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Changes in Physical and Behavioural Health of Older Adults with Intellectual Disability

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3.1 Key Findings

- Approximately 46% of participants rated their health as excellent or very good which was comparable to the rates reported by TILDA for the general population and to Wave 1 findings.

- Rates of hypertension were more than 50% lower for people with ID (17.5%) than for the general population (37%).

- There was little difference in diagnosed and measured hypertension except among those with severe and profound ID where the measured rate was 50% higher than doctors' diagnoses.

- Myocardial Infarction (heart attack) was 5 times lower in people with intellectual disability than that reported by TILDA for the general population.

- Based on WHO risk classification for cardio metabolic disease, 64.6% of IDS-TILDA participants were at substantially increased risk compared to 53% in TILDA with an even greater risk for women with ID of 78.4% versus 56% in TILDA.

- Reported rates of osteoporosis (16.4%) among people with ID had doubled by Wave 2, but objective measurement found that 70% of people with ID had osteoporosis or osteopenia.

- 60% described their weight as normal but 66% had measured overweight and obesity, a serious health risk. However, underweight was rarely found in doctor's report or in objective measurement.

- Over 70% engaged in only low levels of physical activity, i.e., in levels of activity not likely to result in health benefits.

- There was a doubling from Wave 1 of rates of cataracts and of macular degeneration and higher incidence for these conditions, as compared to the general population.

- Almost 50% of those aged 65+ reported chronic constipation, as did one third of those aged 40-49 years.

- The prevalence of epilepsy increased from 30.5% in Wave 1 to 35.9% in Wave 2 and from 19.2% to 27.9% for those with Down syndrome.

- Arthritis, osteoporosis and cataracts had the highest three-year incidence rates.

- Positive findings are relatively low levels of fast food consumption, as well as levels of smoking and alcohol use which continued to remain significantly lower than for the general population.

3.2 Introduction

Persons with an intellectual disability (ID) are increasingly living to old age (Kelly & Kelly, 2011) which means that understanding the association between chronic disease and increased age has become an important issue in the care of adults with an ID (Haveman *et al.,* 2010). People ageing with ID are a diverse group with some experiencing age related health conditions relatively early, however holding strong positive perceptions of ageing influences, not only how older age is approached but also how these health conditions are faced (Burke *et al.,* 2014). For people with Down syndrome there is higher prevalence and earlier onset of age related sensory and musculoskeletal disorders, and an exceptional risk of developing dementia, both of which may result in additional disabilities (McCarron *et al.,* 2014). Additional health needs for people with a range of ID also stem from the interaction of ageing and secondary conditions associated with their impairment, its progression, or as the consequence of long term poor quality health care (Haveman *et al.,* 2009).

Many people with cerebral palsy as they age, for example, report reduced mobility, increased pain, and bowel and bladder problems, probably a result of the long term effects of muscle tone abnormalities, and overuse of some joints and immobility of others (Bigby *et al.,* 2014). Immobility, small body size, poor diet and prolonged use of anti-convulsant drugs may also contribute to early and increased risk of osteoporosis, falls and fractures (Foran *et al.,* 2013). Multi-morbidity is high in this population and prevalence figures in younger age groups are similar to those reported for the oldest old in the general population but with somewhat different disease patterns (McCarron *et al.,* 2013). A large US study of medical records reported that the frequency of cardiovascular, musculoskeletal and respiratory conditions and sensory impairments increased with age, while neurological, endocrine and mental health problems declined with age and that, despite high levels of risk factors such as obesity, heart related diseases did not appear as prevalent in people with ID as reported in the general population (Janicki *et al.,* 2002). However, most of this insight has been gleaned from small scale, local, clinical and cross sectional samples. The tracking of prevalence and incidence of disease and behavioral health contributors

over time, as is possible through IDS-TILDA, and comparisons with general population TILDA data offer a unique opportunity to better understand changes in the physical and behavioral health of people with ID as they age and their implications for their longevity and quality of life.

3.3 Key Methodological Considerations

As the overall sample was not refreshed for Wave 2 of the survey, the youngest participant was aged 43 years. Only people who participated in both Wave 1 and Wave 2 were included in Wave 2 analyses. Incidence was calculated as the number of new cases of each health condition reported among people who were free of that condition in Wave 1. Point prevalence and incidence data were stratified by age and gender and where appropriate by level of ID. Comparisons were drawn with the general population using reported data from TILDA (Finucane *et al.,* 2014; Leahy *et al.,* 2014). In those comparisons it should be noted that TILDA data was for people aged 52 and older while IDS-TILDA data in Wave 2 was for individuals aged 43 and older. On some occasions, noted as such in the text of this chapter, the more direct comparison of those 50 and older in both groups will be reported. Finally, for the comparison with TILDA data it was not possible to calculate confidence intervals and so all highlighting of differences is presented with the caution that significance of differences has not yet been assessed.

3.4 Changes in Self-Rated Health

An individual's perception and appraisal of their own health has been shown to be a strong predictor of future morbidity and mortality (Idler & Benyamini, 1997; Riise, Riise, Natvig, & Daltveit, 2014). Similar to Wave 1, self-rated health in Wave 2 was measured on a five point Likert scale from excellent to poor but for the purposes of reporting was grouped into excellent/very good, good and fair/poor.

Figure 3.1: Distribution of self-rated health
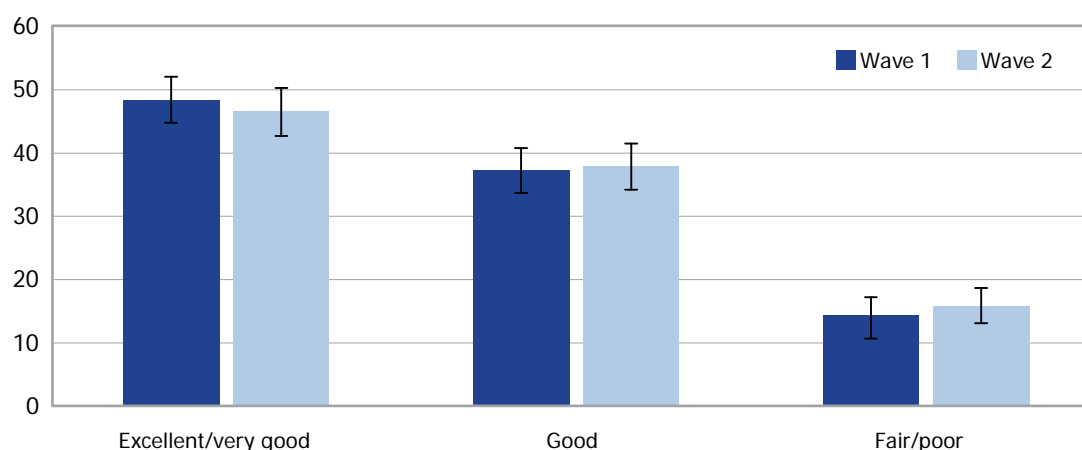
There was little change observed overall in self-reported health between Wave 1 and Wave 2 (See *figure 3.1*). Of the Wave 2 participants, 46.5% reported having excellent or very good health compared with 50.5% of the same population at Wave 1. This is comparable to the general population (TILDA) report of 44% rating their health as excellent or very good health (Finucane *et al.,* 2014).

Overall older people rated their health within the fair-poor category by comparison to other age groups (see figure 3.2) However the majority of participants across all age categories who reported their health as excellent to very good in Wave 1 continued to do so in Wave 2. The greatest difference was among the middle age group (50 – 64 years) where 47.4% (*n*=65) who reported their health as good in Wave 1 now considered it to be excellent to very good, and a further 62% (*n*= 23) who considered their health as poor in Wave 1 now rated themselves within the good and very good/ excellent categories. Considering level of ID, in Wave 2 those within the mild category were more inclined to rate their health as excellent or very good (51.3%). Conversely higher numbers of those within severe/profound category rated their health as poor, 21.2% versus 11.3% within the mild category and 15.2% within the moderate category (Appendix table 3.A.1)

Figure 3.2: Self-rated health at Wave 2 by age.
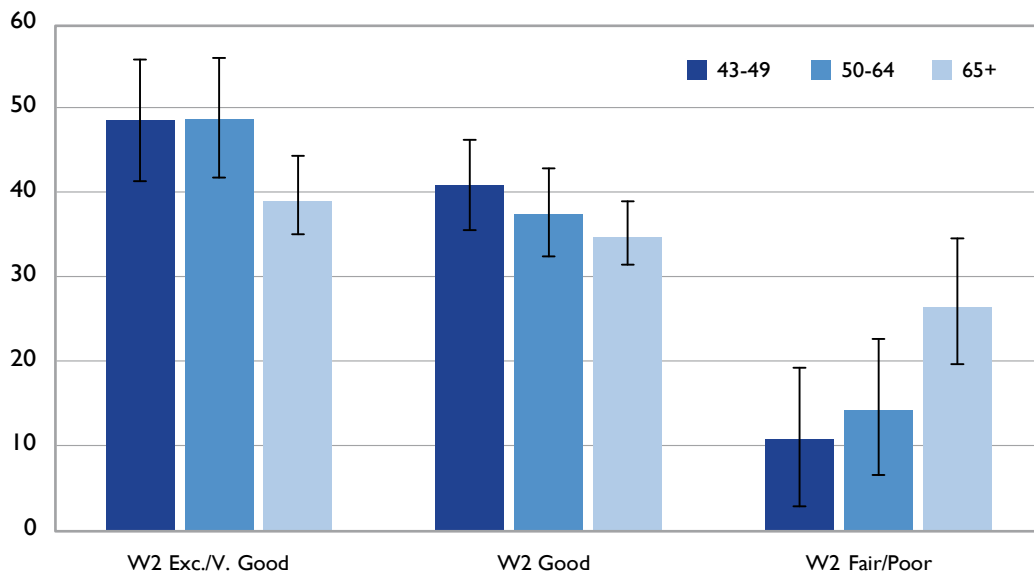
3.5 Prevalence and Incidence of Cardiovascular Disease (CVD)

There are a number of reports that CVD is lower among people with ID than the general population despite increased risk factors such as overweight, obesity and inactivity (Haveman *et al.,* 2009). More recent work by McCarron *et al.,* (2013) has highlighted that the pathways of disease and disease pairs are different for older adults with ID compared to the general population, and also supports that the cardiovascular picture may be different.

3.5.1 Changes in prevalence of cardiovascular conditions

Prevalence of cardiovascular conditions was measured by asking participants if they had a previous doctor's diagnosis of cardiovascular conditions including hypertension, myocardial infarction, diabetes, stroke and angina. *Figure 3.3* shows the changes in the point prevalence of cardiovascular conditions between Wave 1 and Wave 2 and compares the point prevalence rates at Wave 2 for both IDS-TILDA and TILDA (Finucane *et al.,* 2014). Prevalence of hypertension in IDS-TILDA participants increased between Wave 1 and Wave 2 from 15.9% to 18.1%. Of most interest was the finding that rates of hypertension among people with ID were 50% lower than the reported general population rate of 37.2% (Finucane *et al.,* 2014).

Figure 3.3: Prevalence of cardiovascular conditions.
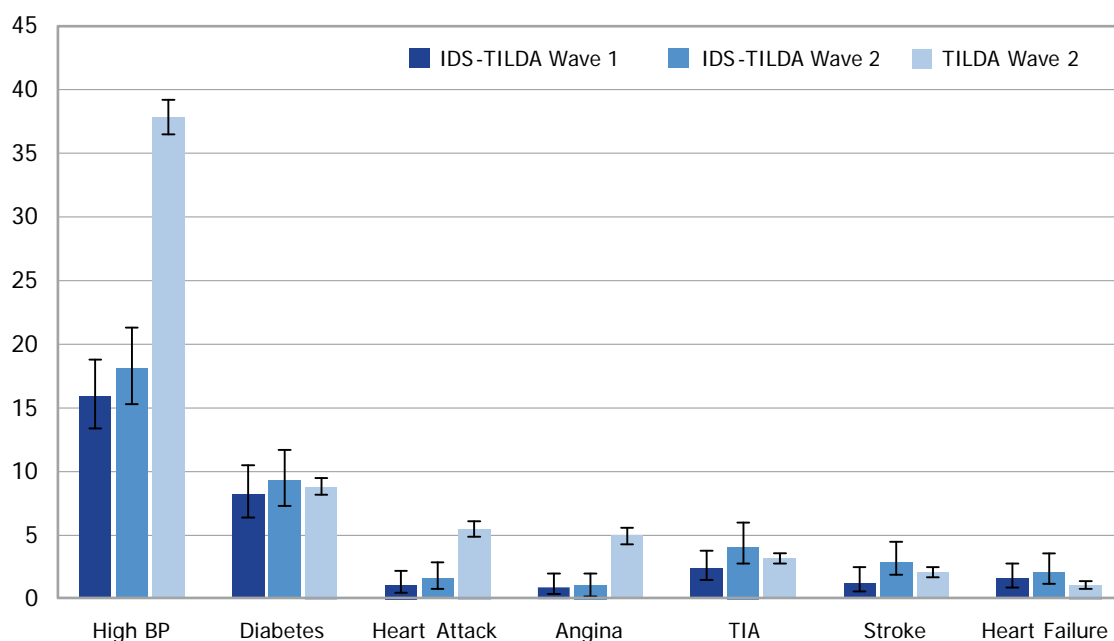
In TILDA Wave 1 a significant difference was identified between self-reported hypertension and objectively measured rates, with 58% of men and 49% of women having undiagnosed hypertension despite measured symptoms (Cronin *et al.,* 2011). Mindful of this, IDS-TILDA introduced objective measurement of blood pressure in Wave 2.

3.5.2 Doctor's diagnosis verses objectively measured hypertension

In contrast to the general population, as can be seen from *figure 3.4,* there is very little difference between the doctor's diagnosis and objectively measured hypertension in people with ID at 17.5% versus 18.1% on objective measurement. The minimal difference may be reflective of most people with ID having regular access through their service provider to their GP and/or to nursing services and their blood pressure is regularly checked.

Figure 3.4: Comparison of doctor's diagnosis of hypertension verses objectively measured hypertension
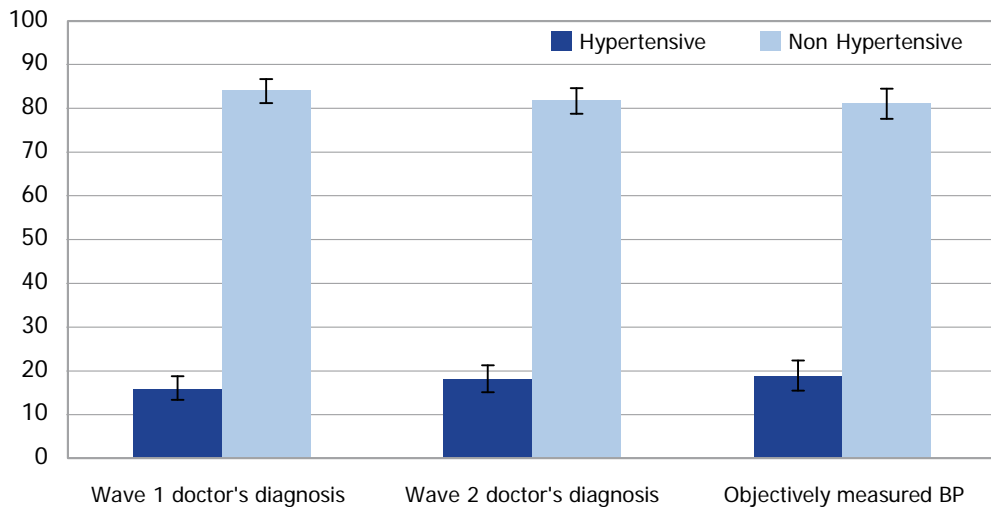
Looking at differences between doctor's diagnosis and objectively measured blood pressure with regards to age, gender and level of ID (Appendix table 3.A.2), what is notable is that under diagnosis of elevated blood pressure was higher among the younger cohort (40-49 years) with 5.5% reporting a doctor's diagnosis compared to 12.3% meeting criteria for hypertension on objective measurement. This was reversed amongst the older aged cohort 65+ years with 30.8% reporting a doctor's diagnosis compared to 23.4% objectively measured. For the older group this difference may reflect active efforts to manage previously identified hypertension. Although, rates of hypertension among the general population reported by TILDA were twice as high as those reported for the ID population the underlying trends were similar.

Examining gender, women had higher levels of doctor's diagnosis than objectively measured hypertension (17.8% versus 15.8%) whereas men's rates of diagnosis were less than measured hypertension (18.5% versus 22.7%). Regarding level of ID, of concern was the under diagnosis of hypertension in people with severe to profound ID with 11.8% reporting a doctor's diagnosis, versus 17.5% meeting criteria for hypertension on objective measurement.

3.5.3 Three-year incidence of cardiovascular conditions

As may be seen in *figure 3.5* three-year incidence of cardiovascular conditions in Wave 2 was highest in terms of hypertension (6.9%), TIA (2%) and stroke (1.8%). The incidence of hypertension was similar to the two-year incidence reported for TILDA

at (6.5%), however TIA was double the reported TILDA incidence (0.9%) and stroke had more than four times the incidence reported by TILDA (0.4%) (See Appendix table 3.A.3).

The incidence of diabetes among the IDS-TILDA population (1.3%) was lower than the incidence reported by TILDA (2.0%). The incidence of heart failure, heart attack and angina was 1% or lower.

Figure 3.5: Three-year incidence of cardiovascular conditions
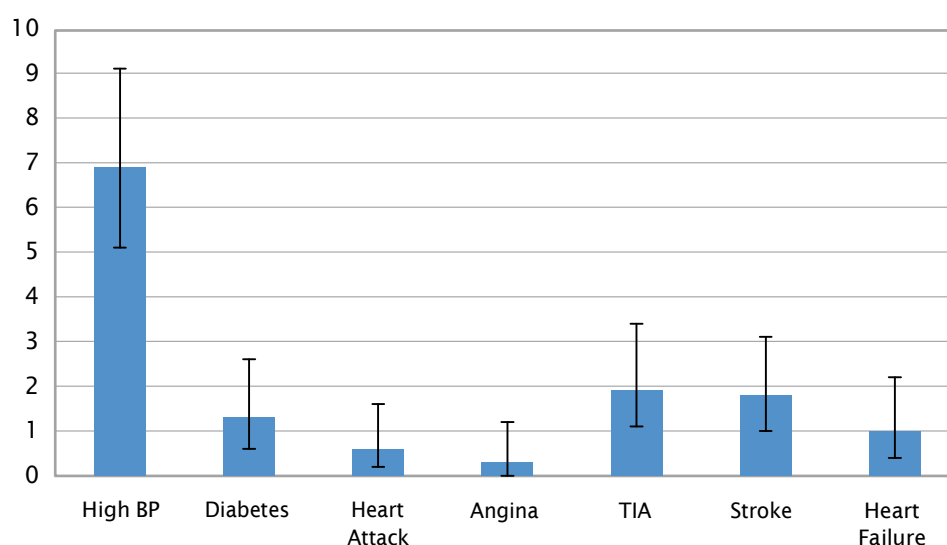
3.5.4 Changes in the point prevalence of other cardiovascular conditions

Trans-ischemic attack (TIA) and stroke almost doubled from Wave 1 to Wave 2 and there was slightly higher prevalence of diabetes (9.3%), stroke (2.9%), and TIA (4.1%) among people with ID than among the TILDA population at 8.8%, 2.1%, and 3.2% respectively (Finucane *et al.,* 2014). The picture is reversed when considering angina and myocardial infarction with prevalence of these conditions almost five times greater in the general population than among adults with ID in this study. The prevalence of myocardial infarction was 1.6% in IDS-TILDA Wave 2 compared with 5.5% among the TILDA population Wave 2. The prevalence of angina was also higher among the TILDA population (5.0%) compared with the IDS-TILDA in Wave 2 (1.1%). These comparisons can be observed in *figure 3.3*.

Prevalence rates of cardiovascular conditions by gender, age and level of ID in Wave 2 IDS-TILDA are shown in Appendix table 3.A.4. For example more females present with diabetes (11.1%), angina (1.3%), TIA (4.6%) and stroke (3.1%), whereas more males present with myocardial infarction (heart attack, 1.6%), hypertension (18.5%) or heart failure (2.3%). Age gradient increases are evident across all conditions and higher prevalence of most conditions are noted among those within the mild or moderate categories of ID, apart from TIA and stroke where there are higher prevalence among those within the severe/profound category.

3.6 Changes in Point Prevalence of Chronic Conditions (Non-Cardiovascular)

Data was collected on a range of non-cardiovascular conditions including muscular skeletal and sensory conditions. *Figure 3.6* documents the increases in point prevalence for these conditions from Wave 1 to Wave 2 and compares this data with the prevalence rates reported by TILDA for the general population (Finucane *et al.,* 2014). For both the general population and IDS-TILDA prevalence increased most significantly for osteoporosis, arthritis and cataracts, with the point prevalences for cancers, cataracts and macular degeneration higher for people with ID than that reported for the general population.

Figure 3.6: Point prevalence of chronic conditions (non-cardiovascular)
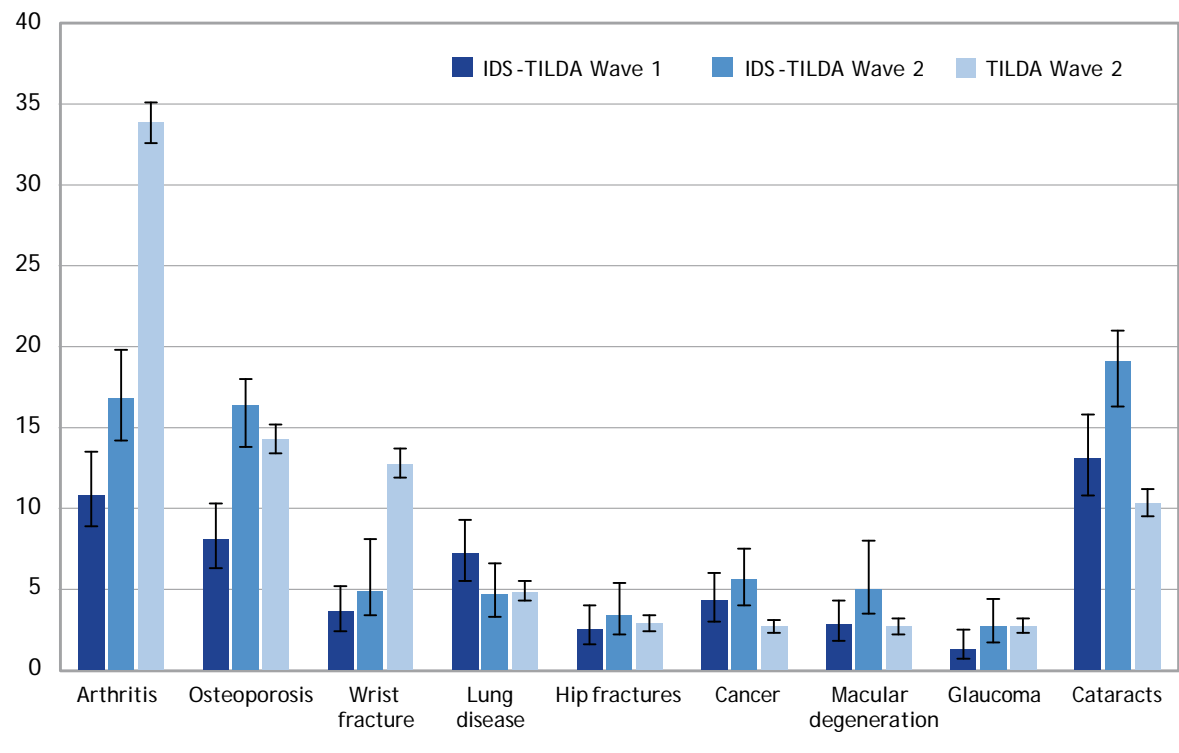
3.6.1 Muscular skeletal conditions

Muscular skeletal conditions pose a major and pervasive burden on individuals, service providers and health care systems (Hoy *et al.,* 2014). TILDA have identified increased rates of arthritis especially among their oldest population (Finucane *et al.,* 2014). In IDS-TILDA the prevalence of arthritis has more than doubled from 8.1% in Wave 1 to 16.8% in Wave 2, however this rate is approximately 50% lower than the 33.9% reported for the general population. Such a finding needs to be interpreted with caution given that diagnosis of arthritis relies heavily upon self-report of symptoms and many people with ID have significant difficulty identifying and communicating their health needs and concerns.

3.6.2 Osteoporosis

The prevalence of doctor's diagnosis of osteoporosis for people with ID doubled from Wave 1 to Wave 2, from 8.1% to 16.4% respectively, which is higher than that reported for the general population at 14.3% (Finucane *et al.,* 2014). Doctor's diagnosis of osteoporosis was three times higher in females than males at 23.5% versus 7.4% respectively, and doctor's diagnosis of osteoporosis increased fivefold with age from 5.6% (40 – 49 years) to 29.7% (65 years+). There was very little difference attributable to level of ID with doctor's diagnosis of osteoporosis at 13% among the mild category, 17.3% in the mild category and 17.2% within the severe/ profound category.

3.6.3 Objective measurement of bone status

In Wave 1 TILDA objectively measured bone status and found a significant discrepancy between a doctor's diagnosis and objectively measured osteoporosis. Among those objectively measured as having osteoporosis, 66% of females and all the men (100%) did not report a doctor's diagnosis of this debilitating condition (Cronin *et al.,* 2011). For Wave 2, IDS-TILDA introduced objective bone status measurement using measures from the validated GE Lunar Achilles Insight Express II (see methodology chapter 6; section 6.7).

Given difficulties with identification of foot dominance for persons with ID, bone status was evaluated for both feet. As may be seen in *figure 3.7*, on the right foot the overall prevalence of osteoporosis was 34% and 36% for the left foot, with a further 34% meeting criteria for osteopenia with no difference between left and right foot.

Overall the point prevalence of osteoporosis for people with ID was higher than for the general population at 35% versus 28% respectively. Of specific concern was that the prevalence of osteoporosis in women with ID in the 50 – 64 years age

group (36.8%) was almost 5 times higher than the 8% reported for the similarly aged female general population (Cronin *et al.,* 2011). Of further concern is that the prevalence of osteopenia was more than double that of the general population at 37% versus 14%, equating to almost seven out of ten people with ID having either osteoporosis or osteopenia.

Figure 3.7: Doctor's diagnosis versus objectively measured bone health
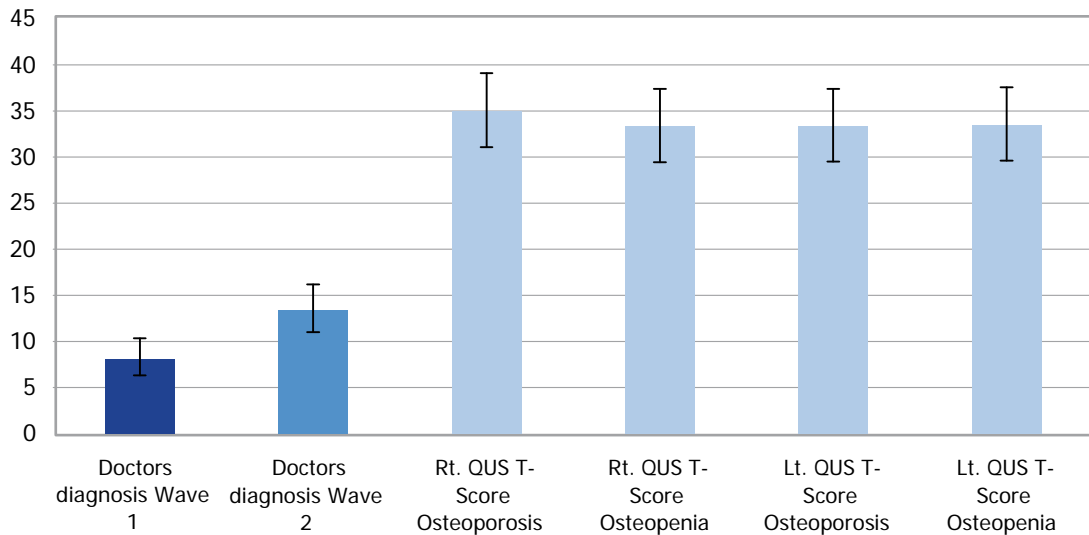
Considering level of ID, those within the mild category were objectively measured at 23.2% (left foot) and 17.9% (right foot), as meeting criteria for osteoporosis, and those with moderate level of ID were measured at 27% for both feet. Of most concern was that those within the severe to profound range of ID presented with 59.7% (left foot) and 58% (right foot), over four times higher than the doctor's reported diagnosis of osteoporosis for this group (14.8%) and almost double that of their peers with moderate ID (see Appendix table 3.A.5). Possible explanations are that this group presents with greater mobility challenges, and have higher rates of morbidity and health challenges. Despite these increased related health concerns, the group would also be more likely to have greater communication difficulties and to be less likely to express their experience of pain for example. In light of these findings it would be prudent to further investigate and monitor for increased risk for fragility fracture and their consequences among people with severe/profound ID.

IDS-TILDA in its Wave 1 report noted lower rates of fracture between its cohort and the general population. There are some changes to this picture by Wave 2. A rise in prevalence of wrist fracture from 2.7% to 4.8% by Wave 2 in IDS-TILDA contrasts

with a rate of 12.7% in TILDA and supports continuation of lower rates of fracture. However, a rise in hip fracture from 2.5% in Wave 1 to 3.4% in Wave 2 for IDS-TILDA when compared to a decline from 3.6% to 2.9% in the general population at Wave 2 means hip fracture is now slightly higher among IDS-TILDA participants. The lower rates of wrist fracture may reflect that people with an ID when they fall may be less likely than the general population of older adults to reach and try to break that fall, with the unintended consequence of wrist fractures.

3.6.4 Sensory impairment

Sensory impairment continues to emerge as an issue of serious concern among adults with ID. Sensory impairment was noted in Wave 1 as significant and although their point prevalence held steady for the general population, vision and hearing difficulties in IDS-TILDA have almost doubled by Wave 2. As shown in *figure 3.8* the point prevalence of cataracts in Wave 2 has increased by 6 percentage points (a 46% increase) to 19.1% compared with 13.1% at Wave 1, macular degeneration has almost doubled to 5.0% from 2.8%, and glaucoma prevalence doubled to 2.6% from 1.3%. Overall, more women than men presented with higher rates across all eye conditions with almost twice as many women than men presenting with macular degeneration at 5.9% versus 3.9%, in the middle age group (50 – 64 years) and falling within the moderate level of ID (6.3%). Chronic eye diseases such as cataracts are noted to be particularly high among people with ID. Recently, McCarron *et al.,* (2013) highlighted that in multimorbidity among people with ID eye disease combining with mental health or neurological conditions was among the most influential conditions for secondary ill health. Although there are many challenges that surround assessment and amelioration of these conditions, the limitations these conditions may impose on a person's daily living activities and quality of life suggest it would be prudent to address these issues further.

The prevalence of hearing difficulties was unchanged with 11.6% of people reporting their hearing as fair to poor or as legally deaf in Wave 1 and 11.4% prevalence in Wave 2. Prevalence of non-cardiovascular conditions by gender, age and level of ID can be observed in Appendix table 3.A.6.

3.6.5 Three-year incidence of chronic conditions (non-cardiovascular)

Similar to the TILDA reports for the general population, the highest incidence rates of non-cardiovascular chronic conditions (by doctor's diagnosis) in IDS-TILDA were osteoporosis (8.5%) arthritis (6.0%) and cataracts (5.9%). By Wave 2 the greatest increase in incidence was of eye disease, particularly cataract disease at 5.9% and macular degeneration at 2.1% (see *figure 3.8*).

Figure 3.8: Three-year incidence of chronic conditions.
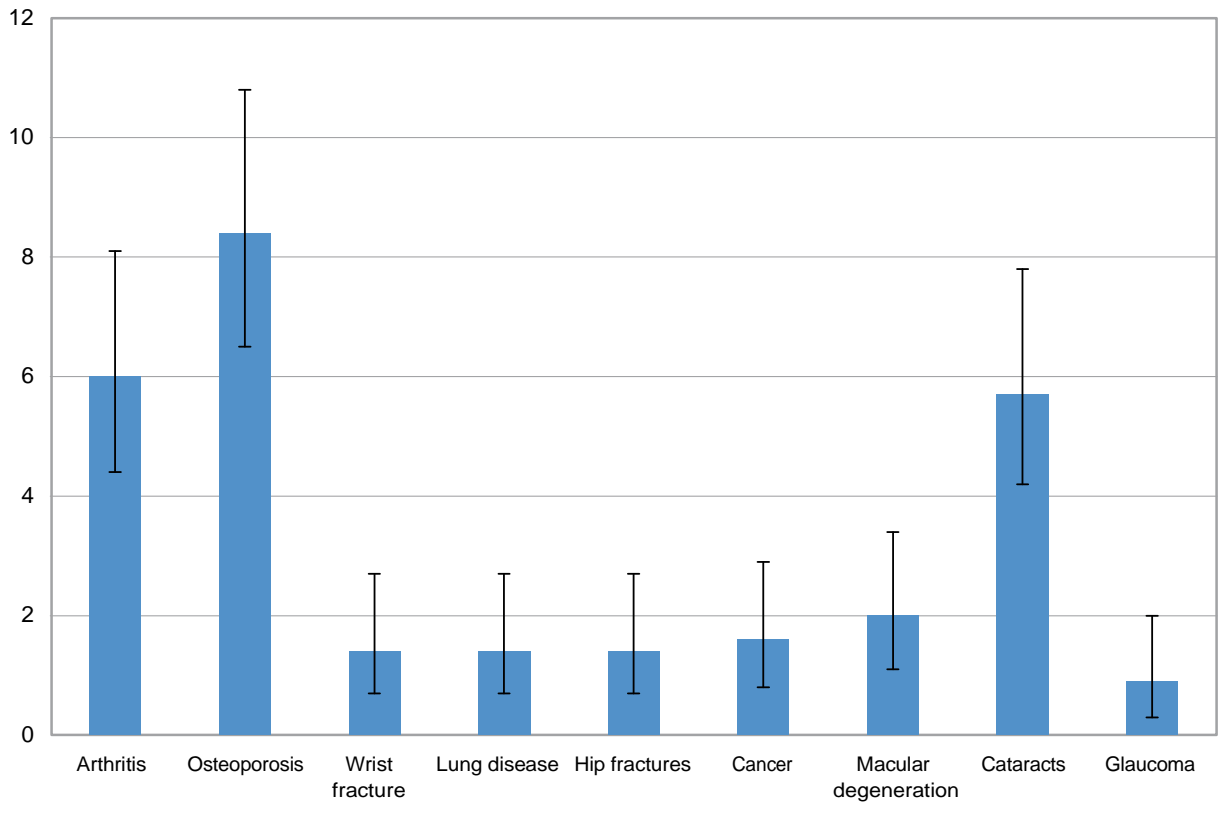
All other chronic conditions have an incidence rate of below 2%. It should be noted that the incidence period was two years for TILDA and three years for IDS-TILDA, meaning the overall incidence difference between the two groups could possibly be greater (see Appendix table 3.A.7).

3.7 Prevalence and Incidence of Falls

Risk of falls for older people with ID is similar to that of the older general population in terms of co-morbidity, vision impairment and gait abnormalities. However, an added loading given higher rates of these conditions, and higher levels of epilepsy and cerebral palsy further increases potential for falls in people with an ID (Cox *et al.,* 2010; Hsieh *et al.,* 2012).

Similar to Wave 1, people were asked if they experienced a fall in the past month and in the past year, which included a slip or trip in which they lost their balance and landed on the floor or ground at a lower level. For the purposes of the report and to support comparability with TILDA, people who reported one fall are classified as fallers and those who reported two or more are classified as recurrent fallers. People also reported if they sustained an injury as a result of the fall (classified as injurious falls).

3.7.1 Changes in prevalence of falls

Overall, the falls picture for people with ID was similar to that reported for the general population (Finucane *et al.,* 2014). As can be seen from *figure 3.9* there is a slight increase in falls and recurrent falls from Wave 1 (26.7%) to Wave 2 (28.3%). This was a higher rate than that reported by TILDA (22.2%), with recurrent falls almost double that of the general population, 15.3% versus 8.8%. With regards to injurious falls, more people with ID appear to experience an injury from their fall than reported for the general population at 13.7% versus 9.9% respectively.

Figure 3.9: Comparison of the prevalence of falls, recurrent falls and injurious falls between IDS-TILDA and TILDA.
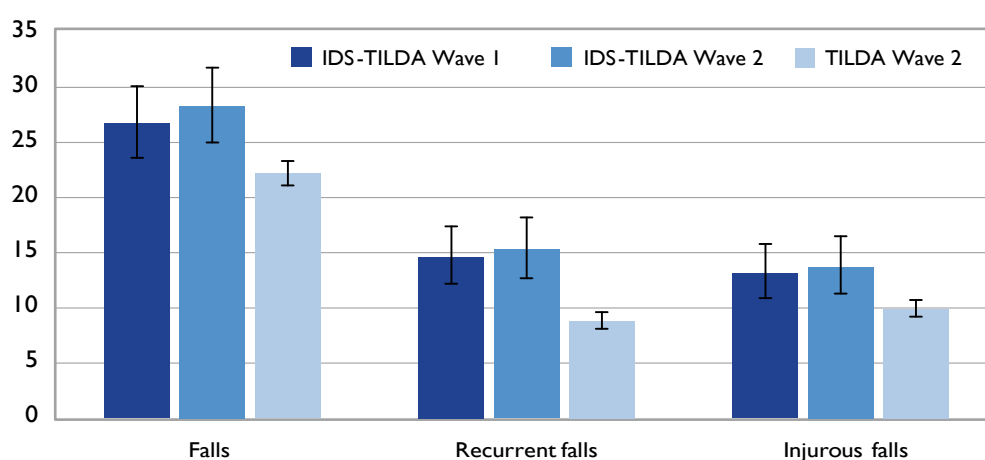
Of those experiencing falls, the highest prevalence of falls, recurrent falls and injurious falls is among those aged 50 – 64 years *(figure 3.10)*. However, similar to IDS-TILDA Wave 1 findings, the prevalence of falls among younger adults with ID aged 40-49 years (22.7%) is almost similar to the TILDA older age group of 75+ years (24.6%). Of great concern is that prevalence of falls in the 50 – 59 years group of people with ID (33%) was almost double that for similarly aged persons in the general population (17.6%).

Figure 3.10: Prevalence of falls, recurrent falls and injurious falls at Wave 2 by age.
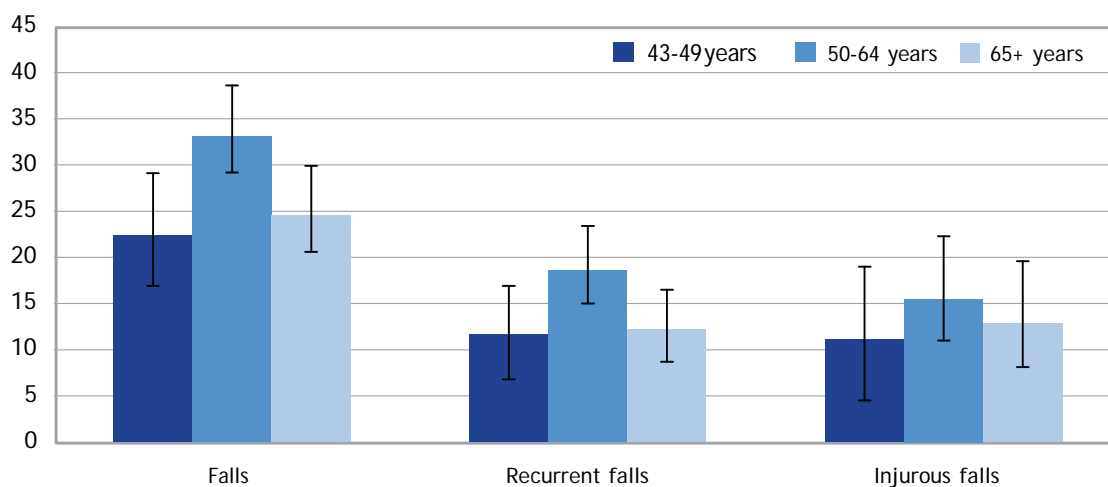
3.7.2 Changes in falls prevalence between Wave 1 and Wave 2

As may be seen in Table 3.1, of those who had no falls in Wave 1, 9.8% reported a fall in Wave 2 with a further 11.2% with recurrent falls in Wave 2. Of those who reported one fall in Wave 1, 13.4% reported recurrent falls in Wave 2. Finally, from Wave 1 to Wave 2, the number of recurrent fallers reduced by almost 50%.

Table 3.1: Changes in falls prevalence between Wave 1 and Wave 2

	No Falls W2 % (95% CI)	One Fall W2 % (95% CI)	Recurrent Falls W2 % (95% CI)	Total	Number in Sample
No Falls W1	79.0 (75.2 – 82.4)	9.8 (7.4 – 12.8)	11.2 (8.6 – 14.3)	100	510
One Fall W1	68.3 (57.0 – 77.9)	18.3 (10.9 – 28.7)	13.4 (7.2 – 23.1)	100	82
Recurrent Falls W1	46.1 (36.3 – 56.2)	15.7 (9.5 – 24.5)	38.2 (28.9 – 48.4)	100	102
Total	72.9 (69.4 – 76.1)	11.7 (9.4 – 14.3)	15.4 (12.9 – 18.4)	100	694

The prevalence of falls of those with mild to moderate ID was higher than for those with severe to profound ID. Given that people within the mild to moderate range of ID are more likely to be living within community/independent type settings, these results highlight the need for falls prevention programmes (see Appendix table 3.A.8).

3.8 Other Non-Cardiovascular Chronic Conditions

There were some increases at Wave 2 in the point prevalence of other non-cardiovascular chronic conditions (see *figure 3.11*).

Figure 3.11: Changes in prevalence of other chronic conditions (non-cardiovascular).
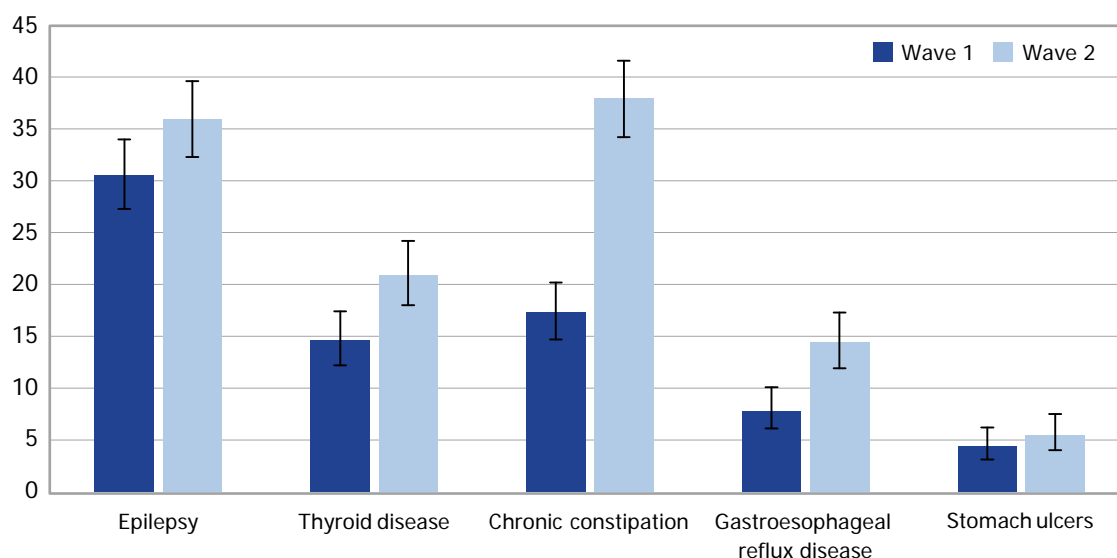
The point prevalence of chronic constipation has more than doubled from Wave 1 to Wave 2, 17.3% to 38% respectively. Almost 50% of those aged 65+ reported chronic constipation as did more than one third (38.1%) of those aged 40-49 years (see Appendix table 3.A.9).

The prevalence of epilepsy increased from 30.5% in Wave 1 to 35.9% in Wave 2. The most noted increase was among people with Down syndrome, where prevalence increased from 19.2% to 27.9% and incidence of epilepsy from Wave 1 to Wave 2 in the Down syndrome population was 10.4%. (See *figure 3.12*). Epilepsy onset was strongly associated with the diagnosis of Alzheimer's dementia.

Figure 3.12: Wave 2 Prevalence and incidence of epilepsy by aetiology.
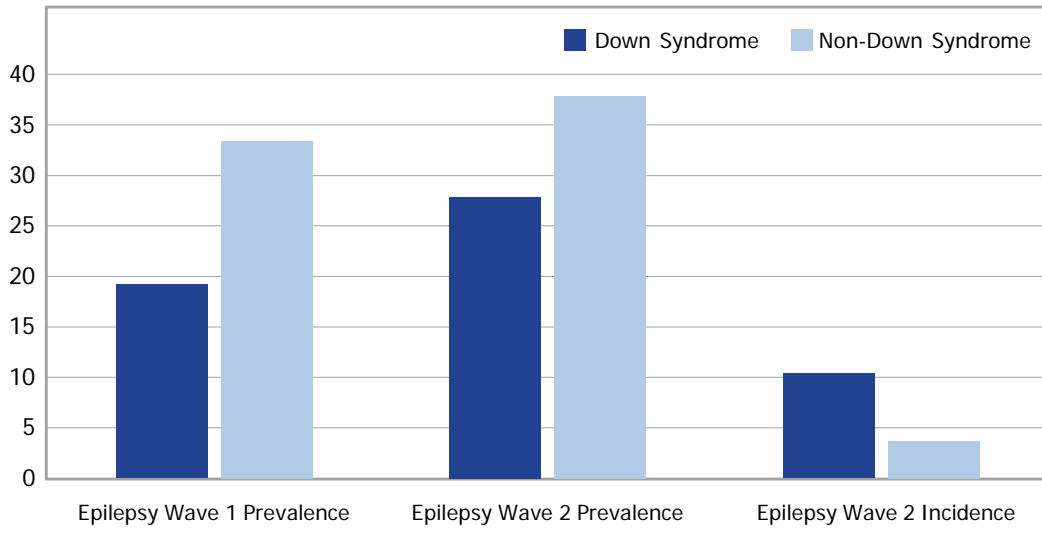
As may be seen in table 3.2, thyroid disease continued to be a concern among older adults with ID. Females presented with a higher prevalence, 25.5% compared to 15% for males. Despite the point prevalence decline between waves for males and increase for females, there was very little difference between male and female incidence at 5.9% and 6.2% respectively. The greatest rise in prevalence was seen among females, among those of a moderate level of ID and those within the 65+ year category. Also, the highest incidence Wave 1 to Wave 2 was among those in the 65 +year age category.

Table 3.2: Wave 1 & 2 prevalence and Wave 2 incidence of thyroid disease by age, gender and level of ID.

	Thyroid Disease W1 Prevalence% (95% CI)	Thyroid Disease W2 Prevalence % (95% CI)	Thyroid Disease W2 Incidence% (95% CI)
Gender:			
Male	19.3 (15.7 – 23.5)	15.0 (11.3 – 19.6)	5.9 (4.1 – 9.2)
Female	8.9 (6.2 – 12.6)	25.6 (21.4 – 30.3)	6.2 (3.6 – 9.3)
Age:			
43 – 49	13.9 (10.1 – 18.7)	19.6 (14.4 – 26.0)	5.2 (2.6 – 9.5)
50 – 64	17.1 (13.4 – 21.6)	21.1 (17.0 – 25.8)	5.1 (3.2 – 8.1)
≥65	9.7 (5.5 – 16.3)	22.6 (16.3 – 30.4)	9.6 (5.5 – 15.9)
Level of ID:			
Mild	9.6 (5.8 – 15.4)	13.2 (8.5 – 20.0)	3.3 (1.2 – 8.0)
Moderate	15.8 (12.1 – 20.5)	23.7 (19.1 – 29.0)	7.7 (5.0 – 11.4)
Severe/Profound	17.5 (12.7 – 23.5)	22.7 (17.1 – 29.5)	5.3 (5.3 – 9.8)

3.8.1 Three-year incidence of other chronic conditions (non-cardiovascular)

Figure 3.13 presents the overall three year incidence of non-cardiovascular chronic conditions. Incidence rates are highest for chronic constipation at 23.8%, gastroesophageal reflux at 6.9%, thyroid disease at 6.1%, epilepsy at 4.9% and stomach ulcers at 3.8% (see Appendix table 3.A.10).

Figure 3.13: Three year incidence of other chronic conditions
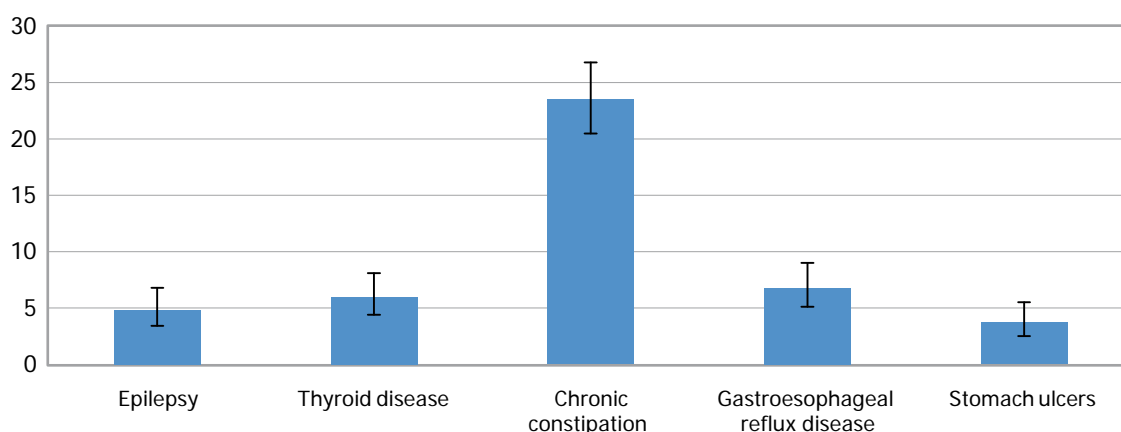
3.9 Pain

People were asked to report if they were often troubled by pain. There was a small drop in those reporting pain from 33.2% in Wave 1 to 30% in Wave 2, although rates remained high (see table 3.3). What was of note was that more women (33%) than men (26.3%) reported pain and, regardless of gender, pain reports were high among the older age group (65 years+). Across all levels of ID the prevalence of pain appeared to decline, but confidence intervals do not support that the declines were significant. Additionally given communication difficulties experienced by people with ID pain is likely to be under-reported particularly for those with a more severe intellectual disability.

Table 3.3: Prevalence of pain Wave 1 and Wave 2 by gender, age and level of ID

	Wave 1		Wave 2	
	%	(95% CI)	%	(95% CI)
Gender:				
Male	27.7	(23.0 − 32.9)	26.3	(21.4 − 31.8)
Female	37.9	(32.8 − 42.5)	33.0	(28.3 − 38.0)
Age:				
43 − 49	35.1	(29.4 − 41.2)	22.5	(16.9 − 29.2)
50 − 64	31.6	(26.7 − 37.0)	31.8	(27.0 − 37.2)
≥65	32.6	(24.7 − 41.4)	35.7	(27.9 − 44.1)
Level of ID:				
Mild	34.5	(27.4 − 42.4)	29.1	(22.2 − 37.2)
Moderate	30.5	(25.5 − 35.9)	29.2	(24.1 − 34.9)
Severe/Profound	38.0	(31.2 − 45.3)	33.1	(26.3 − 40.7)
Total	33.1	(29.8 − 36.7)	30.0	(26.6 − 33.7)

3.10 Changes in Behavioural Health

Behavioural lifestyle patterns can have a positive or negative impact on overall health and well-being (Emerson, 2005). Engaging in negative behaviours such as smoking or alcohol abuse, the quality of nutritional choices and the levels of physical activity all influence ageing and overall health and well-being (Rizzuto *et al.,* 2012). The effects of lifestyle choice and associated increased obesity and inactivity levels may in turn increase the risk of poorer health outcomes as people age (De Winter *et al.,* 2012). Smoking and alcohol abuse were already relatively low among this population and declined further in Wave 2. There were similar trends for TILDA.

Figure 3.14: Prevalence of negative health behaviours.
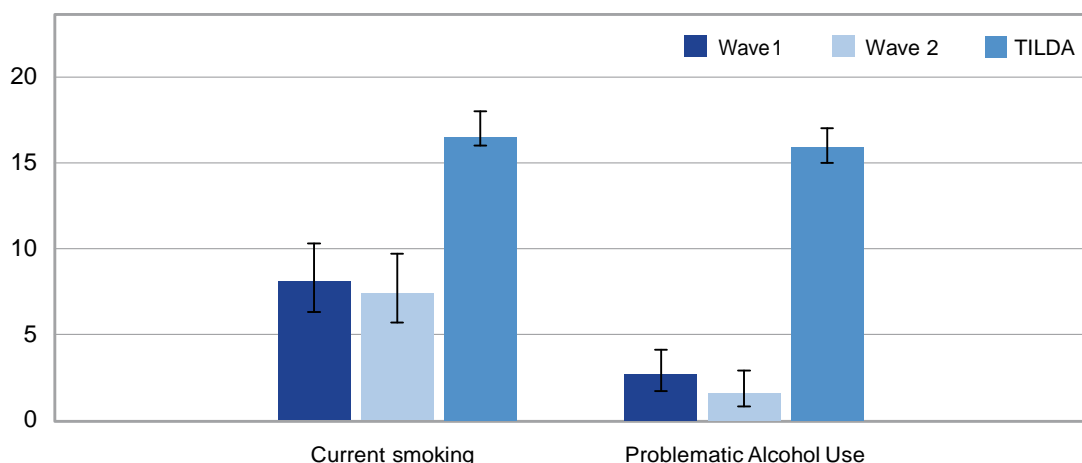
Of those who smoked among the IDS-TILDA study, 67.3% (*n*=35) were male, 40% (*n*=21) were living in community group homes and 36.5% (*n*=19) were living in residential settings; and the majority 87.2% had a mild or moderate level of ID. As was found in Wave 1 of IDS-TILDA, the lowest rates of smoking were found in the younger age group; 15.4% of those who smoked were aged between 42 and 49, 46.2% were aged between 50 and 64 and 38.5% were over 65.

Levels of alcohol consumption remained stable in the IDS-TILDA population (40.4% in Wave ; 39% in Wave 2). Problematic alcohol use, defined as drinking alcohol 3 or more days per week, declined from 2.6% (*n*=18) in Wave 1 to 1.6% (*n*=11) in Wave 2 (see *figure 3.14*). By comparison TILDA noted an increase in problematic alcohol use from 12.2% in Wave 1 to 15.9% in Wave 2.

3.11 Nutritional Health and Obesity

Nutritional health is a key determinant for healthy ageing and the prevention of age-related diseases such as cardiovascular conditions, diabetes and hypertension (Södergren *et al.,* 2014).

3.11.1 Self-rated nutritional health

In Wave 2 people were asked to rate their overall diet on the 5-point global rating scale from excellent to poor. As can be seen in *figure 3.15,* there was a slight drop (5%) from Wave 1 to Wave 2 among those who previously reported excellent to very good nutritional status, with a corresponding increase in those reporting good nutritional status. There were no observed changes among those who rated their nutritional status as poor. Nor were there any additional differences across age groups or levels of ID. A trend continued of women being more inclined to rate their nutritional status at lower levels than men.

Figure 3.15: Distribution of self-rated nutritional health.
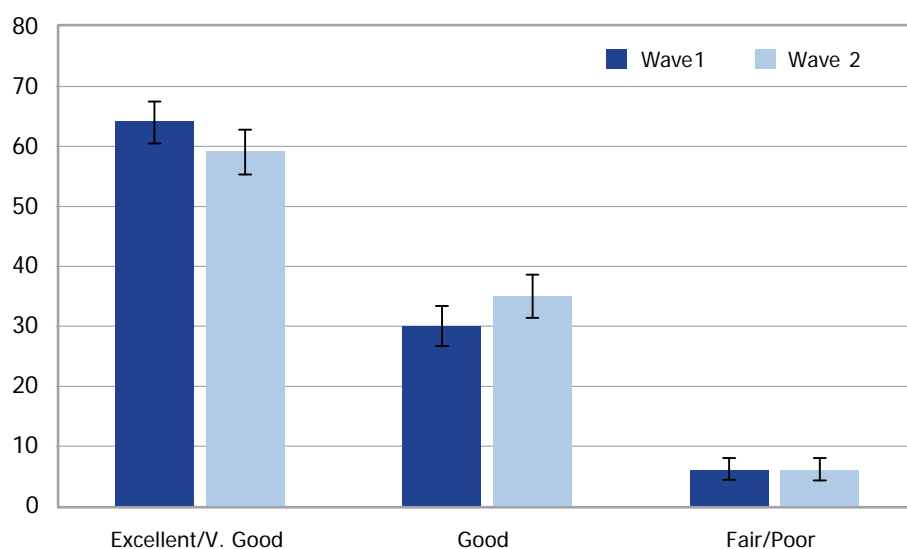
3.11.2 Dietary consumption

Utilising the SLAN instrument (Harrington *et al.,* 2008), similar to Wave 1 people identified the types of food they consumed with no notable changes from Wave 1. As may be seen in *figure 3.16* there were minor increases in vegetable intake; fruit intake remained lowest in terms of the overall food pyramid and there was almost a seven percentage point drop in the intake of sweets and snacks from 52% to 45.5%.

Level of fast food consumption has been associated with overweight and obesity (Bowman, 2004). In Wave 2 of IDS-TILDA, a question was added in relation to frequency of fast food consumption. Overall, 28.8% (*n*=197) reported eating fast food once a week or more, 25.8% (*n*=177) reported 1-3 times a month and 45.4% (*n*=311) reported rarely or never eating fast food. Of those who reported eating fast food once a week or more, 20.5% (*n*=23) were living independently, 35.1% (*n*=104) were living in the community and 25.3% (*n*=70) were living in a residential setting. More men than women reported eating fast food once a week or more at 34.7% (*n*=104), compared to 24.2% (*n*=93) of women (see table 3.A.11).

Figure 3.16: Dietary consumption changes from Wave 1 to Wave 2.
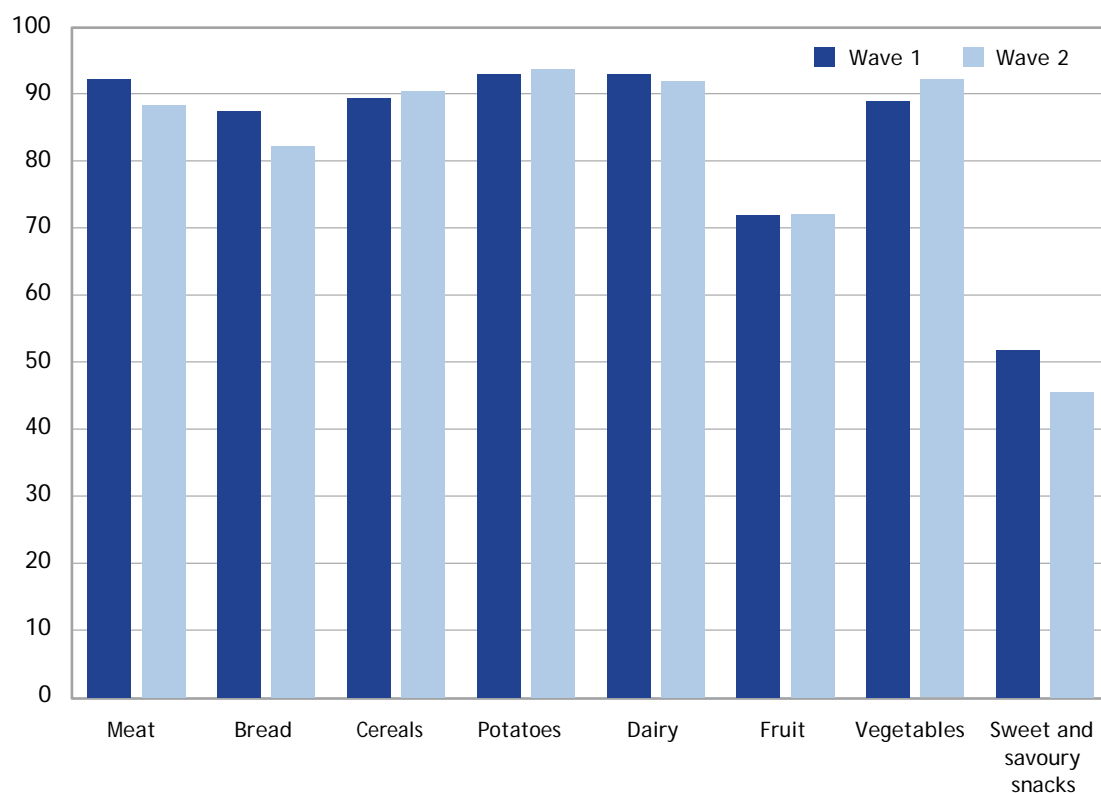
3.12 Physical Activity

Physical activity is essential in maintaining lifelong health, reducing the risk of chronic disease and promoting benefits in psychological and mental health (National Physical Activity Guidelines Steering Group, 2014). In Ireland, reported levels of inactivity have been associated with those who are more likely to present with physical, psychological or mental health disorders (Harrington *et al.,* 2008).

In Wave 2 of IDS-TILDA, participants were specifically asked how many days they had engaged in physical activity in the 7 days prior to their interview. Activity level was categorised into low, moderate or high based on The International Physical Activity Questionnaire (IPAQ) (Craig *et al.,* 2003). This permitted at Wave 2 comparison between IDS-TILDA and TILDA findings.

Figure 3.17: Comparing levels of physical activity between Wave 2 IDS-TILDA and Wave 2 TILDA.
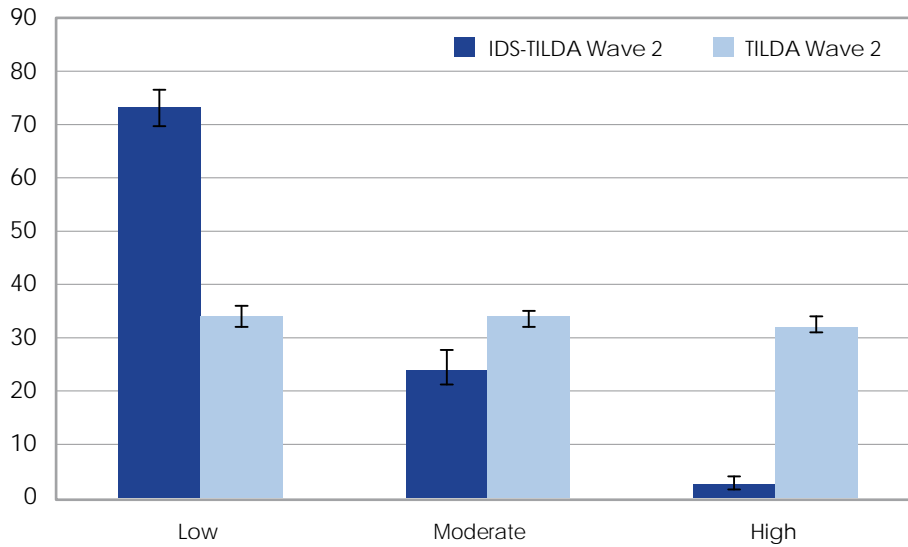
The majority of IDS-TILDA Wave 2 participants engaged in low levels of physical activity (73.2%, *n*=506), with 24.3% (*n*=168) engaging in moderate activity and just 2.5% (*n*=17) reporting engagement in high levels of physical activity. These findings contrast with TILDA findings of 34% of people engaging in low levels of physical activity, 34% in moderate physical activity and 33% in high levels of physical activity (see *figure 3.17*). Levels of activity for IDS-TILDA participants at Wave 2 were similar to findings at Wave 1 and it is concerning that low levels of reported activity continue among people with ID. Levels of moderate and vigorous activity among people with ID remain too low to accrue health benefits.

3.13 Obesity

Obesity is a major concern for the Irish population and is both classified as an epidemic and is associated with chronic conditions such as cardiovascular disease and diabetes (WHO, 2000). For the purposes of this report the obesity figures are based on Body Mass Index (BMI) calculations as an indicator of overall body adipose. BMI is calculated as weight in kilograms divided by height in meters squared (kg/m2) and the WHO cut-offs are used to define if the person is underweight, normal, overweight or obese (table 3.4).

Table 3.4: World Health Organisation body mass index classifications.

Classification	BMI (kg/m2)
Underweight	<18.50
Normal	18.50 - 24.99
Overweight	25.00 - 29.99
Obese	≥30.00

In Wave 2, height, weight and waist circumference were objectively measured. The feasibility of these measures with people with ID has been previously been established by Swinburne (2014). In Wave 2, 55.4% (*n*=417) of people were able to have their height measured and 65.5% (*n*=493) were able to engage in weight measurement. Surrogate measurements in the form of the Mid Upper Arm Circumference (MUAC) or Ulna length to measure height were used to estimate BMI (BAPEN, 2012; Weekes, Marinos, & Emery, 2004). This resulted in three categories of objectively measured BMI:

A. Those who engaged in height and weight measurement

B. Those who could engage in neither height or weight

C. Those who were unable to engage in height whereby ulna length was used

3.13.1 Prevalence of obesity

Overall levels of overweight and obesity were significant for IDS-TILDA participants. However, when compared with BMI reported for the general population, the overweight/obese prevalence is somewhat lower at 66.7% versus 79% respectively (table 3.5).

Table 3.5: BMI Findings

Category		Underweight	Normal	Overweight	Obese
		% f	*% f*	*% f*	*% f*
A	*n*=405	0.7 (*n*=3)	22 (*n*=89)	34.8 (*n*=141)	42.5 (*n*=172)
B	*n*=104	11.5 (*n*=12)	52.9 (*n*=55)	35.6 (*n*=37)	
C	*n*=80	5.0 (*n*=4)	42.5 (*n*=34)	31.3 (*n*=25)	21.3 (*n*=17)
IDS-TILDA Combined categories		3.2 (*n*=19)	30.1 (*n*=178)	66.7 (*n*=392)	
TILDA (Leahy *et al.,* 2014)		–	21%	79%	

3.13.2 Self-perception of weight verses objectively measured

Although these IDS-TILDA figures were lower than general population BMI findings, they are still unacceptably high. People were also asked if they perceived themselves as being overweight/obese, underweight or of normal weight in both Waves 1 and 2. Just over 30% in both Waves perceived themselves as overweight/obese and over 60% perceived themselves as being just right. However, the opposite was found in the objective measurement of weight, with 66.7% measured as being overweight or obese and 30% measured within the normal range (see *figure 3.18*). Considering people with ID may be less conscious of the health effects of excess weight, such perceptions do not encourage actions to avoid poor health outcomes as a consequence of increased weight.

Figure 3.18: Comparison of self-perception of weight status and actual measured weight.
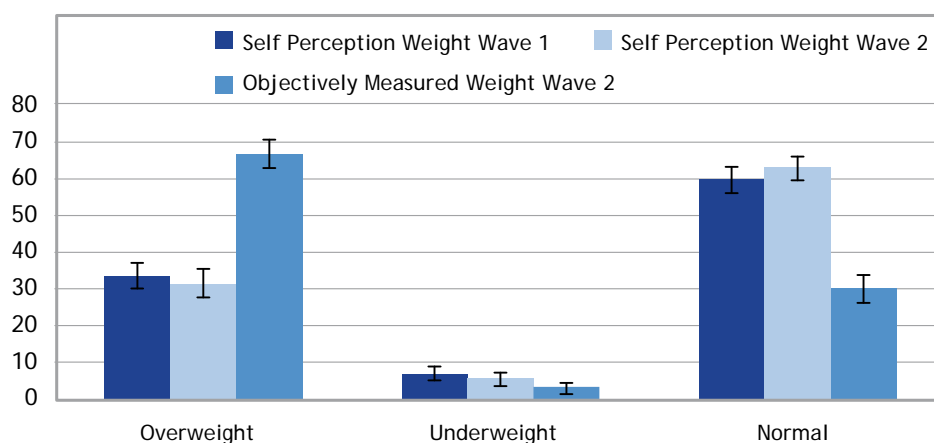
The majority of those within the younger age category (40 – 49 years) were overweight or obese (69.5%, *n*=167), followed closely by the middle age category (50 – 64 years) at 68.1% and 59.0% of those in the older age category. Higher levels of overweight and obesity were identified among women at 69.9%; however the levels among men were also high at 62.3%. TILDA found the reverse with overweight/obesity in men at 85% compared to women at 79% (Leahy *et al.,* 2014).

People with mild or moderate levels of ID were found to have the highest levels of overweight and obesity at 84.9% and 71.6% respectively. Less than half of those with severe/profound ID (46.9%) fell within this category; for comparisons see tables 3.A.12a, 3.A.12b, and 3.A.12c. Levels of those who perceived themselves as underweight were similar between Wave 1 (6.7%) and Wave 2 (5.6%); however on objective measurement levels were somewhat lower at 3.2%.

3.13.3 Waist circumference

Increased waist circumference is associated with increased risk of diabetes and cardiovascular disease such as high cholesterol and hypertension. Using WHO cut-offs (see table 3.6), those having central obesity and are at higher risk of developing cardio metabolic complications may be identified (WHO, 2008).

Table 3.6: WHO cut-off categories for waist circumference.

Risk Classification	Waist circumference (cm)	
	Males	Females
Normal	<94	<80
Increased risk of metabolic complications	94-101	80-87
Substantially increased risk of metabolic complication	≥102	≥88

In IDS-TILDA, 64.6% of the population were at substantially increased risk of cardio metabolic disease based on objective measures of waist circumference. By comparison, TILDA reported risk rates of 53% among Irish adults over the age of 50 years (Leahy *et al.,* 2014). WHO risk classification for cardio metabolic disease for females in TILDA was 56% compared to 78.4% for females in IDS-TILDA. There was very little difference in risk rates in the younger or middle age categories at 61.2% versus 63.1% respectively but, similar to the TILDA findings, the older age category were more likely to have larger waist circumferences at 74.5%. It was also notable that those with a mild level of ID were more likely to present with substantially increased waist circumference (76.9%), compared to 68.9% for people with a moderate level of ID and 47.1% for those with more severe/profound ID (Appendix table 3.A.13).

3.14 Conclusion

This chapter has provided an overview of the physical and behavioral health of adults with ID aged 40 years and older in Ireland, and has tracked changes in prevalence and plotted incidence in an effort to understand how health and health behaviours have changed over the three-year period between Wave 1 and Wave 2 of the IDS-TILDA study. Comparisons with related TILDA findings have also helped to provide a context in which to understand where and how the ageing of people with ID is the same or different from the general population. As policy responses to population ageing in Ireland emerge, as in recent health policy documents such as Healthy Ireland – A Framework for Improved Health and Well-Being 2013-2025(DoH, 2013a),

it is important that there is data on people with ID influencing such policy formation as there are important differences in their ageing particularly in the areas of physical and behavioral health.

For the general population there is considerable interest in cardiovascular disease as people age and in the management of risk factors. The data here points out that there are very high levels of risk factors to be managed for people with ID, but also highlight that the cardiovascular picture is much different; less hypertension angina and myocardial infarction for people with ID and more concerns with diabetes, stroke and TIA. More striking is the concern about osteoporosis and osteopenia, with almost seven out of ten people with ID being measured as having such concerns, particularly when levels of reported diagnosis of osteoporosis were so much lower (16.4%). This is a health crisis for people with ID as they age and will require more systematic and concerted efforts throughout health care and health promotion if it is to be addressed. Rising figures for hip fracture help highlight the seriousness of the concern.

Eye diseases are another major story of the Wave 2 data collection. The doubling from Wave 1 of rates of cataracts and of macular degeneration and their higher incidence in people with ID compared to the general population also demands that planning for health and well-being target these issues for people with ID.

Epilepsy continues to be higher in people with ID and its point prevalence increased from 30.5% in Wave 1 to 35.9% in Wave 2 and from 19.2% to 27.9% for those with Down syndrome. The finding for Down syndrome highlights the linkage found between late onset epilepsy and onset of dementia.

Constipation was further highlighted as a major health concern for people with ID. Point prevalence of chronic constipation more than doubled from 17.3% at Wave 1 to 38% at Wave 2. Although rates were highest in the oldest cohort (50%), it was also a complaint for 38.1% of those aged 40-49 years. Untreated or poorly treated chronic constipation is a major barrier to experiencing quality of life and its high levels among people with ID requires greater attention.

It is encouraging that most people with ID continue to view their health as good but of concern that they see their weight and their nutritional health as good and normal when more objective evidence suggests that there are serious concerns. Positive findings are the relatively low levels of fast food consumption, smoking and alcohol abuse. However the picture that emerges is of a clear need for more health education, health promotion and health management specifically targeted at people with ID and their more unique health concerns.

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Appendix Table 3.A.1: Prevalence and incidence of self-rated health at Wave 2

Prevalence Wave 2	Excellent/V. Good		Good		Fair/Poor	
	%	(95% CI)	%	(95% CI)	%	(95% CI)
Gender:						
Male	46.7	(41.0 – 52.5)	37.8	(32.4 – 43.6)	15.5	(11.7 – 20.1)
Female	46.4	(41.3 – 51.5)	37.8	(32.9 – 42.8)	15.9	(12.5 – 20.0)
Age:						
43-49	48.2	(41.0 – 55.4)	41.0	(34.1 – 48.3)	10.8	(6.9 – 16.2)
50-64	48.7	(43.4 – 54.1)	37.2	(32.2 – 42.6)	14.0	(10.7 – 18.2)
≥65	38.9	(31.0 – 47.4)	34.7	(27.1 – 43.2)	26.4	(19.6 – 34.5)
Level of ID:						
Mild	51.3	(43.1 – 59.5)	37.3	(29.7 – 45.6)	11.3	(6.9 – 17.8)
Moderate	48.6	(42.8 – 54.5)	36.1	(30.7 – 41.9)	15.2	(11.4 – 19.9)
Severe/Profound	37.0	(30.2 – 44.4)	41.8	(34.7 – 49.2)	21.2	(15.7 – 27.8)
Total	46.5	(42.7 – 50.3)	37.8	(34.2 – 41.5)	15.7	(13.1 – 18.7)

Appendix 3A: Tables on Changes in Physical and Behavioural health in Older Adults with an Intellectual Disability in Ireland

Changes in Physical and Behavioural Health of Older Adults with Intellectual Disability

Table 3.A.2: Hypertension prevalence: Comparison between doctor's diagnosis Wave 1, Wave 2 and objectively measure blood pressure

	Wave 1 doctor's diagnosis hypertension			Wave 2 Doctor's diagnosis hypertension			Objectively measured Hypertension		
	%	95% CI	Number in sample	%	95% CI	Number in sample	%	95% CI	Number in sample
Gender:									
Male	14.3	10.82-18.70	328	18.5	14.3-23.53	292	22.7	17.48-28.81	225
Female	17.2	13.72-21.35	401	17.8	14.12-22.09	377	15.8	11.87-20.56	292
Age:									
43-49	7.6	4.87-11.52	277	5.5	2.8-10.1	183	12.3	7.55-19.26	138
50-64	18.2	14.26-22.86	330	19.5	15.55-24.21	343	20.2	15.71-25.59	272
65+	28.7	21.05-37.7	122	30.8	23.47-39.12	143	23.4	15.95-32.72	107
Level of ID:									
Mild	23.4	17.22-30.94	158	25.2	18.55-33.12	147	19.7	13.25-28.05	122
Moderate	17.7	13.7-22.48	311	18.5	14.25-23.55	287	18.3	13.71-23.85	241
Severe/Profound	6.4	3.58-10.89	204	11.8	7.72-17.57	186	17.5	11.29-26.03	114
Total	15.9	13.37-18.82	729	18.1	15.16-21.37	699	18.8	15.54-22.45	517

Table 3.A.3: Incidence of cardiovascular conditions by gender, age and level of ID.

	Hypertension	Diabetes	Heart Attack	Angina	TIA	Stroke	Heart Failure
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Gender:							
Male	6.8 (4.3 – 10.5)	0.7 (0.1 – 2.6)	1.0 (0.2 – 3.1)	0.0	1.7 (0.6 – 4.2)	1.3 (0.4 – 3.6)	1.0 (2.6 – 3.1)
Female	6.9 (4.6 – 10.0)	1.8 (0.1 – 3.9)	0.3 (0.0 – 1.7)	0.5 (0.1 – 2.1)	2.1 (1.0 – 4.3)	2.1 (1.0 – 4.3)	1.0 (0.3 – 2.8)
Age:							
43-49	2.7 (1.0 – 6.6)	0.5 (0.0 – 3.3)	0.0	0.0	0.5 (0.0 – 3.4)	0.5 (0.0 – 3.3)	0.0
50-64	7.0 (4.7 – 10.4)	1.7 (0.1 – 3.9)	0.9 (0.2 – 2.7)	0.3 (0.0 – 1.8)	1.8 (0.7 – 4.0)	1.7 (0.7 – 3.9)	0.6 (0.1 – 2.3)
≥65	11.8 (7.2 – 18.5)	1.4 (0.2 – 5.4)	0.7 (0.0 – 4.4)	0.7 (0.0 – 4.4)	4.3 (1.8 – 9.5)	3.4 (1.3 – 8.3)	3.4 (1.3 – 8.2)
Level of ID:							
Mild	6.1 (3.0 – 11.6)	0.7 (0.0 – 4.2)	0.0	0.0	2.7 (0.9 – 7.2)	1.3 (0.2 – 5.2)	0.0
Moderate	7.6 (5.0 – 11.5)	1.7 (0.6 – 4.1)	0.7 (0.1 – 2.7)	0.3 (0.0 – 2.2)	1.8 (0.6 – 4.3)	2.4 (1.0 – 5.1)	1.4 (0.4 – 3.7)
Severe/Profound	6.4 (3.5 – 11.3)	1.6 (0.4 – 4.9)	0.5 (0.0 – 3.4)	0.5 (0.0 – 3.4)	1.6 (0.4 – 5.1)	1.1 (0.2 – 4.2)	1.1 (0.2 – 4.2)
Total	6.9 (5.1 – 9.1)	1.3 (0.6 – 2.6)	0.6 (0.2 – 1.6)	0.3 (0.0 – 1.2)	1.9 (1.1 – 3.4)	1.8 (1.0 – 3.1)	1.0 (0.4 – 2.2)

Table 3.A.4: Prevalence of cardiovascular conditions by gender, age and level of ID.

	High BP	Diabetes	Heart Attack	Angina	TIA	Stroke	Heart Failure
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Gender:							
Male	18.5 (14.3 – 23.5)	7.1 (4.6 – 10.7)	1.6 (0.6 – 3.9)	1.0 (0.2 – 3.0)	3.6 (1.9 – 6.5)	2.6 (1.2 – 5.2)	2.3 (1.0 – 4.8)
Female	17.8 (14.1 – 22.1)	11.1 (8.1 – 14.6)	0.5 (0.0 – 3.2)	1.3 (0.5 – 3.1)	4.6 (2.8 – 7.3)	3.1 (1.7 – 5.4)	2.0 (0.9 – 4.1)
Age:							
43-49	5.5 (2.8 – 10.1)	2.0 (0.7 – 5.5)	0.5 (0.0 – 3.2)	0	1.5 (0.4 – 4.8)	1.5 (0.4 – 4.8)	0
50-64	19.6 (15.4 – 24.0)	11.5 (8.5 – 15.4)	2.0 (0.9 – 4.0)	1.4 (0.5 – 3.4)	2.8 (1.4 – 5.3)	2.5 (1.2 – 4.9)	1.4 (0.5 – 3.4)
≥65	30.8 (23.5 – 39.1)	13.5 (8.6 – 20.3)	2.0 (0.5 – 6.3)	2.0 (0.5 – 6.3)	10.8 (6.5 – 17.2)	5.4 (2.5 – 10.7)	6.8 (3.5 – 12.4)
Level of ID:							
Mild	25.2 (18.5 – 33.1)	12.3 (7.8 – 18.8)	0.6 (0.0 – 4.1)	1.3 (0.2 – 5.1)	3.9 (1.6 – 8.7)	1.9 (0.5 – 6.0)	1.3 (0.2 – 0.5)
Moderate	18.5 (14.2 – 23.5)	9.0 (6.1 – 12.9)	2.0 (0.8 – 4.5)	1.3 (0.4 – 3.6)	3.3 (1.7 – 6.2)	2.7 (1.2 – 5.4)	2.3 (1.0 – 4.9)
Severe/Profound	11.8 (7.7 – 17.6)	8.3 (5.0 – 13.4)	1.6 (0.4 – 4.9)	1.0 (0.2 – 4.1)	4.7 (2.3 – 9.0)	3.1 (1.3 – 7.0)	1.6 (0.4 – 4.9)
Total	18.1 (15.3 – 21.3)	9.3 (7.3 – 11.7)	1.6 (0.8 – 2.9)	11.4 (0.5 – 2.3)	4.1 (2.8 – 6.0)	2.8 (1.8 – 4.4)	2.1 (1.2 – 3.6)

Table 3.A.5: Comparison of prevalence of doctor's diagnosis of osteoporosis Wave 1, Wave 2 & objectively measured W2 by gender, age and level of ID

	Wave 1 Osteoporosis			Wave 2 Osteoporosis			OM Osteoporosis left			OM Osteoporosis right			OM Osteopenia left			OM Osteopenia right		
	%	95% CI	Number in sample	%	95% CI	Number in sample	%	95% CI	Number in sample	%	95% CI	Number in sample	%	95% CI	Number in sample	%	95% CI	Number in sample
Gender:																		
Male	3.0	1.52-5.57	337	5.6	3.37-8.92	306	32.4	26.53-38.75	238	26.3	20.9-32.38	240	32.8	26.92-39.18	238	37.1	31.02-43.56	240
Female	12.3	9.37-15.93	415	19.6	15.87-24.03	387	37.0	31.72-42.51	322	38.7	33.36-44.38	315	33.9	28.75-39.34	322	30.8	25.8-36.26	315
Age:																		
43-49	3.1	1.54-6.08	287	5.2	2.64-9.54	194	27.5	20.89-35.21	160	23.9	17.66-31.43	159	33.1	26.02-41.07	160	31.4	24.45-39.36	159
50-64	9.3	6.56-13.04	343	13.3	10.03-17.41	353	33.8	28.36-39.71	281	33.2	27.78-39.1	280	34.5	29.03-40.44	281	35.7	30.16-41.66	280
65+	16.4	10.53-24.42	122	24.7	18.08-32.61	146	47.9	38.73-57.21	119	46.6	37.32-56.01	116	31.1	23.1-40.31	119	31.0	22.95-40.39	116
Level of ID:																		
Mild	6.6	3.52-11.85	166	9.9	5.85-16.13	151	23.2	16.32-31.76	125	17.9	11.79-26.05	123	35.2	27.02-44.31	125	35	26.73-44.14	123
Moderate	7.1	4.67-10.64	323	14.7	10.97-19.3	300	27.1	21.78-33.21	247	27	21.69-33.08	248	36.0	30.11-42.4	247	38.3	32.29-44.70	248
Severe/ Profound	9.7	6.18-14.80	206	14.8	10.23-20.87	189	59.7	51.37-67.58	149	58.0	49.5-66.15	143	25.5	18.88-33.41	149	23.1	16.63-31.01	143
Total	8.1	6.31-10.35	752	13.4	11.02-16.24	693	35	31.08-39.13	560	33.3	29.45-37.45	555	33.4	29.52-37.49	560	33.5	29.62-37.63	555

Table 3.A.6: Prevalence chronic conditions (non-cardiovascular) at Wave 2 by gender, age and level of ID.

	Arthritis	Osteoporosis	Wrist Fracture	Lung disease	Hip Fracture	Cancer	Age related macular degeneration	Glaucoma	Cataracts
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Gender:									
Male	11.6 (8.4 − 15.9)	7.4 (4.9 − 11.1)	4.5 (2.6 − 7.7)	5.2 (3.1 − 8.4)	3.9 (2.1 − 6.9)	6.1 (3.8 −9.6)	3.9 (2.1 − 6.9)	2.9 (1.4 − 5.6)	14.2 (10.6 − 18.7)
Female	20.9 (17.1 − 25.3)	23.5 (19.4 − 28.0)	5.1 (3.2 − 7.9)	4.3 (2.6 − 7.0)	3.1 (1.7 − 5.4)	5.1 (3.2 −7.9)	5.9 (3.8 − 8.8)	2.5 (1.3 − 4.8)	23.0 (18.9 − 27.5)
Age:									
43-49	9.2 (5.7 − 14.3)	5.6 (3.0 − 10.1)	3.6 (1.6 − 7.5)	3.6 (1.6 − 7.5)	1.2 (1.2 − 6.8)	2.5 (0.9 6.2)	4.1 (1.9 − 8.2)	0.5 (0.0 − 3.2)	18.9 (13.8 − 25.2)
50-64	16.6 (13.0 − 21.0)	16.6 (13.0 − 21.0)	5.3 (3.3 − 8.4)	3.4 (1.8 − 6.0)	3.1 (1.6 − 5.6)	4.5 (2.7 − 7.4)	5.6 (3.6 − 8.7)	3.4 (1.8 − 6.0)	17.7 (14.0 −22.2)
≥65	27.0 (20.2 − 35.0)	29.7 (22.6 − 37.9)	5.4 (2.5 −10.7)	9.5 (5.5 − 15.6)	4.7 (2.1 − 9.9)	12.2 (7.6−18.8)	4.7 (2.1 − 9.9)	4.0 (1.7 − 9.0)	23.0 (16.6 − 30.7)
Level of ID:									
Mild	21.4 (15.4 − 28.9)	13.0 (8.3 − 19.6)	5.8 (2.9 − 11.1)	5.8 (2.9 − 11.1)	1.3 (0.2 − 5.1)	7.8 (4.3 −13.5)	3.9 (1.6 − 8.7)	1.3 (0.2 − 5.1)	14.9 (9.9 − 21.8)
Moderate	16.9 (13.0 − 21.8)	17.3 (13.3 − 22.1)	6.0 (3.7 − 9.4)	5.3 (3.2 − 8.7)	4.0 (2.2 − 7.0)	5.6 (3.4 − 9.1)	6.3 (3.9 − 9.8)	2.3 (1.0 − 4.9)	21.3 (16.9 −26.4)
Severe/ Profound	14.1 (9.6 − 20.0)	17.2 (12.3 − 23.4)	1.6 (0.4 − 4.9)	2.6 (1.0 − 6.3)	4.7 (2.3 − 9.0)	4.7 (2.3 − 9.0)	4.2 (1.9 − 8.3)	3.1 (1.3 − 7.0)	19.8 (14.5 −26.3)
Total	16.8 (14.2 − 19.8)	16.4 (13.8 − 19.4)	4.8 (3.4 − 6.8)	4.7 (3.3 − 6.6)	3.4 (2.2 − 5.1)	5.6 (4.0 − 7.6)	5.0 (3.5 − 6.9)	2.7 (1.7 − 4.3)	19.1 (16.3 − 22.3)

Table 3.A.7: Incidence of chronic conditions non-cardiovascular by gender, age and level of ID.

	Arthritis	Osteoporosis	Wrist Fracture	Lung disease	Hip Fracture	Cancer	Age related macular degeneration	Glaucoma	Cataracts
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Gender:									
Male	3.6 (1.9 – 6.6)	4.2 (2.4 – 7.3)	1.0 (0.2 – 3.0)	2.0 (0.8 – 4.5)	1.9 (0.8 – 4.4)	2.6 (1.2 - 5.3)	1.7 (0.6 – 4.2)	1.0 (0.3 – 3.2)	3.0 (1.5 – 5.8)
Female	8.2 (5.7 – 11.5)	11.9 (8.9 – 15.6)	1.8 (0.8 – 3.8)	1.0 (0.3 – 2.8)	1.0 (0.3 – 2.8)	0.8 (0.2 – 2.4)	2.5 (1.2 – 4.8)	0.8 (0.2 – 2.5)	8.1 (5.7 - 11.5)
Age:									
43-49	2.6 (0.9 – 6.2)	3.6 (1.7 – 7.5)	1.0 (0.2 – 4.0)	0.5 (0.0 – 3.3)	1.5 (0.4 – 4.7)	0.5 (0.0 – 3.2)	3.3 (1.3 – 7.3)	0.5 (0.0 – 3.4)	5.2 (2.7 – 9.6)
50-64	6.4 (4.1- 9.6)	8.5 (5.9 – 12.1)	1.7 (0.7 – 3.8)	1.1 (0.4 – 3.1)	1.1 (0.4 – 3.1)	1.7 (0.7 – 3.8)	1.8 (0.7 – 4.1)	1.2 (0.4 – 3.2)	6.1 (3.9 – 9.3)
≥65	10.6 (6.3 – 17.2)	15.1 (9.9 – 22.1)	1.3 (0.2 – 5.3)	3.4 (1.3 – 8.2)	2.0 (0.5 – 6.3)	2.7 (0.9 – 7.3)	1.4 (0.2 – 5.6)	0.7 (0.0 – 4.4)	6.2 (3.1 – 11.8)
Level of ID:									
Mild	9.3 (5.3 – 15.3)	6.0 (2.9 – 11.3)	1.9 (0.5 – 6.0)	2.0 (0.5 – 6.2)	0.6 (0.0 - 4.1)	0.6 (0.0 – 4.1)	1.4 (0.2 – 5.3)	0.0	3.9 (1.6 – 8.8)
Moderate	6.2 (3.8 – 9.8)	10.7 (7.5 – 14.9)	2.3 (1.0 – 4.9)	1.4 (0.4 – 3.7)	1.7 (0.6 – 4.0)	2.0 (0.8 – 4.5)	3.2 (1.5 – 6.1)	1.4 (0.4 – 3.7)	7.8 (5.1 – 11.7)
Severe/ Profound	3.8 (1.7 – 7.9)	7.9 (4.7 – 13.0)	0.0	1.6 (0.4 – 4.9)	1.6 (0.4 – 4.9)	2.1 (0.7 – 5.6)	1.7 (0.4 – 5.2)	1.1 (0.2 – 4.3)	4.8 (2.3 – 9.1)
Total	6.0 (4.4 – 8.1)	8.4 (6.5 – 10.8)	1.4 (0.7 – 2.7)	1.4 (0.7 – 2.7)	1.4 (0.7 – 2.7)	1.6 (0.8 – 2.9)	2.0 (1.1 – 3.4)	0.9 (0.3 – 2.0)	5.7 (4.2 – 7.8)

Table 3.A.8: Prevalence of falls Wave 2 by gender, age and level of ID by gender, age and level of ID.

	Total Falls	One Fall	Recurrent Falls	Injurious Falls
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Gender:				
Male	24.0 (19.4 – 29.3)	9.1 (6.2 – 13.0)	14.3 (10.7 – 18.8)	11.0 (7.8 – 15.2)
Female	31.6 (27.0 – 36.5)	13.7 (10.5 – 17.7)	16.3 (12.8 – 20.5)	15.8 (12.4 – 19.9)
Age:				
43-49	22.4 (16.9 – 29.1)	10.6 (6.8 – 16.0)	11.6 (7.7 – 17.1)	11.1 (7.2 – 16.5)
50-64	33.1 (28.3 – 38.4)	12.6 (9.4 – 16.6)	18.9 (15.0 – 23.4)	15.5 (12.0 – 19.8)
≥65	24.5 (17.9 – 32.4)	11.0 (6.6 – 17.5)	12.3 (7.7 – 19.0)	12.8 (8.1 – 19.6)
Level of ID:				
Mild	29.8 (22.8 – 37.9)	15.8 (10.6 – 22.8)	12.5 (7.9 – 19.1)	16.9 (11.5 – 23.9)
Moderate	31.1 (25.9 – 36.7)	12.1 (8.7 – 16.5)	17.5 (13.5 – 22.4)	14.3 (10.6 – 18.9)
Severe/Profound	21.6 (16.1 – 28.2)	7.8 (4.6 – 12.8)	13.5 (9.2 – 19.4)	7.8 (4.6 – 12.8)
Total	28.3 (25.0 – 31.8)	11.5 (9.3 – 14.2)	15.3 (12.7 – 18.2)	13.7 (11.3 – 16.5)

Table 3.A.9: Prevalence of other chronic conditions (non-cardiovascular) in Wave 2 by gender, age, level of ID.

	Epilepsy	Thyroid disease	Chronic constipation	Gastroesophageal reflux disease	Stomach ulcers
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Gender:					
Male	32.9 (27.7 – 38.5)	15.0 (11.3 – 19.6)	36.3 (30.9 – 42.0)	15.4 (11.6 – 20.0)	7.5 (4.9 – 11.2)
Female	38.2 (33.4 – 43.3)	25.6 (21.4 – 30.3)	39.1 (34.3 – 44.2)	13.7 (10.5 – 17.6)	3.9 (2.3 – 6.5)
Age:					
43-49	34.8 (28.3 – 42.0)	19.4 (14.2 – 25.8)	38.3 (31.5 – 45.5)	8.7 (5.3 – 13.7)	3.1 (1.2 – 6.8)
50-64	36.6 (31.6 – 41.9)	21.1 (17.0 – 25.8)	33.4 (28.6 – 38.7)	15.1 (11.6 – 19.4)	4.8 (2.9 – 7.8)
≥65	35.4 (27.8 – 43.7)	22.6 (16.3 – 30.4)	47.9 (39.7 – 56.3)	20.5 (14.5 – 28.2)	10.3 (6.1 – 16.7)
Level of ID:					
Mild	26.0 (19.4 – 33.8)	13.2 (8.5 – 20.0)	21.2 (15.1 – 28.7)	10.6 (6.4 – 16.9)	5.3 (2.5 – 10.5)
Moderate	33.8 (28.5 – 39.5)	23.7 (19.1 – 29.0)	34.8 (29.4 – 40.5)	13.0 (9.5 – 17.5)	5.0 (2.9 – 8.3)
Severe/Profound	51.6 (44.3 – 58.8)	22.7 (17.1 – 29.5)	58.2 (50.8 – 65.2)	21.2 (15.7 – 27.8)	6.3 (3.5 – 11.1)
Total	20.9 (18.0 – 24.2)	20.9 (18.0 – 24.2)	37.9 (34.2 – 41.6)	14.4 (11.9 – 17.3)	5.5 (4.0 – 7.5)

Table 3.A.10: Incidence of other chronic conditions (non-cardiovascular) Wave 2 by gender, age and level of ID.

	Epilepsy	Thyroid disease	Chronic constipation	Gastroesophageal reflux disease	Stomach ulcers
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Gender:					
Male	4.0 (2.2 – 7.0)	5.9 (3.6 – 9.3)	22.5 (18.1 – 27.7)	7.5 (4.9 – 11.2)	4.9 (2.9 – 8.1)
Female	5.6 (3.6 – 8.5)	6.2 (4.1 – 9.2)	24.9 (20.7 – 29.5)	6.5 (4.3 – 9.5)	2.8 (1.5 – 5.2)
Age:					
43-49	3.6 (1.6 – 7.5)	5.1 (2.6 – 9.4)	24.0 (18.3 – 30.7)	2.0 (0.7 – 5.5)	2.0 (0.7 – 5.5)
50-64	5.4 (3.4 – 8.5)	5.1 (3.2 – 8.1)	22.3 (18.1 – 27.1)	8.5 (5.9 – 12.1)	3.7 (2.1 – 6.4)
≥65	5.5 (2.6 – 10.9)	9.6 (5.5 – 15.9)	27.4 (20.5 – 35.5)	9.6 (5.5 – 15.9)	6.2 (3.0 – 11.7)
Level of ID:					
Mild	2.6 (0.8 – 7.0)	3.3 (1.2 – 8.0)	15.2 (10.1 – 22.2)	7.9 (4.4 – 13.8)	4.0 (1.6 – 8.8)
Moderate	4.0 (2.2 – 7.1)	7.7 (5.0 – 11.4)	24.4 (19.7 – 29.8)	7.3 (4.8 – 11.0)	3.7 (1.9 – 6.7)
Severe/Profound	8.6 (5.1 – 13.8)	5.3 (2.7 – 9.8)	30.7 (24.3 – 37.9)	6.9 (3.9 – 11.7)	4.2 (2.0 – 8.5)
Total	4.8 (3.4 – 6.8)	6.0 (4.4 – 8.1)	23.5 (20.5 – 26.9)	6.8 (5.1 – 9.0)	3.7 (2.5 – 5.5)

Table 3.A.11: Prevalence of fast food consumption Wave 2 by gender, age and level of ID

	Once a week or more		1 – 3 times a month		Less than once a month or never		
	%	95% CI	%	95% CI	%	95% CI	Number in sample
Gender:							
Male	34.7	29.35-40.39	22.3	17.83-27.55	43.0	37.36-48.82	300
Female	24.2	20.03-28.81	28.6	24.16-33.41	47.3	42.21-52.39	385
Age:							
43-49	32.5	26.04-39.61	24.2	18.51-31	43.3	36.28-50.59	194
50-64	28.2	23.63-33.34	27.7	23.09-32.75	44.1	38.82-49.49	347
65+	25.0	18.33-33.03	23.6	17.11-31.55	51.4	42.96-59.75	144
Level of ID:							
Mild	27.5	20.68-35.54	26.8	20.08-34.84	45.6	37.53-53.98	149
Moderate	30.3	25.14-35.92	26.2	21.34-31.68	43.5	37.83-49.43	294
Severe/Profound	28.6	22.36-35.66	22.2	16.65-28.95	49.2	41.91-56.54	189
Type of Residence:							
Independent/Family	20.5	13.72-29.43	21.4	14.47-30.39	58.0	48.34-67.18	112
Community Group Home	35.1	29.76-40.91	25.3	20.57-30.77	39.5	33.97-45.37	296
Residential	25.3	20.35-30.89	28.2	23.02-33.92	46.6	40.61-52.63	277
Total	28.8	25.43-32.34	25.8	22.63-29.32	45.4	41.64-49.22	685

Table 3.A.12a: Prevalence of perceived weight Wave 1: IDS-TILDA by gender, age and level of ID.

	Overweight/Obese		Underweight		About right		
	%	95% CI	%	95% CI	%	95% CI	Number in sample
Gender:							
Male	26.4	21.84-31.57	7.8	5.26-11.37	65.8	60.37-70.80	333
Female	39.9	34.55-44.2	5.9	3.86-8.70	54.9	49.92-59.75	410
Age:							
43-49	33.7	28.26-39.57	6.7	4.22-10.49	59.6	53.57-65.30	282
50-64	34.8	29.79-40.18	5.0	3.04-8.05	60.2	54.73-65.39	339
65+	29.5	21.78-38.56	11.5	6.65-18.83	59.0	49.74-67.73	122
Level of ID:							
Mild	37.2	29.89-45.12	4.3	1.88-8.94	58.5	50.58-66.09	164
Moderate	35.3	30.13-40.85	5.0	2.98-8.15	59.7	54.07-65.07	320
Severe/Profound	32.0	25.76-38.98	10.3	6.66-15.57	57.6	50.52-64.47	203
Total	33.5	30.14-37.05	6.7	5.08-8.84	59.8	56.12-63.29	743

Table 3.A.12b: Prevalence of perceived weight Wave 2: IDS-TILDA by gender, age and level of ID.

	Overweight/Obese		Underweight		About right		
	%	95% CI	%	95% CI	%	95% CI	Number in sample
Gender:							
Male	22.8	18.21-28.1	5.8	3.51-9.26	71.4	65.84-76.45	294
Female	36.3	31.52-41.45	5.6	3.57-8.52	58.1	52.92-63.09	377
Age:							
43-49	32.4	25.92-39.71	3.7	1.64-7.82	63.8	56.48-70.61	188
50-64	31.2	26.35-36.44	6.5	4.19-9.77	62.4	56.94-67.48	340
65+	25.9	19.08-33.98	6.3	3.1-11.96	67.8	59.43-75.25	143
Level of ID:							
Mild	29.5	22.49-37.64	4.0	1.65-8.95	66.4	58.18-73.83	149
Moderate	35.8	30.28-41.69	4.2	2.3-7.43	60.0	54.04-65.69	285
Severe/Profound	25.7	19.7-32.66	9.1	5.54-14.39	65.2	57.9-71.95	187
Total	31.2	26.97-34.06	5.6	4.09-7.76	63.1	60.15-67.55	671

Table 3.A.12c: Prevalence of objectively measured weight Wave 2: IDS-TILDA by gender, age and level of ID.

	Overweight/Obese		Underweight		Normal		
	%	95% CI	%	95% CI	%	95% CI	Number in sample
Gender:							
Male	62.3	55.97-68.25	4.0	2.03-7.40	33.7	55.97-68.25	252
Female	69.9	64.68-74.74	2.7	1.31-5.20	27.4	22.75-32.54	336
Age:							
43-49	69.5	61.79-76.22	3.0	1.11	27.5	21.06-35.08	167
50-64	68.1	62.48-73.23	3.0	1.45-5.74	28.9	23.99-34.46	304
65+	59.0	49.48-67.86	4.3	1.58-10.18	36.8	28.17-46.21	117
Level of ID:							
Mild	84.9	77.2-90.45	1.6	0.28-6.2	13.5	8.28-21.0	126
Moderate	71.6	65.7-76.95	1.1	0.3-3.6	27.2	21.98-33.10	261
Severe/Profound	46.9	39.01-54.9	8.1	4.58-13.78	45.0	37.2-53.05	160
Total	66.7	62.68-70.44	3.2	2.01-5.09	30.1	26.45-34.01	588

Table 3.A.13: Prevalence of increased risk of cardio metabolic disease according to WHO waist circumference (WC) reference, by gender, age and level of ID

	Substantially increased risk		Increased risk		Normal WC		
	%	**95% CI**	**%**	**95% CI**	**%**	**95% CI**	**Number in sample**
Gender:							
Male	48.3	41.76-54.88	22.6	17.56-28.66	29.1	23.42-35.4	234
Female	78.4	73.02-83.01	13.3	9.66-18.01	8.3	5.43-13.31	278
Age:							
43-49	61.2	52.81-69.03	16.3	10.94-23.53	22.4	16.16-30.21	147
50-64	63.1	57.02-68.8	19.9	15.44-25.29	17	12.81-22.09	271
65+	74.5	64.25-82.66	12.8	7.06-21.62	12.8	7.06-21.62	94
Level of ID:							
Mild	76.9	68.15-83.83	12.4	7.34-19.93	10.7	6.07-18.0	121
Moderate	68.9	62.54-74.71	17.4	12.95-23.05	13.6	9.63-18.83	235
Severe/Profound	47.1	37.92-56.39	23.5	16.45-32.36	29.4	21.6-38.58	119
Total	64.6	60.31-68.76	17.6	14.44-21.22	17.8	14.61-21.42	512