	47	(43-51)	30	(27-33)	23	(19-26)	100	771
<i>Total</i>	<i>33</i>	<i>(31-34)</i>	<i>33</i>	<i>(32-35)</i>	<i>34</i>	<i>(32-36)</i>	<i>100</i>	<i>7974</i>

Note. CI = confidence interval; Missing observations = 0.94%

Table 6.A6 Prevalence of sleep disruption by depression and age

	Trouble falling asleep		Waking too early	
	%	(95% CI)	%	(95% CI)
50-64				
Not depressed	5.7	(4.9-6.6)	10.8	(9.7-12.0)
Sub-threshold	16.4	(13.7-19.4)	24.1	(21.0-27.4)
Case-level depression	34.9	(30.6-39.6)	39.9	(35.4-44.5)
<i>Total</i>	<i>10.7</i>	<i>(9.7-11.7)</i>	<i>16.3</i>	<i>(15.1-17.5)</i>
65-74				
Not depressed	7.6	(6.3-9.1)	12.5	(10.9-14.4)
Sub-threshold	20.3	(16.2-25.1)	22.6	(18.4-27.5)
Case-level depression	27.6	(20.8-35.6)	35.5	(28.4-43.2)
<i>Total</i>	<i>11.5</i>	<i>(10.1-13.0)</i>	<i>16.3</i>	<i>(14.6-18.1)</i>
>=75				
Not depressed	8.2	(6.5-10.3)	14.4	(12.1-17.0)
Sub-threshold	14.5	(10.5-19.8)	19.5	(14.8-25.2)
Case-level depression	30.9	(22.4-40.9)	35.7	(26.8-45.6)
<i>Total</i>	<i>11.5</i>	<i>(9.8-13.6)</i>	<i>17.3</i>	<i>(15.1-19.8)</i>
Total				
Not depressed	6.6	(5.9-7.3)	11.9	(11.0-12.8)
Sub-threshold	16.8	(14.8-19.1)	22.8	(20.4-25.4)
Case-level depression	32.8	(29.2-36.5)	38.3	(34.6-42.0)
<i>Total</i>	<i>11.0</i>	<i>(10.3-11.8)</i>	<i>16.5</i>	<i>(15.5-17.5)</i>

Table 6.A7 Employment by age and depression

	Employed		Retired		Other (coded)		Total	Number in sample
	%	95% CI	%	95% CI	%	95% CI		
50-64								
Not depressed	60	(58-61)	13	(12-14)	27	(26-29)	100	3316
Sub-threshold	49	(46-53)	11	(9-13)	40	(36-43)	100	806
Case-level depression	30	(26-35)	12	(10-16)	57	(52-62)	100	489
<i>Total</i>	<i>55</i>	<i>(53-56)</i>	<i>12</i>	<i>(11-14)</i>	<i>33</i>	<i>(31-34)</i>	<i>100</i>	<i>4611</i>
65-74								
Not depressed	13	(11-15)	67	(65-70)	20	(18-22)	100	1595
Sub-threshold	9	(7-13)	67	(61-72)	24	(19-29)	100	343
Case-level depression	5	(3-10)	66	(58-72)	29	(23-37)	100	182
<i>Total</i>	<i>12</i>	<i>(10-13)</i>	<i>67</i>	<i>(65-69)</i>	<i>21</i>	<i>(19-23)</i>	<i>100</i>	<i>2120</i>
>=75								
Not depressed	6	(5-8)	71	(67-74)	23	(20-27)	100	942
Sub-threshold	3	(1-6)	64	(57-71)	33	(27-40)	100	268
Case-level depression	3	(1-8)	57	(47-67)	40	(30-51)	100	106
<i>Total</i>	<i>5</i>	<i>(4-7)</i>	<i>68</i>	<i>(65-71)</i>	<i>27</i>	<i>(24-30)</i>	<i>100</i>	<i>1316</i>
Total								
Not depressed	39	(37-41)	36	(35-38)	25	(24-26)	100	5853
Sub-threshold	31	(29-34)	34	(31-37)	35	(32-38)	100	1417
Case-level depression	21	(18-24)	31	(27-35)	48	(44-52)	100	777
<i>Total</i>	<i>36</i>	<i>(34-37)</i>	<i>35</i>	<i>(34-37)</i>	<i>29</i>	<i>(28-30)</i>	<i>100</i>	<i>8047</i>

Note. CI = confidence interval; Missing observations = 0.00%

Table 6.A8 Healthcare utilisation by depression and age

	GP visits in past year		Number of reported medications	
	Mean (95% CI)	N	Mean (95% CI)	N
50-64				
Not depressed	2.82 (2.67,2.97)	3299	1.56 (1.49,1.64)	3299
Sub-threshold	3.93 (3.60,4.25)	799	2.09 (1.92,2.27)	799
Case-level depression	6.52 (5.77,7.26)	481	3.13 (2.86,3.39)	481
65-74				
Not depressed	4.00 (3.76,4.24)	1578	3.00 (2.87,3.14)	1578
Sub-threshold	5.10 (4.58,5.63)	340	3.74 (3.42,4.06)	340
Case-level depression	7.34 (6.22,8.47)	179	4.52 (4.06,4.98)	179
>=75				
Not depressed	5.17 (4.84,5.50)	920	3.85 (3.66,4.05)	920
Sub-threshold	5.89 (5.13,6.65)	258	4.89 (4.48,5.30)	258
Case-level depression	7.72 (6.15,9.29)	105	5.35 (4.75,5.95)	105
Total				
Not depressed	3.52 (3.39,3.64)	5797	2.31 (2.23,2.38)	5797
Sub-threshold	4.58 (4.30,4.85)	1397	3.01 (2.85,3.18)	1397
Case-level depression	6.88 (6.27,7.50)	765	3.78 (3.55,4.01)	765

Table 6.A9 Anxiety by age and sex

	None		Sub-threshold anxiety		Case-level anxiety		Total	Number in sample
	%	95% CI	%	95% CI	%	95% CI		
Male								
50-64	58	(55-60)	29	(27-32)	13	(11-15)	100	1554
65-74	66	(62-69)	24	(21-27)	10	(8-13)	100	815
>=75	74	(69-78)	21	(17-26)	5	(3-8)	100	408
<i>Total</i>	<i>62</i>	<i>(60-64)</i>	<i>27</i>	<i>(25-29)</i>	<i>11</i>	<i>(10-13)</i>	<i>100</i>	<i>2777</i>
Female								
50-64	51	(49-53)	32	(29-34)	17	(16-19)	100	1967
65-74	58	(54-61)	28	(25-31)	14	(12-17)	100	821
>=75	63	(58-68)	28	(23-33)	9	(6-13)	100	468
<i>Total</i>	<i>55</i>	<i>(53-57)</i>	<i>30</i>	<i>(28-32)</i>	<i>15</i>	<i>(14-16)</i>	<i>100</i>	<i>3256</i>
Total								
50-64	54	(52-56)	30	(29-32)	15	(14-17)	100	3521
65-74	62	(59-64)	26	(24-29)	12	(10-14)	100	1636
>=75	68	(64-71)	25	(22-29)	7	(6-10)	100	876
<i>Total</i>	<i>58</i>	<i>(57-60)</i>	<i>29</i>	<i>(27-30)</i>	<i>13</i>	<i>(12-14)</i>	<i>100</i>	<i>6033</i>

Note. CI = confidence interval; Missing observations = 26.23%

Table 6.A10 Anxiety by age and education

	None		Sub-threshold anxiety		Case-level anxiety		Total	Number in sample
	%	95% CI	%	95% CI	%	95% CI		
Primary/none								
50-64	51	(46-55)	31	(28-35)	18	(15-21)	100	624
65-74	58	(54-62)	26	(23-30)	16	(13-19)	100	590
>=75	66	(60-71)	26	(21-31)	8	(6-12)	100	393
<i>Total</i>	<i>58</i>	<i>(55-60)</i>	<i>28</i>	<i>(26-31)</i>	<i>14</i>	<i>(13-16)</i>	<i>100</i>	<i>1607</i>
Secondary								
50-64	54	(52-57)	31	(28-33)	15	(13-17)	100	1623
65-74	63	(59-67)	28	(24-31)	10	(7-12)	100	571
>=75	72	(67-77)	22	(18-27)	6	(4-9)	100	294
<i>Total</i>	<i>58</i>	<i>(56-60)</i>	<i>29</i>	<i>(27-31)</i>	<i>13</i>	<i>(12-15)</i>	<i>100</i>	<i>2488</i>
Third/higher								
50-64	58	(55-61)	29	(27-32)	13	(11-15)	100	1274
65-74	71	(66-74)	22	(19-26)	7	(5-10)	100	475
>=75	67	(59-73)	29	(23-36)	4	(2-9)	100	187
<i>Total</i>	<i>61</i>	<i>(59-63)</i>	<i>28</i>	<i>(26-30)</i>	<i>11</i>	<i>(10-13)</i>	<i>100</i>	<i>1936</i>
Total								
50-64	54	(52-56)	30	(29-32)	15	(14-17)	100	3521
65-74	62	(59-64)	26	(24-29)	12	(10-14)	100	1636
>=75	68	(64-71)	25	(22-29)	7	(6-10)	100	876
<i>Total</i>	<i>58</i>	<i>(57-60)</i>	<i>29</i>	<i>(27-30)</i>	<i>13</i>	<i>(12-14)</i>	<i>100</i>	<i>6033</i>

Note. CI = confidence interval; Missing observations = 26.23%

Table 6.A11 Anxiety by age and wealth

	None		Sub-threshold anxiety		Case-level anxiety		Total	Number in sample
	%	95% CI	%	95% CI	%	95% CI		
Lowest								
50-64	48	(41-54)	31	(26-37)	22	(17-27)	100	378
65-74	55	(47-62)	29	(23-36)	17	(11-24)	100	183
>=75	63	(52-73)	29	(20-40)	8	(4-15)	100	112
<i>Total</i>	<i>53</i>	<i>(48-58)</i>	<i>30</i>	<i>(26-34)</i>	<i>17</i>	<i>(14-21)</i>	<i>100</i>	<i>673</i>
2nd								
50-64	50	(46-55)	32	(27-36)	18	(14-22)	100	465
65-74	61	(53-68)	25	(19-32)	14	(9-21)	100	200
>=75	67	(53-79)	28	(17-43)	4	(1-12)	100	102
<i>Total</i>	<i>56</i>	<i>(52-60)</i>	<i>30</i>	<i>(26-34)</i>	<i>14</i>	<i>(12-17)</i>	<i>100</i>	<i>767</i>
3rd								
50-64	56	(51-60)	30	(25-34)	15	(12-18)	100	491
65-74	60	(52-67)	32	(25-39)	9	(5-14)	100	221
>=75	70	(59-79)	25	(17-36)	5	(2-12)	100	93
<i>Total</i>	<i>59</i>	<i>(55-62)</i>	<i>30</i>	<i>(26-33)</i>	<i>12</i>	<i>(10-14)</i>	<i>100</i>	<i>805</i>
Highest								
50-64	59	(54-63)	31	(27-35)	10	(8-14)	100	520
65-74	73	(66-79)	23	(17-29)	4	(2-9)	100	216
>=75	60	(48-70)	35	(26-45)	6	(2-17)	100	78
<i>Total</i>	<i>62</i>	<i>(58-66)</i>	<i>29</i>	<i>(26-33)</i>	<i>9</i>	<i>(7-11)</i>	<i>100</i>	<i>814</i>
Total								
50-64	54	(52-56)	31	(29-32)	15	(14-17)	100	3521
65-74	62	(60-65)	26	(24-28)	12	(10-14)	100	1636
>=75	67	(63-72)	25	(21-30)	7	(5-10)	100	876
<i>Total</i>	<i>59</i>	<i>(57-60)</i>	<i>28</i>	<i>(27-30)</i>	<i>13</i>	<i>(12-14)</i>	<i>100</i>	<i>6033</i>

Note. CI = confidence interval; Missing observations = 26.23%

Table 6.A12 (a) Prevalence of comorbid anxiety by level of depression

	None		Sub-threshold anxiety		Case-level anxiety		Total	Number in sample
	%	95% CI	%	95% CI	%	95% CI		
Not depressed	68	(66-69)	26	(24-27)	6	(6-7)	100	4416
Sub-threshold	43	(40-46)	37	(34-40)	20	(18-23)	100	1020
Case-level depression	16	(13-19)	36	(32-41)	48	(43-52)	100	512
<i>Total</i>	<i>59</i>	<i>(57-60)</i>	<i>29</i>	<i>(27-30)</i>	<i>13</i>	<i>(12-14)</i>	<i>100</i>	<i>5948</i>

Note. CI = confidence interval; Missing observations = 26.23%

Table 6.A12 (b) Prevalence of comorbid depression by level of anxiety

	Not depressed		Sub-threshold		Case-level depression		Total	Number in sample
	%	95% CI	%	95% CI	%	95% CI		
None	84	(82-86)	13	(12-15)	3	(2-3)	100	3545
Sub-threshold anxiety	65	(62-68)	22	(20-25)	12	(11-14)	100	1677
Case-level anxiety	37	(33-41)	27	(24-31)	36	(32-40)	100	726
<i>Total</i>	<i>73</i>	<i>(71-74)</i>	<i>18</i>	<i>(16-19)</i>	<i>10</i>	<i>(9-11)</i>	<i>100</i>	<i>5948</i>

Note. CI = confidence interval; Missing observations = 1.60%

Table 6.A13 Suicidal ideation and disability by anxiety, depression and age.

	Presence of longstanding illness or disability		Suicidal Ideation	
	%	(95% CI)	%	(95% CI)
50-64				
Neither anxiety or depression	31.9	(30.0-33.8)	1.2	(0.8-1.8)
Anxiety only	39.7	(34.2-45.4)	5.5	(3.4-8.7)
Depression only	54.5	(46.5-62.3)	15.0	(10.4-21.1)
Comorbid anxiety and depression	63.9	(56.2-70.8)	29.6	(22.8-37.5)
<i>Total</i>	<i>35.6</i>	<i>(33.7-37.5)</i>	<i>3.9</i>	<i>(3.3-4.7)</i>
65-74				
Neither anxiety or depression	39.1	(35.9-42.4)	1.0	(0.6-1.7)
Anxiety only	57.5	(47.3-67.1)	5.2	(2.2-11.8)
Depression only	56.8	(43.8-68.8)	15.8	(8.0-28.6)
Comorbid anxiety and depression	73.0	(59.3-83.4)	32.5	(20.8-47.0)
<i>Total</i>	<i>42.7</i>	<i>(39.6-45.8)</i>	<i>3.2</i>	<i>(2.3-4.4)</i>
>=75				
Neither anxiety or depression	41.5	(37.3-45.9)	1.3	(0.6-2.8)
Anxiety only	48.0	(31.2-65.3)	2.6	(0.6-10.3)
Depression only	80.4	(64.6-90.2)	20.2	(9.5-38.0)
Comorbid anxiety and depression	64.8	(34.9-86.4)	25.8	(8.2-57.4)
<i>Total</i>	<i>44.7</i>	<i>(40.5-48.9)</i>	<i>3.0</i>	<i>(1.9-4.8)</i>
Total				
Neither anxiety or depression	35.3	(33.6-37.1)	1.2	(0.9-1.6)
Anxiety only	44.4	(39.6-49.3)	5.1	(3.4-7.5)
Depression only	60.1	(53.6-66.2)	16.2	(12.1-21.3)
Comorbid anxiety and depression	65.8	(59.3-71.8)	29.9	(24.0-36.6)
<i>Total</i>	<i>38.8</i>	<i>(37.1-40.5)</i>	<i>3.6</i>	<i>(3.1-4.2)</i>

Table 6.A14 Self-reported memory by age and sex

	Excellent		Very good		Good		Fair		Poor		Total	Number in sample
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI		
Male												
50-64	16	(14-18)	33	(31-36)	37	(35-39)	11	(9-12)	3	(2-4)	100	2080
65-74	10	(8-12)	31	(28-35)	38	(35-41)	17	(15-20)	4	(3-5)	100	1070
>=75	5	(4-8)	26	(22-30)	43	(39-47)	21	(18-25)	4	(3-6)	100	598
<i>Total</i>	<i>13</i>	<i>(12-14)</i>	<i>32</i>	<i>(30-34)</i>	<i>38</i>	<i>(36-40)</i>	<i>14</i>	<i>(13-15)</i>	<i>3</i>	<i>(3-4)</i>	<i>100</i>	<i>3748</i>
Female												
50-64	15	(13-16)	35	(33-37)	36	(34-38)	12	(11-14)	2	(2-3)	100	2585
65-74	9	(7-11)	27	(25-30)	45	(42-48)	16	(14-18)	3	(2-5)	100	1093
>=75	5	(4-7)	23	(20-26)	47	(43-51)	20	(16-23)	5	(3-7)	100	749
<i>Total</i>	<i>11</i>	<i>(10-12)</i>	<i>31</i>	<i>(29-32)</i>	<i>41</i>	<i>(39-42)</i>	<i>15</i>	<i>(13-16)</i>	<i>3</i>	<i>(2-4)</i>	<i>100</i>	<i>4427</i>
Total												
50-64	15	(14-16)	34	(33-36)	37	(35-38)	11	(11-12)	3	(2-3)	100	4665
65-74	9	(8-11)	29	(27-32)	42	(39-44)	16	(15-18)	3	(3-4)	100	2163
>=75	5	(4-7)	24	(22-27)	46	(43-49)	20	(18-23)	5	(3-6)	100	1347
<i>Total</i>	<i>12</i>	<i>(11-13)</i>	<i>31</i>	<i>(30-32)</i>	<i>39</i>	<i>(38-41)</i>	<i>14</i>	<i>(13-15)</i>	<i>3</i>	<i>(3-4)</i>	<i>100</i>	<i>8175</i>

Note. CI = confidence interval; Missing observations = 0.04%

Table 6.A15 Self-reported memory by age and education

	Excellent		Very good		Good		Fair		Poor		Total	Number in sample
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI		
Primary/none												
50-64	11	(9-13)	28	(25-31)	41	(38-44)	16	(14-19)	5	(3-6)	100	956
65-74	7	(5-9)	26	(23-29)	44	(40-47)	20	(17-22)	4	(3-6)	100	865
>=75	3	(2-5)	22	(19-26)	46	(42-50)	23	(20-27)	5	(4-7)	100	684
<i>Total</i>	7	(6-8)	25	(24-27)	43	(41-45)	19	(18-21)	5	(4-6)	100	2505
Secondary												
50-64	14	(12-15)	36	(34-38)	37	(35-39)	11	(10-12)	2	(2-3)	100	2117
65-74	10	(8-13)	32	(28-36)	42	(38-45)	14	(11-16)	3	(2-4)	100	728
>=75	8	(6-12)	27	(23-31)	47	(42-52)	15	(12-19)	3	(1-5)	100	417
<i>Total</i>	13	(11-14)	34	(32-36)	39	(37-41)	12	(11-13)	2	(2-3)	100	3262
Third/higher												
50-64	23	(21-26)	37	(35-40)	31	(28-33)	7	(6-9)	1	(1-2)	100	1592
65-74	15	(12-18)	36	(32-40)	35	(31-39)	12	(10-15)	2	(1-3)	100	569
>=75	11	(8-17)	31	(25-37)	39	(33-45)	14	(10-20)	4	(2-8)	100	243
<i>Total</i>	21	(19-23)	36	(34-38)	32	(30-34)	9	(8-10)	2	(1-2)	100	2404
Total												
50-64	15	(14-16)	34	(33-36)	37	(35-38)	11	(11-12)	3	(2-3)	100	4665
65-74	9	(8-11)	29	(27-32)	42	(39-44)	16	(15-18)	3	(3-4)	100	2163
>=75	5	(4-7)	24	(22-27)	46	(43-49)	20	(18-23)	5	(3-6)	100	1347
<i>Total</i>	12	(11-13)	31	(30-32)	39	(38-41)	14	(13-15)	3	(3-4)	100	8175

Note. CI = confidence interval; Missing observations = 0.04%

Table 6.A16 Self-reported memory by age and wealth

	Excellent		Very good		Good		Fair		Poor		Total	Number in sample
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI		
Lowest												
50-64	10	(7-12)	35	(31-41)	37	(33-42)	14	(11-17)	4	(3-7)	100	567
65-74	6	(3-9)	32	(25-41)	44	(37-52)	15	(11-21)	3	(1-6)	100	243
>=75	5	(3-9)	22	(16-30)	46	(39-53)	19	(14-27)	8	(4-17)	100	178
<i>Total</i>	<i>7</i>	<i>(6-9)</i>	<i>31</i>	<i>(27-36)</i>	<i>41</i>	<i>(37-45)</i>	<i>15</i>	<i>(13-18)</i>	<i>5</i>	<i>(3-7)</i>	<i>100</i>	<i>988</i>
2nd												
50-64	11	(9-14)	32	(28-37)	38	(34-41)	15	(13-19)	4	(2-6)	100	586
65-74	9	(6-13)	27	(22-34)	40	(33-46)	21	(16-26)	3	(1-6)	100	268
>=75	4	(2-10)	21	(15-29)	50	(41-60)	18	(12-26)	7	(3-13)	100	145
<i>Total</i>	<i>9</i>	<i>(8-12)</i>	<i>29</i>	<i>(26-32)</i>	<i>41</i>	<i>(38-44)</i>	<i>17</i>	<i>(15-20)</i>	<i>4</i>	<i>(3-6)</i>	<i>100</i>	<i>999</i>
3rd												
50-64	16	(13-20)	35	(31-39)	37	(33-41)	9	(7-12)	2	(1-4)	100	590
65-74	9	(6-13)	33	(27-40)	41	(35-47)	14	(10-19)	4	(2-7)	100	262
>=75	8	(3-20)	29	(21-38)	51	(40-62)	12	(8-19)	0	(.-.)	100	123
<i>Total</i>	<i>13</i>	<i>(11-16)</i>	<i>33</i>	<i>(30-37)</i>	<i>40</i>	<i>(37-44)</i>	<i>11</i>	<i>(9-13)</i>	<i>2</i>	<i>(1-3)</i>	<i>100</i>	<i>975</i>
Highest												
50-64	21	(18-24)	40	(36-44)	32	(28-36)	8	(6-10)	0	(0-1)	100	634
65-74	12	(8-17)	39	(32-47)	35	(29-42)	13	(9-20)	0	(0-3)	100	258
>=75	8	(4-16)	29	(20-41)	51	(38-64)	10	(4-19)	1	(0-5)	100	95
<i>Total</i>	<i>17</i>	<i>(15-20)</i>	<i>38</i>	<i>(35-42)</i>	<i>35</i>	<i>(31-38)</i>	<i>9</i>	<i>(7-12)</i>	<i>0</i>	<i>(0-1)</i>	<i>100</i>	<i>987</i>
Total												
50-64	15	(14-16)	34	(33-36)	37	(35-38)	12	(11-13)	3	(2-3)	100	4665
65-74	9	(8-10)	29	(27-31)	42	(40-44)	17	(15-19)	4	(3-5)	100	2163
>=75	5	(4-7)	24	(21-26)	46	(43-49)	20	(18-23)	5	(4-7)	100	1347
<i>Total</i>	<i>11</i>	<i>(11-12)</i>	<i>31</i>	<i>(29-32)</i>	<i>40</i>	<i>(39-41)</i>	<i>15</i>	<i>(14-16)</i>	<i>3</i>	<i>(3-4)</i>	<i>100</i>	<i>8175</i>

Note. CI = confidence interval; Missing observations = 0.04%

Table 6.A17 Proportion failed prospective memory task by age and education

	Primary/none		Secondary		Third/higher		Total	
	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
50-59	19.2	(15.7-23.2)	9.8	(8.4-11.6)	8.3	(6.7-10.1)	11.4	(10.1-12.8)
60-64	19.6	(15.8-24.0)	10.9	(8.5-13.8)	8.3	(6.1-11.4)	13.5	(11.6-15.7)
65-69	24.6	(20.6-29.2)	15.4	(12.4-19.0)	12.1	(9.0-16.0)	19.3	(17.0-21.8)
70-79	31.5	(27.5-35.7)	23	(19.3-27.2)	14.3	(11.0-18.4)	26.7	(23.9-29.6)
>=80	44.6	(39.0-50.4)	37.4	(30.6-44.7)	25.9	(17.6-36.3)	41.7	(37.3-46.2)
<i>Total</i>	27.8	(25.6-30.3)	13.8	(12.5-15.2)	10.1	(8.9-11.5)	18.5	(17.3-19.8)

Table 6.A18 Verbal fluency (mean number of animals named) by age and education

	Primary/none		Secondary		Third/higher		Total	
	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI
50-59	18.8	(18.2-19.5)	21.3	(20.9-21.7)	24.5	(24.0-25.0)	21.6	(21.2-22.0)
60-64	18.6	(17.9-19.3)	20.7	(20.0-21.3)	24	(23.3-24.7)	20.6	(20.1-21.0)
65-69	17.9	(17.3-18.6)	19.9	(19.2-20.6)	22.8	(22.0-23.5)	19.4	(18.9-19.9)
70-79	16.3	(15.8-16.9)	19	(18.4-19.6)	20.9	(20.2-21.6)	17.7	(17.3-18.1)
>=80	14.3	(13.7-15.0)	15.9	(15.0-16.7)	19.3	(18.0-20.7)	15	(14.5-15.6)
<i>Total</i>	16.2	(15.7-16.8)	20.1	(19.6-20.5)	23.1	(22.5-23.7)	19.1	(18.8-19.5)

Table 6.A19 Proportion with cognitive impairment (MMSE<25) by age and education

	Primary/none		Secondary		Third/higher		Total	
	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
50-59	16.9	(12.3-22.7)	3.5	(2.4-5.1)	1.5	(0.8-3.1)	5.2	(4.0-6.7)
60-64	12.2	(8.4-17.6)	4.2	(2.4-7.2)	0.7	(0.2-2.8)	6	(4.4-8.1)
65-69	19.4	(14.5-25.5)	4.5	(2.2-9.0)	2.3	(0.9-5.5)	10.3	(7.9-13.4)
70-79	27.6	(22.1-34.0)	11.7	(8.0-16.6)	1.2	(0.4-3.8)	18.1	(14.9-21.9)
>=80	47.1	(37.0-57.5)	27.8	(18.0-40.3)	16.7	(8.0-31.5)	40	(32.5-47.9)
<i>Total</i>	24.3	(21.5-27.2)	6	(4.8-7.4)	1.9	(1.3-2.8)	11.3	(10.1-12.6)

Table 6.A20 Global Cognitive function by age and sex

	Normal Cognitive Function		Mild impairment		Moderate impairment		Total	Number in sample
	%	95% CI	%	95% CI	%	95% CI		
Male								
50-59	96	(94-97)	4	(3-6)	0	(0-1)	100	819
60-64	94	(90-96)	5	(3-9)	1	(0-3)	100	351
65-69	89	(85-93)	9	(6-13)	2	(1-4)	100	337
70-79	82	(77-86)	16	(13-20)	2	(1-4)	100	412
>=80	69	(59-77)	25	(18-35)	6	(2-14)	100	105
<i>Total</i>	<i>91</i>	<i>(89-92)</i>	<i>8</i>	<i>(7-10)</i>	<i>1</i>	<i>(1-2)</i>	<i>100</i>	<i>2024</i>
Female								
50-59	94	(92-96)	5	(4-7)	1	(0-2)	100	985
60-64	94	(91-96)	6	(4-9)	0	(.-)	100	455
65-69	92	(88-94)	8	(5-11)	0	(0-3)	100	348
70-79	83	(79-87)	15	(12-19)	2	(1-4)	100	410
>=80	62	(53-71)	31	(23-40)	7	(3-14)	100	132
<i>Total</i>	<i>90</i>	<i>(88-91)</i>	<i>9</i>	<i>(8-11)</i>	<i>1</i>	<i>(1-2)</i>	<i>100</i>	<i>2330</i>
Total								
50-59	95	(94-96)	4	(4-6)	0	(0-1)	100	1804
60-64	94	(92-95)	6	(4-8)	0	(0-1)	100	806
65-69	91	(88-93)	8	(6-11)	1	(0-2)	100	685
70-79	82	(79-85)	16	(13-19)	2	(1-3)	100	822
>=80	65	(58-71)	29	(23-35)	6	(4-11)	100	237
<i>Total</i>	<i>90</i>	<i>(89-91)</i>	<i>9</i>	<i>(8-10)</i>	<i>1</i>	<i>(1-2)</i>	<i>100</i>	<i>4354</i>

Note. CI = confidence interval; Missing observations = 46.67%

Table 6.A21 Cognitive impairment by age and employment

	Fair/poor self-rated memory		Failed prospective memory task		Poor recall		Poor verbal fluency	
	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
50-64								
Not employed	16.9	(15.3-18.8)	14.3	(12.6-16.2)	41.1	(38.7-43.6)	53.3	(50.4-56.1)
Employed	11.6	(10.4-13.0)	10.1	(8.8-11.5)	30.9	(28.9-33.0)	45.6	(42.9-48.2)
<i>Total</i>	<i>14.0</i>	<i>(13.0-15.1)</i>	<i>12.0</i>	<i>(10.9-13.3)</i>	<i>35.6</i>	<i>(33.9-37.3)</i>	<i>49.1</i>	<i>(46.8-51.3)</i>
65-74								
Not employed	20.6	(18.6-22.8)	22.4	(20.2-24.7)	53.6	(50.7-56.4)	64.0	(61.0-66.9)
Employed	13.4	(9.6-18.5)	18.8	(14.2-24.4)	53.5	(46.7-60.2)	55.7	(48.7-62.5)
<i>Total</i>	<i>19.8</i>	<i>(17.9-21.7)</i>	<i>22.0</i>	<i>(19.9-24.2)</i>	<i>53.6</i>	<i>(50.9-56.2)</i>	<i>63.0</i>	<i>(60.1-65.8)</i>
>=75								
Not employed	24.7	(22.0-27.6)	34.6	(31.4-37.9)	75.2	(72.3-77.9)	79.1	(76.3-81.6)
Employed	25.5	(15.6-38.8)	39.4	(27.5-52.8)	86.8	(76.5-93.1)	73.9	(61.7-83.2)
<i>Total</i>	<i>24.8</i>	<i>(22.1-27.6)</i>	<i>34.8</i>	<i>(31.6-38.2)</i>	<i>75.8</i>	<i>(73.0-78.4)</i>	<i>78.8</i>	<i>(76.1-81.2)</i>
Total								
Not employed	20.2	(19.0-21.5)	22.3	(20.8-23.9)	54.2	(52.4-55.9)	63.6	(61.5-65.7)
Employed	12.1	(10.9-13.4)	11.5	(10.2-13.0)	34.2	(32.1-36.2)	47.1	(44.6-49.7)
<i>Total</i>	<i>17.3</i>	<i>(16.4-18.3)</i>	<i>18.5</i>	<i>(17.3-19.8)</i>	<i>47.0</i>	<i>(45.6-48.5)</i>	<i>57.7</i>	<i>(55.8-59.7)</i>

Table 6.A22 Cognitive impairment by age and wealth

	Fair/poor self-rated memory		Failed prospective memory task		Poor recall		Poor verbal fluency	
	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
50-64								
Lowest	17.8	(14.6-21.5)	18.9	(15.0-23.6)	47.3	(41.8-52.9)	61.4	(54.9-67.5)
2nd	19.1	(15.8-22.9)	11.8	(9.3-15.0)	36.8	(32.4-41.4)	59.8	(54.5-64.8)
3rd	11.5	(9.0-14.5)	9.9	(7.6-12.7)	27.5	(23.5-31.8)	45.6	(40.7-50.6)
Highest	7.9	(5.9-10.4)	9.7	(7.6-12.2)	25.3	(21.5-29.6)	42.7	(37.6-48.0)
<i>Total</i>	<i>14.3</i>	<i>(12.8-15.8)</i>	<i>12.6</i>	<i>(11.0-14.3)</i>	<i>34.3</i>	<i>(32.0-36.7)</i>	<i>52.7</i>	<i>(49.6-55.7)</i>
65-74								
Lowest	17.9	(13.1-23.9)	21.5	(15.3-29.4)	56.5	(44.3-68.0)	79.2	(71.2-85.5)
2nd	24.1	(19.2-29.7)	24.8	(19.7-30.9)	55.2	(49.0-61.2)	68.9	(62.1-74.9)
3rd	17.1	(12.6-22.9)	14.7	(10.7-20.0)	49.8	(42.4-57.3)	64.3	(57.5-70.7)
Highest	13.7	(9.1-20.2)	16.0	(10.6-23.3)	41.1	(34.7-47.9)	53.9	(46.4-61.2)
<i>Total</i>	<i>18.6</i>	<i>(16.1-21.4)</i>	<i>19.6</i>	<i>(16.9-22.7)</i>	<i>51.3</i>	<i>(47.1-55.5)</i>	<i>67.4</i>	<i>(63.3-71.2)</i>
>=75								
Lowest	27.4	(20.9-35.1)	29.6	(22.6-37.7)	78.1	(69.1-85.0)	85.1	(79.4-89.4)
2nd	24.2	(16.0-35.0)	38.2	(29.5-47.8)	76.5	(67.2-83.8)	83.9	(74.8-90.1)
3rd	12.4	(7.8-19.2)	31.3	(23.4-40.4)	59.7	(48.5-70.1)	73.6	(63.7-81.6)
Highest	10.8	(5.4-20.3)	24.9	(16.2-36.3)	59.5	(46.5-71.3)	70.0	(59.2-79.0)
<i>Total</i>	<i>21.5</i>	<i>(17.0-26.9)</i>	<i>32.1</i>	<i>(27.3-37.3)</i>	<i>71.7</i>	<i>(66.8-76.2)</i>	<i>80.7</i>	<i>(76.7-84.1)</i>
Total								
Lowest	20.3	(17.4-23.6)	22.2	(18.6-26.4)	57.3	(51.1-63.3)	71.5	(66.1-76.4)
2nd	21.3	(18.3-24.7)	20.2	(17.3-23.6)	49.0	(45.6-52.5)	66.8	(63.0-70.4)
3rd	13.0	(11.0-15.4)	14.5	(12.3-17.1)	38.2	(34.4-42.1)	54.7	(50.7-58.6)
Highest	9.5	(7.6-11.8)	12.7	(10.4-15.3)	32.4	(29.1-35.9)	48.1	(43.7-52.6)
<i>Total</i>	<i>16.6</i>	<i>(15.2-18.2)</i>	<i>17.9</i>	<i>(16.2-19.6)</i>	<i>45.2</i>	<i>(43.1-47.4)</i>	<i>61.3</i>	<i>(58.7-63.9)</i>