
AMBER CROSS CODE

Walking speed in middle-aged and older
Irish adults and the implications for
pedestrian traffic signals

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On behalf of the TILDA team

November 2015

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ISBN: 978-1-907894-10-7

<https://www.doi.org/10.38018/TildaRe.2015-01>

Key Findings

- The Irish Traffic Management Guidelines indicate that a minimum walking speed of 1.2 metres per second (m/s) is required to cross the road at light controlled pedestrian crossings.
- Based on their usual walking speed, one in three Irish adults aged 65-74 years and three in five adults aged 75 years and older walk slower than 1.2 m/s and therefore do not have enough time to cross the road in the time provided at the pedestrian crossings.
- Women walk more slowly than men at all ages and therefore, a larger proportion of women have insufficient time to cross the road at pedestrian lights.
- Walking while simultaneously carrying out a cognitive-based task results in slower walking speed. Three out of every four Irish adults aged 65 years and older will not have enough time to cross the road if they walk and carry out a cognitive-based task at the same time.
- Pedestrian light settings are not compatible with older adults' walking abilities. Not being able to cross the road safely and comfortably can impact on their everyday experiences, social engagement, physical activity, functional independence and quality of life.
- An education and awareness campaign highlighting the importance of giving full attention to the task of crossing the road and targeting changes in pedestrian behaviour is required.
- It is possible to increase the proportion of older people who would have enough time to cross the road by changing the duration of the pedestrian light signals, however the impact on traffic flow, driver behaviours and the needs of all road users should be considered before introducing a significant change.

Acknowledgements

We would like to acknowledge the vision and commitment of our funders, Irish Life, the Atlantic Philanthropies and the Department of Health, which is providing funding on behalf of the state. We would also like to state that any views expressed in this report are not necessarily those of the Department of Health or of the Minister of Health. We would also like to thank the TILDA participants without whom this research would not be possible.

Contents

1. Introduction.....	1
2. Distribution and characteristics of the Irish population	4
3. Associations between usual and dual task walking speed and crossing the road	8
4. Impact of changing the pedestrian light settings	12
5. Conclusions.....	16
6. References	18

1

Introduction

Population ageing is a global phenomenon and a two-fold increase in the Irish population aged 65 years and over has been projected for 2041 (Central Statistics Office, 2007). As people age, walking becomes increasingly popular and important, both for transport and physical activity. Crossing the road is an integral aspect of walking especially in urban settings. The ability to safely cross the road allows older adults greater access to facilities in their neighbourhood, helps them to maintain their social networks and consequently, plays a vital role in maintaining functional independence and quality of life. However, many older adults report apprehension, fear, and anxiety when crossing roads and difficulty or inability to cross in the time provided (Amosun, Burgess, Groeneveldt, & Hodgson, 2007; Langlois et al., 1997; Newton, 2013).

There are many reasons why older adults might have difficulty crossing the road. Firstly, as people get older, they walk more slowly (Kenny et al., 2013). This can be due to a history of falls, fear of falling (Donoghue, Cronin, Savva, O'Regan, & Kenny, 2013) or age-related declines in muscle performance, balance, reaction time, vision, hearing, and cognitive function (Bootsma-van der Wiel et al., 2002; Callisaya et al., 2009). Crossing the road also requires that pedestrians pay attention to oncoming traffic, changes in light signals, other pedestrians, uneven surfaces and weather conditions. They must then use this information to make the correct judgements and decisions about safely crossing the road. In addition, pedestrians often walk while simultaneously performing a manual task (e.g. carrying shopping), a cognitive task (e.g. speaking to a friend in person or on the phone) or a passive task (e.g. listening to music on headphones). These 'dual task' walking conditions are realistic everyday activities but they can be challenging as they require greater attention. The most common effects of dual task walking are a reduced walking speed and a more unstable walking pattern (Yogev-Seligmann, Hausdorff, & Giladi, 2008).

The global significance of this problem has been highlighted by the World Health Organisation in their Checklist of Essential Features of Age-Friendly Cities. They state that pedestrian crossings should be 'sufficient in number and safe for people with different levels and types of disability, with nonslip markings, visual and audio cues and adequate crossing times' (World Health Organisation, 2007). However, it is important to recognise

that this is not just an ageing problem. People of all ages with walking aids, disabilities, sensory problems and people walking with young children and/or prams also walk more slowly and therefore this issue is relevant for many groups in society.

In this report, we examine the proportion of middle-aged and older Irish adults who do not have enough time to cross the road based on the guidelines for pedestrian light settings in Ireland. We then examine how dual task walking affects walking speed and therefore, the ability to cross the road in the time provided. Finally, we examine the proportion of the Irish population who would benefit if the light settings were altered to provide additional time to cross the road.

1.1 Data and Methods

This report uses data collected during the first wave of The Irish Longitudinal Study on Ageing (TILDA), a prospective study of 8,172 adults aged 50 years and older, representative of the community-dwelling middle-aged and older Irish population. Data collection took place between October 2009 and July 2011. Social interviewers visited the respondents in their own homes to complete a comprehensive Computer Assisted Personal Interview (CAPI). This included detailed questions on socio-demographics, living circumstances, income and wealth, physical, mental and behavioural health, health care utilization, social support and social participation. Participants were also asked to fill out a self-completion questionnaire (SCQ) which included more sensitive questions about relationships, alcohol intake and experiences of getting older. Finally, participants were invited to attend a comprehensive health centre assessment which included anthropometric, cognitive, cardiovascular, mobility, strength, bone and vision tests. A modified home-based assessment was available if participants were unable or unwilling to travel to the dedicated health centres (Cronin, O'Regan, Finucane, Kearney, & Kenny, 2013), however as walking speed was measured as part of the health centre assessment, only participants who attended a health centre were included in this analysis (N=5,035). Of these participants, 4,909 (98%) completed the walking speed assessment.

1.2 Statistical Methods and Weighting

In this report, we present the percentage of respondents classified into different groups or average scores (means) on the different outcome scales. Most estimates are provided with a 95% confidence interval. This can be interpreted as a 95% chance that the

sampled confidence interval includes the true population value. All estimates are weighted according to participants' age, sex and educational attainment in the 2010 Household Survey. Data were further weighted by health status (self-reported health, disability in basic and/or instrumental activities of daily living) and socio-demographic factors (age, education) to account for respondents who did not attend a health assessment.

1.3 Structure of the Report

The report is organised as follows. Section 2 describes the characteristics and walking speeds of the middle-aged and older Irish population. Section 3 provides information on the pedestrian light settings in Ireland and examines the proportion of middle-aged and older Irish adults who have sufficient time to cross the road based on their usual and dual task walking speeds. Section 4 explores how implementing small changes to the pedestrian light settings would affect the proportion of Irish adults who can cross the road in the time provided. Finally, Section 5 summarises the findings, highlights the relevance to successful ageing and suggests areas in which these findings could inform policy.

2

Distribution and characteristics of the Irish population

2.1 Characteristics of the Irish population

Descriptive characteristics of 4,909 TILDA respondents are shown in Table 2.1. Three-fifths of the sample (60%) are aged 50-64 years, while 17% are 75 years or older. Just over half (52%) of the sample are women. The majority of participants (63%) had at least secondary level education.

Participants reported if a doctor had ever diagnosed them with any of the following conditions: heart attack, heart failure, angina, stroke, transient ischemic attack, heart murmur, diabetes, Parkinson's disease, cataracts, glaucoma, age-related macular degeneration, chronic lung disease, asthma, arthritis, osteoporosis, cancer, ulcer, hip fracture, high blood pressure, and high cholesterol. The number of conditions reported were categorised as 0, 1, 2 and 3 or more conditions. Almost half of the respondents reported none or one condition while 22% and 31% reported 2 conditions and 3 or more conditions respectively.

Participants were asked to rate their vision and their hearing as excellent, very good, good, fair or poor. A response of fair or poor to these questions was used to indicate poor vision and hearing. One in ten participants reported poor vision, while 16% reported poor hearing. Participants were asked if they had fallen in the past year and if yes, on how many occasions. A repeat faller was classified as some-one who had fallen at least twice in the last year. Fear of falling was assessed by asking participants if they were afraid of falling and if yes, did they limit their activities because of this fear. These questions were used to identify a variable with three categories (i) no fear of falling, (ii) fear of falling only and (iii) fear of falling and activity restriction. Seven per cent of participants repeatedly fell in the past year. Almost one in four participants reported fear of falling (23%) with 7% of the population reporting that they limited activity as a result of this fear.

Participants were shown a card listing six basic Activities of Daily Living (ADLs) and asked to indicate if they had difficulty performing any of these activities because of a physical or mental health problem. ADLs included dressing, walking across a room,

bathing or showering, eating, getting in or out of bed, and using the toilet (Katz, Ford, Moskowitz, Jackson, & Jaffe, 1963). A participant was coded as having an ADL disability if they reported difficulty in at least one of these ADLs. The procedure was repeated using a list of six Instrumental Activities of Daily Living (IADLs): preparing a hot meal, doing household chores, shopping for groceries, making telephone calls, taking medications and managing money (Lawton & Brody, 1969). Again, a participant was coded as having an IADL disability if they reported difficulty in at least one IADL. ADL and IADL disability was relatively low at 8% and 6% respectively.

Table 2.1: Descriptive characteristics of the middle-aged and older Irish population.

	Men	Women	Total
	N (%)	N (%)	N (%)
Age			
50-64 years	1,395 (62.4)	1,774 (58.4)	3,169 (60.3)
65-74 years	638 (23.5)	660 (22.6)	1,298 (23.0)
≥75 years	209 (14.1)	233 (19.0)	442 (16.7)
Education			
Primary level	541 (37.9)	521 (35.7)	1,062 (36.7)
Secondary level	920 (42.6)	1,131 (45.5)	2,051 (44.1)
Tertiary level	781 (19.5)	1,013 (18.8)	1,794 (19.1)
Health conditions			
0 conditions	565 (24.9)	543 (17.2)	1,108 (20.9)
1 condition	632 (27.7)	725 (24.8)	1,357 (26.2)
2 conditions	491 (21.3)	633 (23.2)	1,124 (22.3)
≥3 conditions	549 (26.1)	760 (34.7)	1,309 (30.6)
Self-reported vision (fair/poor)	176 (9.5)	208 (11.2)	384 (10.4)
Self-reported hearing (fair/poor)	394 (19.2)	245 (12.3)	639 (15.6)
Repeat faller in past year	155 (7.2)	174 (6.8)	329 (7.0)
Fear of falling (FOF)			
No FOF	1,996 (87.8)	1,909 (66.8)	3,905 (76.8)
FOF only	167 (7.9)	550 (23.4)	717 (16.0)
FOF and activity restriction	78 (4.3)	206 (9.8)	284 (7.2)
ADL disability	168 (8.8)	147 (6.6)	315 (7.6)
IADL disability	71 (4.2)	126 (7.2)	197 (5.7)

There were some differences between men and women, most notably that women were much more likely to have fear of falling (23% versus 8%) and fear-related activity restriction (10% versus 4%). In addition, women were more likely to have at least 3 chronic conditions (35% versus 26%) and less likely to have poor self-reported hearing (12% versus 19%).

2.2 How does walking speed differ by age and sex?

Walking speed was measured in the TILDA health centre using a 4.88 metres computerised GAITRite® mat placed in the centre of the room (see Figure 2.1). Participants started to walk 2.5 metres before the mat, walked across the mat and then continued to walk for 2 metres after the end of the mat. Walking speed was only measured while the participant was on the mat. It does not include the time taken to accelerate or decelerate and therefore it reflects a steady state walking speed.

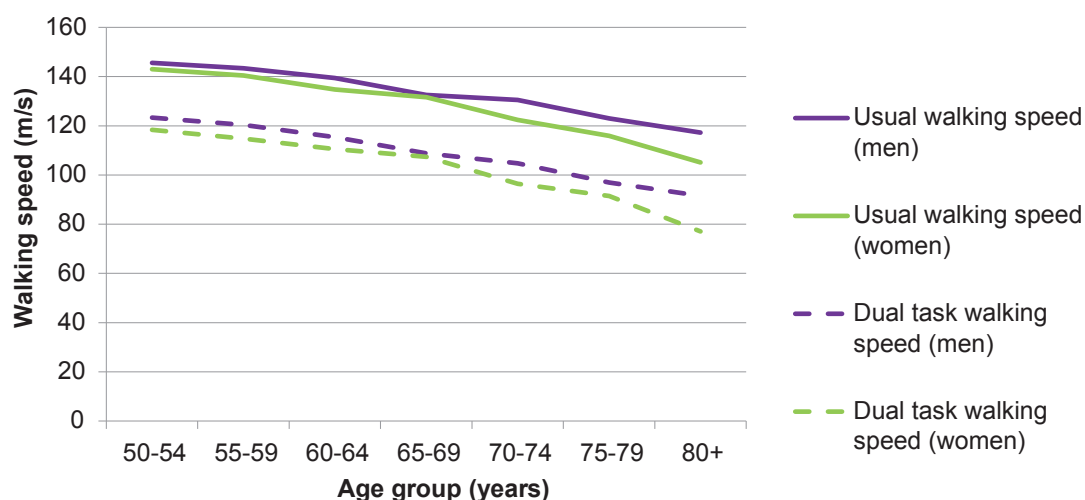
Figure 2.1: Walking speed was assessed using a computerised GAITRite® walkway



Participants completed two test conditions (i) walking at usual speed and (ii) walking at usual speed while carrying out a dual task. The dual task selected was a cognitive-based task where participants were asked to recite alternate letters of the alphabet i.e. A-C-E, etc. Participants had one practice trial where they recited these letters in a seated position prior to carrying out the dual task walking condition. Participants completed two trials in each of the two conditions. The average of the two walks in each condition was used in the analysis.

The overall average walking speed in the Irish population was 1.33 m/s (standard deviation (SD) = 0.21 m/s), however this varies substantially with age and sex. Figure 2.2 shows that walking speed gets slower with age while men walk faster than women at all ages. This gender difference is mainly due to greater leg length and therefore greater stride length in men. As expected, walking in the dual task condition resulted in slower than usual walking for both men and women. The average dual task walking speed was 1.09 (SD = 0.27) m/s, which is about 18% slower than usual walking speed (median change = 15%). Once again, dual task walking speed slowed with age and men walked more quickly than women.

Figure 2.2: Usual and dual task walking speed by age and sex.



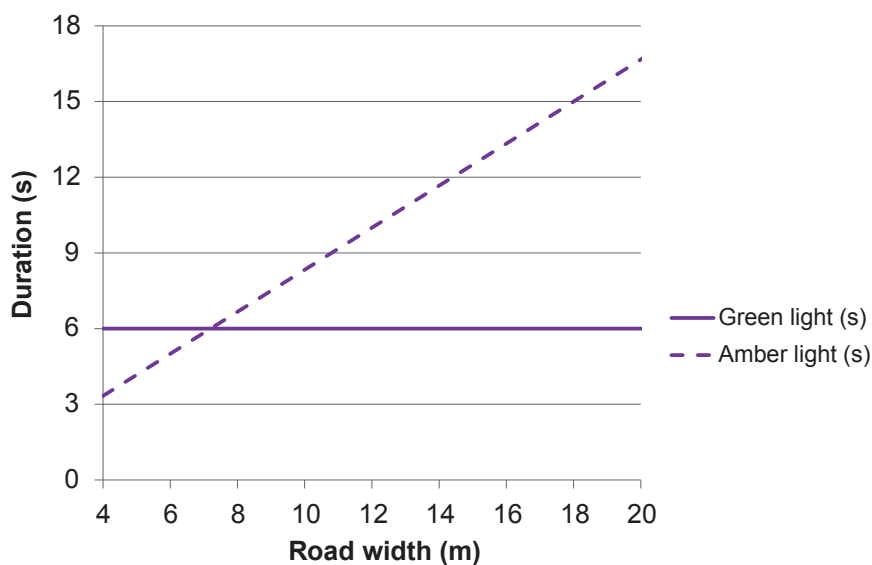
3

Associations between usual and dual task walking speed and crossing the road

3.1 Settings used at pedestrian lights in Ireland

In Ireland, the pedestrian light signals follow the sequence: red, green, amber, red (Department of Transport, 2010). The green light usually appears for 6 seconds and is an invitation for pedestrians to cross the road. According to the Traffic Management Guidelines, the amber signal varies with road width, remaining on for 1 second for each 1.2 metres of road width. Therefore, wider roads have a longer amber light duration but the green light remains at 6 seconds regardless of road width (see Figure 3.1). The amber light indicates that pedestrians should continue to cross the road if they have already started but that they should not start to cross.

Figure 3.1: Duration of green and amber pedestrian light phases based on road width.



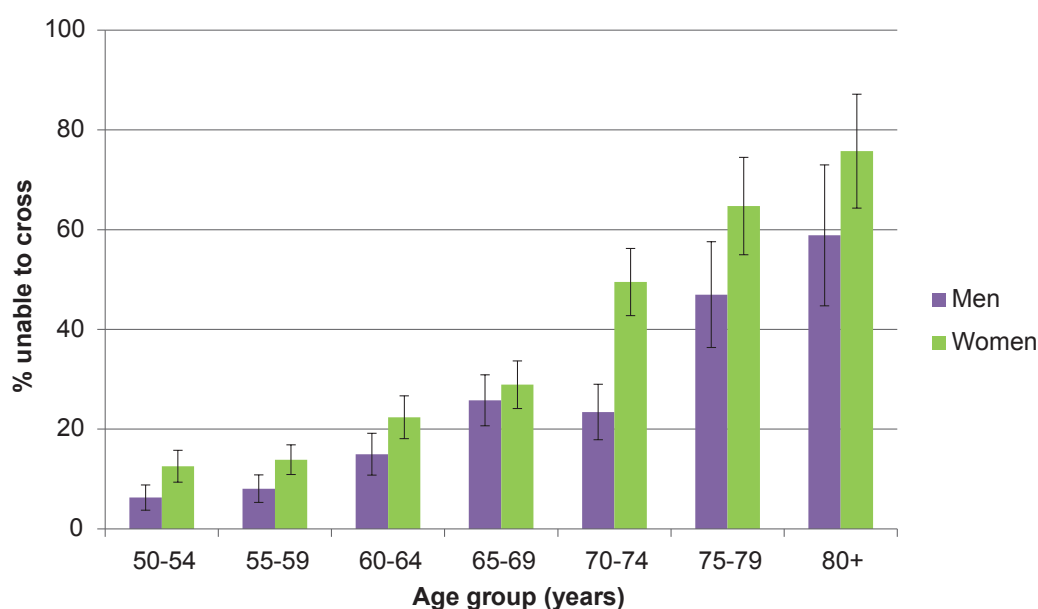
If a pedestrian begins to cross the road when the green light appears, they can use the duration of the green and amber phases and therefore, they will usually have enough time to safely cross the road. The difficulty arises when the pedestrian starts to cross just before (or after) the green light changes to amber. At this point, the minimum walking speed required to cross the road is 1.2 metres per second (m/s) (Department of the Environment and Local Government; Department of Transport and Dublin Transportation Office, 2003).

In this section, we examine the proportion of Irish adults who walk at less than 1.2 m/s and therefore, who would not have enough time to cross the road. We divided our participants into seven age groups for analysis (50-54, 55-59, 60-64, 65-69, 70-74, 75-79, ≥80 years). As men walk more quickly than women at all ages (Figure 2.2), we present our results for men and women separately.

3.2 Usual walking speed

Figure 3.2 shows the proportion of middle-aged and older Irish adults who walk slower than 1.2 m/s and therefore do not have enough time to cross the road at pedestrian light controlled crossings, stratified by age and sex. Thirteen per cent of adults aged <65 years do not walk at the required pace, however this increases steadily with age affecting almost one in three Irish adults aged 65-74 years (31%) and three in every five adults aged 75 years and older (61%). A greater proportion of women are affected in all age categories compared to men mainly as women walk more slowly than men of a comparable age. The difference is most pronounced in the 70-74 year olds where almost twice as many women walk slower than 1.2 m/s compared to men (50% v 23%).

Figure 3.2: Proportion of middle-aged and older Irish adults with a usual walking speed of less than 1.2 m/s, and therefore who would not have enough time to cross the road.



The results highlight that pedestrian light settings are not compatible with the usual walking speeds of older Irish adults. While some individuals may be able to increase their walking speed, many are likely to experience difficulty when attempting to safely

and comfortably cross the road. This is an attention demanding task and crossing under time pressures, for example, when there is an approaching car, can lead to an increased number of dangerous decisions (Lobjois & Cavallo, 2007). This could increase the risk of inappropriate behaviours (e.g. leaving it too late to cross) and lead to an increased risk of injury.

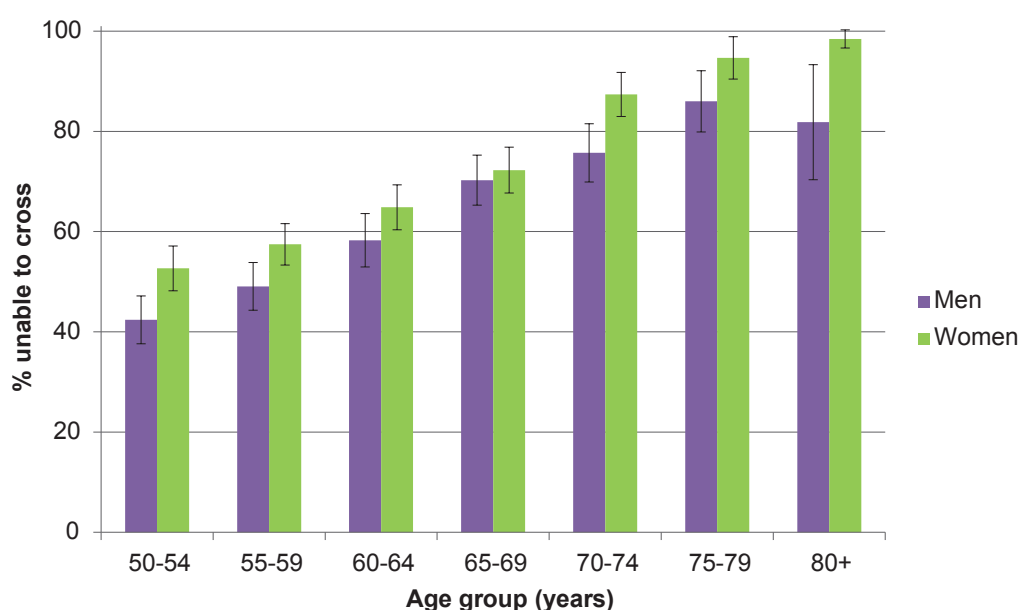
A number of factors suggest that our results may provide a conservative estimate of the numbers with difficulty crossing the road. Firstly, usual walking speed data was obtained in a laboratory setting. This is a safe and controlled environment which does not have real-life outdoor demands such as traffic, other pedestrians, poor surfaces and adverse weather conditions. Therefore, walking indoors in a laboratory setting is typically faster than walking outdoors or on a simulated pedestrian crossing (Carmeli, Coleman, Omar, & Brown-Cross, 2000). Secondly, the minimum walking speed required to cross the road in Ireland does not account for the additional time needed to step on and off a kerb. Thirdly, while pedestrians may attempt to walk more quickly in a dangerous situation like crossing the road, there are more stimuli to contend with which may reduce the capacity to increase walking speed. Maximum walking speed is currently being collected in Wave 3 of TILDA which will allow us to examine this further in the future. Fourth, this report only uses data collected from participants who attended a health centre assessment. Participants who opted for home-based assessments are older, frailer, have poorer cognition and self-reported health, increased disability, and poorer mobility than respondents who attended a health centre (Cronin et al., 2013; Kearney et al., 2011). If they are active walkers in their community, a greater proportion are likely to have difficulty crossing the road. Finally, this analysis is based on the assumption that the light controlled pedestrian crossings in Ireland adhere to the Traffic Management Guidelines, however variations in time intervals and a lack of consistency with the guidelines has previously been reported (Bollard & Fleming, 2013).

3.2 Dual task walking speed

Middle-aged and older adults walked more slowly in the dual task condition, therefore a higher proportion walked at lower than the minimum required walking speed of 1.2 m/s (see Figure 3.3). Specifically, two thirds of all adults aged 50 years and older (65%) and 91% of adults aged 75 years and older would not have enough time to cross the road while simultaneously carrying out a cognitive-based task. Once again, women walked more slowly than men with approximately an additional 10% walking at less than 1.2 m/s in all age categories.

Dual tasking is very common in everyday life and several studies have demonstrated a reduced walking speed when carrying out a secondary task (Yogev-Seligmann et al., 2008). In this study, almost all (99%) of the respondents who had a usual walking speed of less than 1.2 m/s, also walked at less than 1.2 m/s in the dual task condition. Over half of Irish adults (54%) with a walking speed of greater than 1.2 m/s demonstrated a slowing of walking speed to less than 1.2 m/s in the dual task condition. This was more evident in women than men (57% versus 51%) and became more common with increasing age (men: 39% in 50-54 years increasing to 74% in 80-84 years; women: 46% in 50-54 years increasing to 94% in 85+ years).

Figure 3.3: Proportion of middle-aged and older Irish adults with a dual task walking speed of less than 1.2 m/s and therefore who would not have enough time to cross the road.



Research has shown that driving is a cognitively challenging activity, and that simultaneously carrying out another task such as using a mobile phone has detrimental effects on driving performance and safety (Collet, Guillot, & Petit, 2010). Since May 2014, it has been an offence to hold a phone or use a phone to send a text or email while driving (i.e. dual task driving) in Ireland. While dual task walking is not viewed to be as serious, the additional cognitive demands can lead to dangerous behaviours in pedestrians of all ages. This is especially relevant for those who are susceptible to concern or time pressures. Previous research has shown that individuals who talk on a phone while walking take longer to initiate a movement and make poorer decisions compared to those who are walking with no distractions (Neider et al., 2011). It is suggested that education and/or awareness programmes are used to highlight that pedestrians avoid distractions while crossing the road and focus solely on crossing the road safely.

4

Impact of changing the pedestrian light settings

We have shown that pedestrian light settings in Ireland do not match the usual walking speeds of older Irish adults and therefore, a substantial proportion of people would not have enough time to cross the road. The minimum walking speed required is consistent with settings used in other countries such as the UK (Newton, 2013) and these results support findings from similar studies carried out in the UK, the US, and South Africa (Amosun et al., 2007; Asher, Aresu, Falaschetti, & Mindell, 2012; Langlois et al., 1997). This is however, the first study to look at this issue in a nationally representative Irish population.

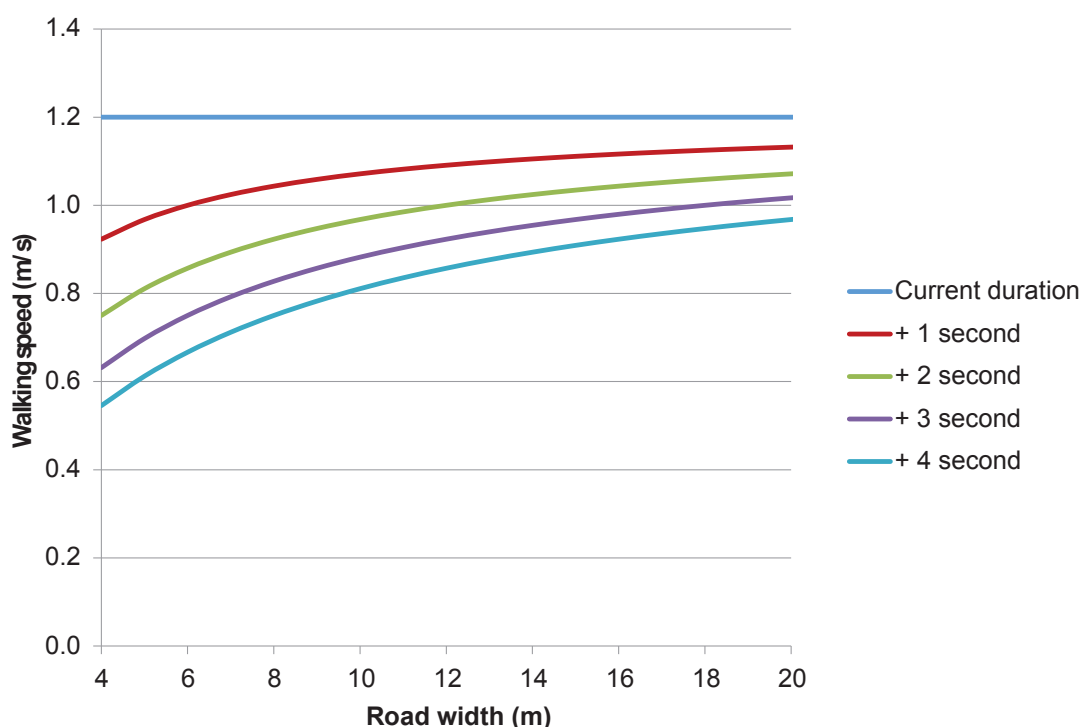
A number of approaches have been introduced internationally to solve this problem. Recommendations to reduce the minimum walking speed of 1.2 m/s have been proposed (Asher et al., 2012) and in the US, the guidelines now allow flexibility in pedestrian light settings to cater for the needs and abilities of older pedestrians and/or people with mobility problems (US Department of Transportation, 2009). Other solutions to provide additional time to cross have also been introduced, for example, extended pushbuttons in the US (US Department of Transportation, 2009), infra-red detectors to detect pedestrians at Puffin crossings in the UK (Newton, 2013), and the Green Man + system in Singapore (Land Transport Authority of Singapore, 2014). Countdown timers are also used to indicate the time remaining to cross the road in an effort to make pedestrian crossings safer and more accessible for older pedestrians (Lambrianidou, Basbas, & Politis, 2013; US Department of Transportation, 2009). Encouragingly, pedestrian safety projects which increase the time provided at the pedestrian crossings have been shown to decrease pedestrian-vehicle incidents (Chen, Chen, & Ewing, 2011) and reduce both the severity of injuries and the number of deaths (Retting, 1988).

However, it is not as simple as just increasing the time allowed at pedestrian lights as this can lead to increased driver frustration and subsequently, poor driver behaviours. Road and traffic planners face a challenge to balance safety, access and mobility needs of all road users. Therefore, it is an advantage to be able to examine the potential benefit of making a specific change before it is implemented. TILDA data provide an opportunity to examine, firstly the proportion of Irish adults who walk at a specific walking speed and

secondly, the change in pedestrian light timings that would allow a certain proportion of the population to cross the road.

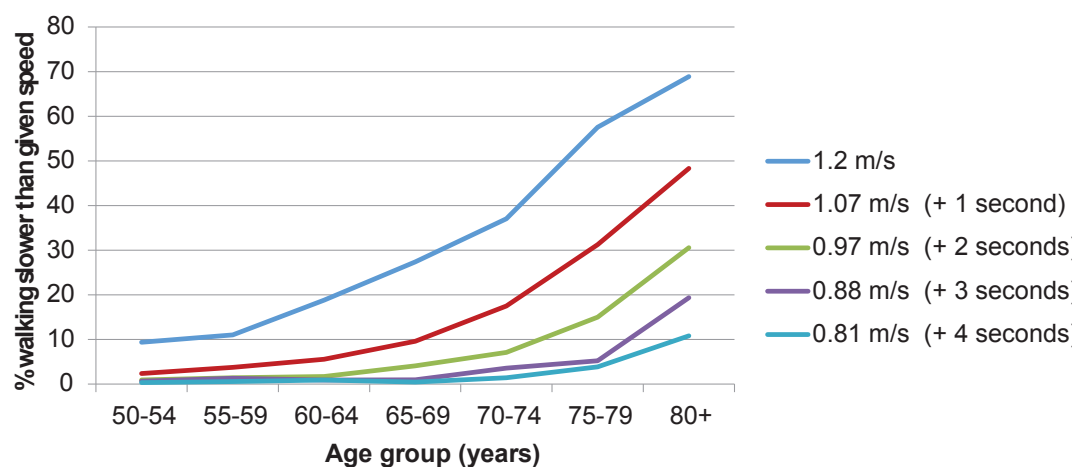
Figure 3.1 shows that the duration of the amber light varies with road width. The effect of adding additional time to the amber phase also varies with road width (see Figure 4.1). It has the largest effect on a narrow road and a smaller effect on a wider road. For example, adding 1 second to the amber light requires an individual to walk at a speed of 1.0 m/s to cross a road that is 6 metres wide but at a walking speed of 1.12 m/s to cross a road that is 16 metres wide. This same pattern can be observed when increasing the amber phase by 2, 3 and 4 seconds.

Figure 4.1: Increasing the duration of the amber pedestrian light (by 1, 2, 3 and 4 seconds) reduces the walking speed required to cross roads of various width.



To illustrate the impact of changing the duration of the amber light more clearly, we have selected a road 10 metres wide as this represents the average road width in the Dublin City Council area. Adding 1 second, 2 seconds, 3 seconds and 4 seconds to the amber light requires corresponding minimum walking speeds of 1.07 m/s, 0.97 m/s, 0.88 m/s and 0.81 m/s respectively to cross the road. Figure 4.2 illustrates the proportion of older Irish adults in each age category who walk slower than each of these walking speeds.

Figure 4.2: Proportion of Irish adults who walk slower than the walking speeds listed and therefore who would be unable to cross the road.

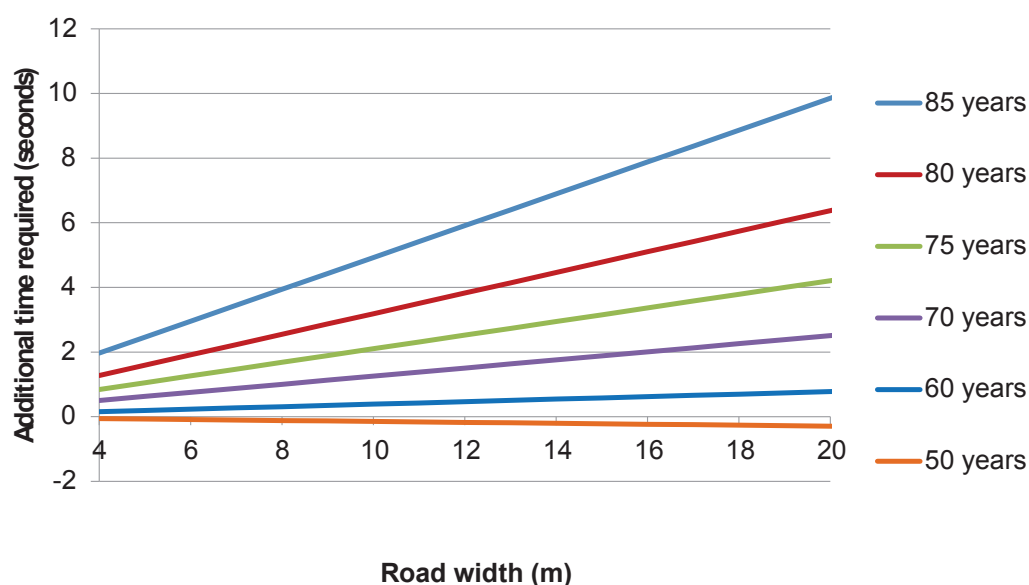


The effects of increasing the duration of the amber light on the proportions of people who have enough time to cross the road are minimal for those aged less than 60 years, but become much more substantial in the older age groups. Almost 30% of Irish adults aged 65-69 years walk slower than 1.2 m/s and therefore are unable to cross the road in the time provided. Allowing just one additional second and reducing the required speed to 1.07 m/s means that only 10% of this group would have difficulty. Two seconds extra reduces the proportion of adults aged 75-79 years with difficulty from almost 60% to about 15%. These very substantial improvements in the numbers able to cross safely could be achieved with only a small change in the light settings.

We have previously used TILDA data to obtain normative walking speed data on the Irish population (Kenny et al., 2013). These normative data allow us to identify where a man or woman of a specific age would be placed in the population in terms of their walking speed. We identified the walking speed of Irish adults that corresponds to the 10th percentile and used this to calculate the corresponding duration of the amber pedestrian light. This means that 90% of the population would be able to cross the road if the amber light appeared for this duration. We then calculated the difference between the amber light duration based on the Traffic Management Guidelines and the duration corresponding to the 10th percentile of walking speed in the Irish population. This difference indicates the amount of time that the amber light duration should be increased by to allow 90% of Irish adults to cross the road based on their age and their usual walking speeds (see Figure 4.3).

This graph highlights that the majority of adults aged up to 75 years need less than one second of additional time to cross a narrow road i.e. 4 metres wide, based on their usual walking speeds. The additional time required increases steadily as both age and road width increase. This illustrates that wider roads pose the greatest difficulty for older adults and a larger increase in the duration of the amber light is required to allow 90% of the population to cross wider roads. From a practical point of view, older adults should be aware that they are less likely to have enough time to cross a wide road if they do not begin to cross immediately once the green pedestrian light appears.

Figure 4.3: Duration that the amber light should be increased by to allow 90% of Irish adults at each of the listed ages to cross roads of various widths.



5

Conclusions

Population demographics are changing rapidly with substantial increases in the proportion of the population aged 65 years and older projected for the coming years. As people get older, they tend to walk more and therefore, appropriate street design and crossing facilities are important to allow older adults to safely and comfortably navigate their local areas. Age-appropriate light settings on pedestrian crossings have been highlighted as an important component in the planning and design of Age Friendly Cities (World Health Organisation, 2007). More recently, a project funded by the European Commission highlighted the need to consider the slower walking speed of elderly adults when determining the traffic light settings (DaCoTA, 2012).

This report highlights that the current settings for light-controlled pedestrian crossings are not suitable for many older Irish pedestrians. One in three aged 65-74 years and three in five aged 75 years and older do not have enough time to cross the road based on their usual walking speeds. Inadequate crossing times may cause older adults to avoid walking in areas that require them to cross the road thus limiting their ability to independently access all nearby services. This may lead to fewer social interactions, poorer quality of life and reduced physical activity which has negative implications given the established benefits of exercise on physical and mental health and wellbeing (Penedo & Dahn, 2005). With the impending Department of Health *National Physical Activity Plan* and initiatives such as *Get Ireland Walking* and *Get Ireland Active*, it is vitally important that appropriate facilities are available to support and enable people to become more physically active in a safe environment.

According to data published by the Road Safety Authority (2015), there were 31 pedestrian deaths in 2013 out of 190 fatalities on the road. However, this does not include the number of people who suffer physical injury or psychological trauma and/or reduced quality of life as a result of feeling uncomfortable and unsafe when crossing the road. Education about what the pedestrian light signals mean, when a pedestrian should cross, the impact of dual task walking and encouragement to obey the light signals should be addressed for pedestrians of all ages not just older pedestrians.

More broadly speaking, this area can also have an impact on tourism as the ability to safely and comfortably cross the road is an important component of an enjoyable travelling experience. It is estimated that over 7 million tourists visited Ireland in 2013 and 9% of these were aged 65 years or older (Fáilte Ireland, 2013). This represents a substantial number of adults in the age categories that are most at risk of difficulty at pedestrian crossings.

This report clearly highlights an issue that is of relevance both nationally and internationally. Improvements in technology and modifications to the traffic light settings are possible and many have already been implemented in various countries. Ideally, changes to the pedestrian light settings should rely on evidence-based data as much as possible. TILDA has normative walking speed data for all adults aged 50 years and over and therefore, it is in a unique position to contribute to this evidence-base. This data can be combined with traffic flow and software engineering models to assess the wider impact and feasibility of changes in pedestrian light settings. By using this information in a collaborative way, we can ensure that crossing facilities are suitable for pedestrians of all ages and abilities.

6

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