Comparative optimism about falling amongst community-dwelling older South Australians: A mixed methods approach

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ABSTRACT

People aged $\geq$65 years (older people) have a higher chance of falling than other age groups. However, based on qualitative research, older people do not believe that falls prevention information and strategies have personal relevance. This suggests that older people believe that falls are more likely to happen to other older people than themselves, that is, they might be comparatively optimistic about their chance of falling. It is important to understand comparative optimism about falling as it is a consistent reason given by older people for not participating in falls prevention activity. This thesis used a mixed methods design with a sequential strategy to investigate community-dwelling older people’s comparative optimism about falling.

Three studies were undertaken, using semi-structured interviews, cognitive interviews and telephone interviews to collect data. The semi-structured interview study, guided by the tenets of grounded theory, aimed to develop an explanation of why older people might be comparatively optimistic. A sampling frame (age, sex and direct and indirect history of falling) was used to guide recruiting respondents. Older people ($N = 9$) were interviewed about their chance and other older people’s chance of falling. Interviews were analysed using the constant comparison method. The cognitive interview study investigated potential problems in survey items in order to refine them for the telephone interview study. Items were developed to measure older people’s comparative optimism about falling. Older people ($N = 13$) were cognitively interviewed, and interviews were content analysed. The telephone interview study aimed to determine whether older people were comparatively optimistic about falling, and whether the direct and indirect experience of falling was associated with
comparative optimism. A random sample of older people ($N = 389$) living in South
Australia were telephone interviewed (response rate = 75%).

The semi-structured interview study identified that it was a ‘threat to identity’ for
respondents to say they had a chance of falling because of intrinsic risk factors.
Respondents used strategies to maintain or protect their identity when discussing their
chance of falling in the future or their reasons for falling in the past. In the cognitive
interview study, respondents reported difficulty in rating their chance of falling, as
they believed falls were unexpected and unpredictable. They reported difficulty in
rating other people’s chance of falling, as they believed they did not know other
people their age, did not have enough information and/or did not know the answer. In
the telephone interview study, most respondents believed they had the same chance
(42%), or a lower chance (48%) of falling in the next 12 months, than other older
people. Having fallen in the last 12 months was significantly associated with a
lowered comparative optimism, but knowing other older people who had fallen was
not associated with comparative optimism.

This is the first quantitative study to report that the majority of a representative
sample of community-dwelling older people were comparatively optimistic about
their chance of falling. Self-presentation concerns about having a chance of falling
support the core category to emerge from the semi-structured interview study.
Messages such as ‘you can reduce your risk of falls’ may be ignored by older people.
Alternative messages should promote identities that are relevant to older people, such
as being independent, mobile and active, but these messages should be tested in
further research.
STATEMENT PAGE

This work contains no material which has been accepted for the award of any other degree of diploma in any university of other tertiary institution, and to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

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CHAPTER 1. COMMUNITY-DWELLING OLDER PEOPLE’S COMPARATIVE OPTIMISM ABOUT FALLING, AND THE EFFECT OF FALLING ON COMPARATIVE OPTIMISM: BACKGROUND AND LITERATURE REVIEW

“It won’t happen to me” (female, aged 76-85 years)

(Managing Innovation Marketing Consultancy Network Pty Ltd, 2000, p.19).

1. Aim of this chapter

This first chapter presents a review of the literature on community-dwelling, older people’s comparative optimism about falling and the effect of falling on comparative optimism. This literature review will demonstrate that the majority of older people understand that falls are a major problem for people in their age group, yet the majority of older people living in the community do not believe they are personally vulnerable to falling. This suggests that older people are comparatively optimistic about falling, that is they believe falling is more likely to happen to older people other than themselves. Despite the large volume of research conducted into comparative optimism towards negative events, no quantitative studies using representative samples have been conducted on community-dwelling older people’s comparative optimism about falling. Therefore, this literature review also presents a review of studies of older people’s perceived chance of falling, as this is one aspect of measuring comparative optimism.

This chapter has four sections. The background to the problem of falls in older people, the evidence base regarding falls prevention in older people, older people’s uptake and adherence to falls prevention activities, and older people’s beliefs about falls and falls prevention is presented in the first section. The second section presents
a review of research regarding older people’s comparative optimism about falling, to identify what is already known, the limitations of past research and gaps in knowledge. The review focuses on the influence that older people’s personal experience of falling, or knowledge of other people who have fallen, has on older people’s comparative optimism. The third section presents a review of research regarding older people’s perceived chance of falling. Lastly, the fourth section presents an overview of the remaining chapters of this thesis.

2. Background

Falls as a recognised health problem for older people

Falls in people aged 65 years and older have been identified as an important and common public health problem around the world (World Health Organization, 2008). In Australia, based on the considerable burden involved in the problem and the potential for its reduction, falls in older people are one of the National Health Priority Areas included under injury prevention (since 1996) (Commonwealth Department of Health and Aged Care, 2001) and are included within the National Injury Prevention Plan (National Public Health Partnership, 2005; Pointer, Harrison, & Bradley, 2003).

Falls in older people have been included as a health priority for four reasons that will be discussed in more detail below. First, the epidemiological evidence finds that falls are a common problem for older people. Second, it has been recognised that falls in older people place a burden on the individual, the community, and the health system. Third, it is established that falls in older people can be prevented or better managed. Fourth, the well documented trend of the growing proportion of older people in the world and in Australia is projected to dramatically increase. This
literature review begins by first defining what is meant by older people and what is meant by falls in this thesis.

**Definition of older people**

Whilst there are various definitions of ‘older people’; this thesis uses the World Health Organization definition: older people are aged 65 years and over. The age 65 years is a chronological marker of biological processes that occur with age, unaffected by disease, environment and lifestyle (World Health Organization, 2001). Chronological age is not the same as biological age, in which the process of ageing is influenced by disease, environment and lifestyle. Because of differences in lifestyle, environment and disease experience over a lifetime, there is much diversity in health levels amongst people aged 65 years and older. As each person’s situation is different, there are many exceptions to the norm. Therefore, there is much diversity between people the same age. It is acknowledged that defining older people as being aged 65 years and over is a contested definition.

While there is heterogeneity amongst people aged ≥65 years, defining older people as being aged ≥65 years is practical for falls prevention researchers. The consequences of falling are more common and more severe for this age group than other age groups. In Australia, falls-related hospital admissions are not common for age groups under the age of 65 years (Cripps & Carman, 2001). The rate of hospitalisation following a fall rises exponentially from the age of 65 years; the rate increases nine-fold from the age of 65 years to 85 years (Berry & Harrison, 2007; Cripps & Carman, 2001; Cripps, Steenkamp, & Harrison, 2002). Therefore, from an epidemiological view, age is a risk factor associated with hospitalisation from falls (Cripps, Steenkamp, & Harrison, 2002).
Population ageing in the world and in Australia

Globally, the proportion of older people is increasing faster than any other age group (United Nations, 2004, as cited in World Health Organization, 2008). This group is projected to increase from an estimated 688 million people in 2006 to two billion people in 2050 (United Nations, 2004, as cited in World Health Organization, 2008).

Similarly, the proportion of the Australian population aged ≥65 years is increasing. For instance, in South Australia where the current research was conducted, in 2001, 15% of the population were aged ≥65 years. By 2051, there is projected to be a two-fold increase to 29% of that population being aged ≥65 years (Moller, 2003). Given that this segment of the population is more prone to falling and more likely to suffer adverse consequences than younger people, falls prevention presents a growing challenge (Nitz & Low Choy, 2008).

Falls in older people

Definition of falls

Different definitions of falls have been used by researchers conducting falls research. This has been problematic for comparing study outcomes (Gillespie et al., 2003). The Prevention of Falls Network Europe (ProFaNE) recommends that researchers use the following definition so that study outcomes can be compared. A fall can be defined as “an unexpected event in which the participants come to rest on the ground, floor, or lower level” (Lamb, Jorstad-Steing, Hauer, & Becker, 2005, p.1619). ProFaNE’s definition is more inclusive of falls that occur from all causes and is a simpler definition than other definitions such as the Kellogg International Working Group on the Prevention of Falls in the Elderly’s definition (Gibson, Andres,
Isaacs, Radebaugh, & Worm-Petersen, 1987). Therefore, the ProFaNE’s definition has been used for this thesis.

Incidence of falls

Falls incidence rates vary between countries (Yoshida, 2007); however on average, approximately one third of older people fall each year, and this percentage increases with increasing age (World Health Organization, 2008). Due to an increase in the proportion of older people living longer, there is a projected increase for the incidence of falls. One projection is that, without preventive measures, the number of injurious falls will increase by 100% by the year 2030 (Kannus et al., 2007, as cited in World Health Organization, 2008).

Within Australia, falls are also a common problem for older people. Approximately one in three people aged ≥65 years and living in the community fall at least once each year (Dolinis, Harrison, & Andrews, 1997; Gill, Taylor, & Pengelly, 2005; Lord, Ward, Williams, & Anstey, 1993, 1994). Some older people fall multiple times within 12 months (Gill, Taylor, & Pengelly, 2005; Laird, Studenski, Perera, & Wallace, 2001; Lord, Ward, Williams, & Anstey, 1993, 1994; Morris et al., 2004). For example, in one South Australian population study, within 12 months 17% of participants fell once, and 13% fell two or more times. The older people are, the higher the incidence of falling (Nitz & Low Choy, 2008).

Impact and consequences of falls

Falling has a considerable impact on older people’s morbidity and mortality. There is also a considerable cost to health services, as described below.

Confidence and fear of falling

Falls can have a large impact on older people and the community, as reflected in older people’s lower level of confidence and increased fear of falling (National
Tinetti and Powell (1993) define a fear of falling as “a lasting concern about falling that leads to an individual avoiding activities that he/she remains capable of performing” (p.36). Cheal and Clemson (2001) found that older people who considered they were at risk of falling revealed they limited their everyday activities or avoided activities, such as shopping, catching public transport and walking outdoors. This reflected a loss of confidence in their ability and perceived need to take care to prevent falls during everyday activities (Cheal & Clemson, 2001).

Fear of falling is a common problem amongst older people; 54% of a community-dwelling sample reported a fear of falling sometimes, often or very often (Zijlstra et al., 2007). Fear of falling is particularly prevalent once people have fallen (Howland et al., 1993; Zijlstra, van Haastregt, van Eijk, van Rossum, Stalenkoef, & Kempen, 2007). One study showed that people aged ≥65 years who had fallen more than once in six months were almost six times more likely to have a fear of falling than those who had not fallen (Zijlstra, van Haastregt, van Eijk, van Rossum, Stalenkoef, & Kempen, 2007). Another study estimated that 70% of older people who had fallen were very or somewhat afraid of falling (Howland, Peterson, W.C., Fried, Pordon, & Bak, 1993). Older people who have not fallen may also have a fear of falling. One study estimated that 20% of older people who had not fallen in the last 12 months reported being very or somewhat afraid of falling (Howland, Peterson, W.C., Fried, Pordon, & Bak, 1993). The impact of the fear of falling can be as disabling as the physical impact of falling. A recent systematic review found that the fear of falling was associated with falling, physical consequences (i.e. decrease in physical activity, balance and gait problems), functional consequences (i.e. the avoidance of activities and loss of functional independence), psychological consequences (i.e.
depression and decreased quality of life) and a reduction in social activity (Scheffer, Schuurmans, van Dijk, van der Hooft, & de Rooij, 2008).

**Emotional and social consequences**

Falling also has an emotional and social impact. For example, Cheal and Clemson (2001) found that an immediate negative psychological effect of falling was “‘embarrassment’, ‘shock’, ‘devastation’, and ‘annoyance’” (p.86). This impact can be so strong that older people fear the immediate consequences of falling as much as the longer term loss of functional independence (Yardley & Smith, 2002). Longer term impacts reported by older people include a loss of independence, and “feeling, sad, lonely and unmotivated due to increasing dependence and loss of occupational roles” (Cheal & Clemson, 2001, p.87).

**Physical injury, hospitalisations and aged care placement**

The majority of falls in older people do not result in significant physical injury. For example, in one Australian study, 26% of older people who had fallen in the last 12 months had minor injuries such as grazes or bruises, 10% received strains or moderate injury, while nine percent of falls resulted in at least one fracture (Hill, Schwarz, Flicker, & Carroll, 1999). The most common injuries from falls resulting in hospitalisation (hence with serious consequences) in Australia in the years 2003 to 2004 were hip and thigh injuries (34%) and head injuries (15%) (Bradley & Harrison, 2007b). Of those who were hospitalised as a result of a fall, 67% were admitted to hospital because they sustained at least one fracture (Bradley & Harrison, 2007b).

Hip fractures are the most serious fall-related injury for older people, and have serious consequences. For example, in a prospective cohort study, six months after community-dwelling older people had a fall-related hip fracture, 23% were institutionalised (Marottoli, Berkman, Leo-Summers, & Cooney, 1994). Further, for
older people living in the community, falls are a strong predictor of nursing home placement (Tinetti & Williams, 1997; Tinetti, Liu, & Claus, 1993). It follows that when an older person falls, it can have considerable consequences for health system use and costs.

Medical attention following a fall

Many older people do not seek medical assistance following a fall. For example, about a third of older people seek medical attention after falling (Morris, Osborne, Hill, Kendig, Lundgren-Lindquist, Browning, & Reid, 2004; New South Wales Health Department, 2000; Tinetti & Williams, 1997; Weinberg & Strain, 1995), while in a study with women aged between 76 and 81 years, 13% sought medical attention after falling (Byles, Powers, Chojenta, & Warner-Smith, 2006). Of those older people who attended an emergency department because of a fall, approximately one third are admitted to hospital (Hendrie, Hall, Arena, & Legge, 2004; Weinberg & Strain, 1995).

Hospital admission following a fall

Whilst the incidence of falls vastly exceeds hospitalisation and mortality data (Bradley & Harrison, 2007b), the most compelling data which indicate that falls are a serious health problem due to injuries sustained from a fall are derived from national Australian hospitalisation data (Bradley & Harrison, 2007b). From most recent Australian data (2003 to 2004) for people aged ≥65 years, there were an estimated 60,497 hospitalisations because of a fall-related injury (Bradley & Harrison, 2007b). This represents 4.2% of all hospital separations for people aged ≥65 years. Females were more likely to be hospitalised compared to males (1.0:0.6). For both sexes, hospitalisation rates increased exponentially with increased age. The mean length of
stay was 8.1 days ($SD = 11.2$), and for both sexes this increased with age (Bradley & Harrison, 2007b).

The Australian national age-standardised rate for hospitalisation due to falls-related injury for people ≥65 years was 2,295.3 per 100,000 population. In South Australia, age standardised rates for hospitalisation due to falls-related injury for those aged ≥65 was 2,077.8 per 100,000 (Bradley & Harrison, 2007b). Thus falls have a significant impact on the health system. It has been projected that from 2001 to 2051, hospital bed days for falls injury treatment will increase almost three-fold for Australia and will increase two-fold for South Australia (see Table 1) (Moller, 2003).

*Mortality resulting from falls*

The death rate from falls injury in older people is also a compelling indicator that falls are a serious and severe health problem. In 1998, the annual death rate from accidental falls in Australia was 38.9 per 100,000 population (Cripps & Carman, 2001). In 1997 to 1998, over 1,014 older people in Australia died from a fall (Cripps & Carman, 2001), accounting for 49.5% of injury deaths in this age group.

Death rates caused by accidental falls increase exponentially from the age of 80 years (Moller, 2005). A fractured neck of femur was the most commonly diagnosed accidental falls outcome that was related to death. The number of deaths caused by a fractured neck of femur increases 3.6 times from the age of 80 to 84 to 85 plus (Moller, 2005). In one study, 16% of community-dwelling older people, who sustained such a fall-related hip fracture, died within six months (Marottoli, Berkman, Leo-Summers, & Cooney, 1994). Another study found that of community-dwelling older people who sustained a fall-related hip fracture, 8% died within three months, 13% died within six months and 17% died within 12 months (Magaziner, Simonsick, Kashner, Hebel, & Kenzora, 1989). However, according to Moller (2005), the
incidence of deaths due to falls is likely to be “severely underestimate[d]”, as the
cause of death is likely to be certified to disease rather than due to external causes,
particularly when there has been a length of time between falling and death (p.26).

Economic cost of falls

Falls in older people result in a large economic burden on society. They cost
the health system and community more than any other injury. For example, in New
South Wales, the total cost associated with treating falls-related injuries exceeded the
lifetime costs of all other injuries (including motor vehicle accidents) by about $300
million (Moller, 2005). Studies examining cost estimates of falls-related injuries use
different methodologies and it is therefore difficult to compare these studies. However
they all indicate that falls in older people are very costly. The costs of falls injuries
include direct costs such as hospitalisation, and indirect costs, such as morbidity and
mortality (Moller & Cantwell, 1999). The total cost of falls-related injuries in
Australia has been found to be more than $3 billion annually, mostly in direct costs
and morbidity, and to a lesser extent mortality (Moller & Cantwell, 1999). The most
recent Australian estimate (2003 to 2004) of the direct hospital cost of falls for falls-
related acute care was $566 million (Bradley & Harrison, 2007b).

Falls-related injuries in the future will have a major cost impact on the
Australian health system. This cost is projected to almost triple (2.76) within 50 years
(Moller, 2003). In 2001, this cost to the Australian health system was $498 million
and it is projected to rise to $1,375 million by 2051 (Moller, 2003). These projections
are based on the incidence rates of falls, population projections, and the cost of fall
injury from 1993 to 1994, with no correction for increases in health care costs.
Therefore the cost of fall-related injury is likely to be underestimated. Moller’s (2003)
main findings for the projected demand on health services as a result of falls-related
injury from 2001 to 2051 for Australia and South Australia is summarised in Table 1 and in the following quote.

The cost of falls-related injury is expected to rise dramatically over the next 50 years unless effective prevention and lower treatment costs occur. If additional efforts to reduce the rate of falls-related injury for this age group are not implemented the total cost of treatment will rise to a point that is likely to make investment in prevention difficult once the demographic shift occurs in each jurisdiction (p.9).

Table 1. National and South Australian Current and Projected Total Health Cost and Hospital Bed Days Required For Falls Injury (≥65 years) (Moller, 2003)

<table>
<thead>
<tr>
<th>Falls risk factors</th>
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<td>The epidemiology of falls has been extensively investigated. Although there are causal mechanisms of falling, falling is complex and multiple risk factors are associated with falling. Each risk factor on its own is associated with falls. However falls usually result from a combination of several risk factors (Tinetti, Speechley, &amp; Ginter, 1988). According to the World Health Organization (2008), falls risk factors</td>
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can be categorised into biological (intrinsic), environmental (extrinsic), behavioural and socioeconomic risk factors.

Intrinsic risk factors listed in Table 2, are based on a review of falls risk factors consistently associated with falls published in good quality studies (Lord, Sherrington, Menz, & Close, 2007). These include non-modifiable and modifiable biological risk factors, such as socio-demographic factors, balance and mobility factors, sensory and neuromuscular factors, psychological, and medical factors (Lord, Sherrington, Menz, & Close, 2007). The best predictor of older people falling is their history of falls in the last 12 months (Lord, Sherrington, Menz, & Close, 2007). The physical and mental changes associated with ageing and co-morbidity, and underlying unmanaged health problems are also risk factors (Todd, Ballinger, & Whitehead, 2007).

Extrinsic risk factors include pets, home hazards, slippery floors, poor lighting, and uneven footpaths (World Health Organization, 2008). Although there is no strong evidence that extrinsic risk factors are associated with falls, they can interact with a person’s intrinsic risk factors, such as their physical ability, and so result in a fall (Hill et al., 2004; Lord, Sherrington, Menz, & Close, 2007).

Behavioural risk factors, defined as “human actions, emotions and daily choices” (World Health Organization, 2008, p.5) include factors such as multiple medications, and certain medications such as benzodiazepines, excessive alcohol intake, climbing ladders, footwear, and physical inactivity. Lastly, socioeconomic factors are what the World Health Organization (2008) defines as factors that “influence social conditions and economic status of individuals as well as the capacity of the community to challenge them” (p.6). These include limited access to health services, low levels of income and low education.
Table 2. Summary of Intrinsic Falls Risk Factors (Lord, et al., 2007)

NOTE: This table is included on page 13 of the print copy of the thesis held in the University of Adelaide Library.

Falls prevention

Many falls risk factors can be modified and there is a growing evidence base of interventions regarding the prevention of falls in community-dwelling older people. However as further research is conducted, some findings are inconclusive (Tinetti, 2008). Studies also need to be interpreted carefully because researchers use different definitions of falling.

Strategic falls prevention approaches can be at the individual or population level (Skelton & Todd, 2004). An individual approach entails identifying those at high risk of falls, and directing them to a falls prevention service appropriate to their needs. For example, one set of clinical guidelines recommends that all older people should be asked by a health professional at least once a year whether they have fallen (Feder,
Case finding like this can then direct people to further screening, assessment and intervention. Within this approach, single or multiple falls risk factors can be addressed. A Cochrane Review (last updated in 2003) of clinical trials to prevent falls (where the unit of analysis was the individual) (Gillespie, Gillespie, Robertson, Lamb, Cumming, & Rowe, 2003) included the following countermeasures:

- Home based targeted muscle strength and balance retraining prescribed on an individual basis by a trained health professional (RR 0.80, 95% CI 0.66 to 0.98);
- Tai Chi Quan (a balance enhancing exercise, twice per week for 15 weeks) (risk ratio 0.51, 95% CI 0.36 to 0.73);
- Multidisciplinary and multi-factorial health and environmental risk factor screening and intervention for an unselected population (RR 0.73, 95% CI 0.63 to 0.85) and for people with a history of falling or who have known risk factors (RR 0.86, 95% CI 0.76 to 0.98);
- Home assessments and modification individually prescribed by a trained health professional for people with a history of falling (RR 0.66, 95% CI 0.54 to 0.81);
- Gradual withdrawal of psychotropic medication (relative hazard 0.34, 95% CI 0.16 to 0.74); and
- Cardiac pacing for people who have fallen and who have cardio-inhibitory carotid sinus hypersensitivity (weighted mean difference -5.20, 95% CI -9.40 to -1.00)

Rather than the individual level approach, a population approach aims to reduce the overall risk of falling in the population of older people (Skelton & Todd,
Population approaches include strategies such as improving older people’s awareness of falls risk factors, promoting physical activity, and promoting environmental safety. Compared to the individual approach, the population approach is likely to reach more people, regardless of their risk of falls. However, compared to an individual approach, a population approach does not provide individualisation of treatment to match individual needs (Skelton & Todd, 2004).

An evidence base around preventing falls-related injuries (note: not falls per se) at the population-based level (where the unit of analysis is the entire community) is developing (McClure et al., 2005). A population based intervention was defined as “coordinated, community-wide, multi-strategy initiatives, for reducing fall-related injuries among older people” (McClure, et al, 2005, p.1). The findings of five quality studies were that a population-based approach significantly reduces, or has a downward trend in reducing, fall-related injury in older people (relative risk reduction of 6% to 33%).

In an ideal world, older people would receive information about falls and how to prevent them a) from population approaches and b) through individual approaches specifically for people at high risk of falling identified through case finding. These approaches can be complementary (Skelton & Todd). However, as will become clear, there is evidence to suggest that some older people have rejected both individual and population approaches as not being relevant to them.

Uptake and adherence to falls prevention activities

Currently, recommendations for clinicians and geriatricians (Kiel, 2007; Reuben et al., no date) on assessing and managing falls in older people provide no

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1 Quality here refers to the reviewers’ assessment of appropriate baseline measurements, control group, outcomes measures and protection against contamination between intervention and control (p.6)
suggestions about how to present this information to older people. Recently there have been attempts to address this by developing recommendations for health professionals engaging older people in falls prevention (Nyman & Ballinger, 2008; Yardley et al., 2007). The recommendations illustrate that there is a paucity of strong evidence to base the recommendations on in this area, and more research is required to understand older people’s motivation to take up and adhere to falls prevention activities (Lord, Sherrington, Menz, & Close, 2007).

Evidence based interventions to prevent and manage falls (Gillespie, Gillespie, Robertson, Lamb, Cumming, & Rowe, 2003) may not be as effective as they could be, as less than optimal uptake and adherence to falls prevention recommendations by older people can reduce effectiveness. For example, the enrolment of older people in falls prevention trials can be as low as 10% to 14% (Day et al., 2002; Tinetti et al., 1994) and the uptake of older people in falls prevention activities may be less than satisfactory (between 46% to 67%) (Larsen, Mosekilde, & Foldspang, 2001; Shandro, Spain, & Dicker, 2007).

A systematic review of older people’s experiences of falls prevention programs found that older people did not perceive falls prevention as relevant to themselves until they had experienced a fall. Further, a social stigma was attached to programs specific to older people and falls prevention information was reported to be unappealing (McInnes & Askie, 2004). The difficulty in modifying older people’s behaviour to reduce their risk of falls has been identified for at-risk populations (Fortinsky et al., 2004) and for the primary prevention of falls (Bauman & National Public Health Partnership (Australia), 2002).

There are many reasons why older people do not take up falls prevention interventions. A systematic review utilising qualitative and quantitative studies
examined the barriers for older people to engagement in falls prevention activities (Bunn, Dickinson, Barnett-Page, McInnes, & Horton, 2008). One cited barrier was that some older people were fatalistic about falling, believing that little could be done to prevent falls. Some older people attributed their falls to extrinsic risk factors or believed that physical decline leading to falls was inevitable. They also found that stigma was attached to using aids such as walking frames. Further, some older people saw falls prevention information and strategies as being relevant to other older people.

A consistent reason given by older people for not taking up falls prevention interventions was their belief that there was no need for them. For example, Yardley and colleagues (2006) interviewed older people from six European countries who had various experiences of participation in falls prevention activities (Yardley et al., 2006). The authors concluded that “the main reason given for non participation was low perceived need, linked to a denial of risk of falling” (p.658). Similarly, Shandro, Spain and Dicker (2007) found the main reason older people who had recently fallen, did not enrol in falls prevention activities was because they or their families believed there was no need.

When older people have hypothetically been asked if they would accept falls prevention activities if their doctor recommended it, some people were reluctant to do so because they believed they would not fall again (Whitehead, Wundke, & Crotty, 2006). Health professionals also report difficulty in encouraging older people to participate when older people did not view themselves as having a chance of falling or decline in mobility (van Haastregt et al., 2002).

As there are indications in several studies that older people do not see a need for falls prevention interventions, it is possible that they do not believe that they are at risk of falling. The next section will include a description of older people’s
understanding about falls, including their recognition of falls and their impact, falls risk factors, and their beliefs about preventing falls. This will give the reader a more complete picture.

*Older people’s understanding about falls*

**Recognition of falls as a problem**

Older people believe that falls are a problem for people in their age group. For instance, in an Australian population study with a randomly selected large sample ($N = 2,448$) and satisfactory response rate (69%), 89% of respondents aged $\geq 60$ years agreed that falls were a problem for people of their age (Hahn, van Beurden, Kempton, Sladden, & Garner, 1996). Other quantitative studies also found that the majority of older people (ranging from 75% to 87%) believe that falls are a problem (Braun, 1998; Mackintosh, Fryer, & Sutherland, 2007; Milligan, 2005; Whitehead, Wundke, & Crotty, 2006). In qualitative studies, older people also acknowledged falls as a priority or an important issue (Managing Innovation Marketing Consultancy Network Pty Ltd, 2000; Yang, Haralambous, Angus, & Hill, 2008). Further, the majority of people (84% to 91%) in two studies with convenience samples believed that older people were more likely to fall than younger people (Sadowski, Jones, Gordon, & Feeny, 2007; Wiens, Koleba, Jones, & Feeny, 2006).

**Recognition of impact of falls**

Older people understand the consequences that falls can have. A focus group study of older Italian-Canadian and British-Canadian people indicated their awareness of the negative consequences of falling. Aminzadeh and Edwards (1998) found that older people associated falls with “physical injuries, psychological trauma, functional impairments, loss of independence, and even death” (Aminzadeh & Edwards, 1998,
This suggests that older people understand that falls can have a major negative impact.

The loss of independence is a major threat for older people who have fallen (Health Education Board for Scotland, 2003; Kong, Lee Fk, Mackenzie, & Lee, 2002; Managing Innovation Marketing Consultancy Network Pty Ltd, 2000). For example, older Chinese people who within the previous 48 hours were hospitalised because of a fall, indicated their biggest fear was losing their independence (Kong, Lee Fk, Mackenzie, & Lee, 2002). Older people value their independence highly (Kong, Lee Fk, Mackenzie, & Lee, 2002; Salkeld et al., 2000) and this was demonstrated in one study where 80% of women aged ≥75 years preferred to die rather than be admitted to a nursing home after a fall-related hip fracture (Salkeld, Cameron, Cumming, Easter, Seymour, Kurrle, & Quine, 2000).

Older people know that falling can personally have injurious outcomes to them (Braun, 1998), although they believe that if they did fall and seriously injured themselves, they would return to their current living situation. In other words, they knew the serious consequences of falling, but did not believe falling was a real threat to their independence (Braun, 1998). However, this study is based on descriptive data.

Recognition of falls risk factors

Older people’s understanding of what causes falls will be summarised under extrinsic (environmental), intrinsic (personal) and behavioural risk factors.

Extrinsic risk factors are well understood by older people. Older people know that extrinsic risk factors such as rugs or footpaths are important risk factors for older people to fall (Braun, 1998; Mackintosh, Fryer, & Sutherland, 2007). In a qualitative study, the most common extrinsic risk factors that older people identified were tripping over hazards such as steps, stairs and uneven footpaths, tripping over high
kerbing, and slipping on polished floorboards or mats (Managing Innovation Marketing Consultancy Network Pty Ltd, 2000). One reason why extrinsic risk factors might be well understood are that they “are more tangible to older Australians, easily understood and therefore better articulated” (Managing Innovation Marketing Consultancy Network Pty Ltd, 2000, p.20).

Older people also understand intrinsic risk factors are important falls risk factors (Braun, 1998; Mackintosh, Fryer, & Sutherland, 2007), but it seems these are not as well known, understood or accepted as extrinsic risk factors are (Managing Innovation Marketing Consultancy Network Pty Ltd, 2000). There is evidence to suggest that older people prefer to nominate extrinsic risk factors rather than intrinsic risk factors in explaining their own personal risk of falling. For example, in one quantitative study, older people rated all the listed intrinsic risk factors as important in causing falls for other older people their age, but not important in causes of falls for themselves (Braun, 1998). However they were not statistically compared and so no inferential conclusions can be made. Also, the sample in this study was a convenience sample of older people of low socio-economic status, so it is not known if the sample was representative of the broader population.

In an Australian qualitative study, the most common intrinsic risk factors identified by older people included being unsteady on their feet, often associated with frail older people, sudden dizzy spells, loss of balance, and poor eyesight (Managing Innovation Marketing Consultancy Network Pty Ltd, 2000). In a quantitative study of older people (aged ≥65 years) who had fallen, the most common intrinsic risk factor they attributed to their falls was losing their balance (Morris, Osborne, Hill, Kendig, Lundgren-Lindquist, Browning, & Reid, 2004). It seems that other modifiable and
important risk factors such as medications, physical inactivity and impaired strength, are less likely to be nominated by older people.

Older people believe that behavioural risk factors such as participating in risky behaviour, not paying attention and confusion were causes for older people to fall (Braun, 1998; Mackintosh, Fryer, & Sutherland, 2007). Not paying attention was one of the most common reasons given by older people for falling in the last 12 months (Morris, Osborne, Hill, Kendig, Lundgren-Lindquist, Browning, & Reid, 2004). Other phrases used by older people to explain why they fell were clumsiness, loss of concentration, hurrying, carelessness and not looking where they were going (Cheal & Clemson, 2001; Kong, Lee Fk, Mackenzie, & Lee, 2002; Managing Innovation Marketing Consultancy Network Pty Ltd, 2000).

*Older people’s beliefs about and intentions to prevent falls*

If older people understand they can prevent falling, they might be more likely to take action to prevent falls. Appendix A contains a summary of quantitative studies that examined whether older people believe falls are preventable. Based on an Australian population study with a randomly selected sample, 46% of older people living in the community believed that falls could be prevented (Hahn, van Beurden, Kempton, Sladden, & Garner, 1996), suggesting there is much room for improving older people’s understanding on how to prevent falls. An evaluation study of community-based awareness raising intervention showed that older people’s attitudes towards preventing falls can be significantly improved (Kempton, van Beurden, Sladden, Garner, & Beard, 2000). Even five years after the community-based awareness raising intervention, the intervention group was significantly more likely to agree that falls can be prevented than a control group (Hughes et al., 2008). This is
good news for those who want to improve confidence in older people about falls being preventable.

Two other Australian population studies found that between 61% and 70% of respondents believed falls were preventable (Hughes, van Beurden, Eakin, Barnett, Patterson, Backhouse, Jones, Hauser, Beard, & Newman, 2008; Milligan, 2005) and studies with convenience samples found between 55% and 81% believe falls are preventable (Braun, 1998; Cumming et al., 2001; Mackintosh, Fryer, & Sutherland, 2007; Smith & Lewin, 2008; Whitehead, Wundke, & Crotty, 2006). Therefore many older people do not believe falls are preventable. Qualitative studies also consistently reported that some older people believe that falls are not preventable or predictable, and that falls are an inevitable part of ageing (Cameron & Quine, 1994; Health Education Board for Scotland, 2003; Horne, 2007; Kong, Lee Fk, Mackenzie, & Lee, 2002; Simpson, Darwin, & Marsh, 2003).

Older people have low intentions to change their behaviour to reduce their risk of falls. In a Western Australian state-wide survey ($N = 1100$), only a small number of older people reported any intention to make changes to reduce their risk of falling, either in the next month (9%), or the next six months (12%) (Milligan, 2005). Even in response to falling within the last 12 months, a South Australian state-wide survey study found that there was low intention to act and general inaction, post falling (Gill, 2005). For example, when a group of older people who had fallen in the last 12 months and who felt they were at risk of falling again, were asked what they would be prepared to do, 58% reported not being prepared to do anything to reduce their risk (Gill, Taylor, & Pengelly, 2005). In another Australian study, 52% had considered prevention after recently attending an emergency department because of a fall.
(Whitehead, Wundke, & Crotty, 2006), although it is not known what is meant by the term ‘prevention’ in this case.

In an Australian study of a home care group of clients (a high falls risk group) who had fallen in the last 12 months, 74% stated they had made changes in their life to try to reduce their risk of falling, this proportion being significantly more than those who had not fallen (60%), although there was no information about what changes had been made (Smith & Lewin, 2008). However, when asked whether they would be interested in taking part in a falls prevention program, of those who had fallen only 31% stated they would be interested, although this was significantly more than the proportion of those who had not fallen (22%) (Smith & Lewin, 2008). Even though this was a high falls risk group, only 15% of those who had fallen in the last 12 months had taken part in an organised falls prevention activity (Smith & Lewin, 2008). Further, Smith and Lewin (2008) found that in their home care group, only nine percent of those who had fallen knew about fall prevention activities in which they could become involved. This suggests that older people were not accessing falls prevention programs.

The following is a summary of older people’s reports of their intentions of participating in exercise, medical check-ups, home assessments and home modifications. It shows that many people would not consider participating in falls prevention activities. Further, it is likely that if these respondents were actually given the opportunity to participate in these activities, acceptance would be lower than that reported here.

**Exercise**

Exercise is a major strategy for primary and secondary prevention of falls (Bauman & National Public Health Partnership (Australia), 2002; Gillespie, Gillespie,
Robertson, Lamb, Cumming, & Rowe, 2003) and therefore it is important to know if older people already exercise, or would consider exercising, to reduce their falls risk. In Australia, for people aged between 60 to 75 years, only 51% of men and 37% of women were sufficiently active to gain health benefit (Bauman & National Public Health Partnership (Australia), 2002). In a large population survey in New South Wales ($N = 9,000$), one quarter of people aged $\geq 65$ years stated they already exercised to reduce falls (New South Wales Health Department, 2000).

In terms of intention to exercise, 31% would consider doing gentle exercise such as walking or home exercise to reduce their risk of falls (New South Wales Health Department, 2000). In another population survey, of those who had a fall, only 19% would consider going to exercise classes and nine percent would exercise at home (Gill, Taylor, & Pengelly, 2005). In a community-dwelling sample of older people attending emergency department because of a fall (and therefore a high falls risk group), only 28% ($N = 60$) would attend an exercise group if their doctor recommended it (Whitehead, Wundke, & Crotty, 2006). Lastly, in a UK study, older people ($N = 5,440$, $\geq 55$ years) were asked if they would participate in strength and balance training classes and only 40% agreed (Yardley et al., 2008). In qualitative work, many older people were not aware that exercise or balance training was a strategy to prevent falls (Horne, 2007; Managing Innovation Marketing Consultancy Network Pty Ltd, 2000; Simpson, Darwin, & Marsh, 2003; Yardley, Donovan-Hall, Francis, & Todd, 2006).

**Medical check-up**

In Australia, over 90% of older people consult their general practitioner (GP) at least yearly (O'Halloran & Britt, 2004). However, older people consider their GP too busy to talk about falls prevention (Managing Innovation Marketing Consultancy Network Pty Ltd, 2000; Simpson, Darwin, & Marsh, 2003; Yardley, Donovan-Hall, Francis, & Todd, 2006).
Few older people would consider going to see their general practitioner in response to falling. For example, in a South Australian population survey of people aged \( \geq 65 \) years who had a fall in the last 12 months, 23% would be prepared to have a medical check-up to prevent falling again (Gill, Taylor, & Pengelly, 2005). In another study, almost the entire sample of older people stated they would go to their GP for treatment for falling. However, of those who had fallen, over half had not reported the fall to their GP, despite believing the GP could help them (Vetter & Lewis, 1995). That is, half of the respondents did not follow their stated intention with action.

**Home assessment and modification**

Home modification is a falls prevention strategy that older people understand and generally accept (Nolan & Gaughwin, 2002; Simpson, Darwin, & Marsh, 2003). However, in a South Australian population survey, of people aged \( \geq 65 \) years who had a fall in the last 12 months, only 19% said they would have their home modified (Gill, Taylor, & Pengelly, 2005). In an Australian study of older people attending an emergency department because of a fall, only 43% reported they would accept home safety assessment conducted by a health professional if their doctor recommended it (Whitehead, Wundke, & Crotty, 2006). In a UK study, 58% reported they would accept home modifications (Yardley, Kirby, Ben-Shlomo, Gilbert, Whitehead, & Todd, 2008). On the other hand, findings from a qualitative study found that often people already believed that their home was free of hazards (Simpson, Darwin, & Marsh, 2003).

**Taking more care**

The term, ‘taking more care’ is often cited by older people (Kong, Lee Fk, Mackenzie, & Lee, 2002; Managing Innovation Marketing Consultancy Network Pty Ltd, 2000).
Ltd, 2000) as a strategy to reduce their risk of falling, with actions such as “slowing down, being more cautious, and increasing concentration” (Cheal & Clemson, 2001, p.85). Taking more care encompasses many things including behavioural strategies that might be considered effective (avoiding risky activities) but may also be part of the sequelae of fear of falling (Simpson, Darwin, & Marsh, 2003). However it is not known, and appears unlikely, whether such a strategy would be effective, as it does not address intrinsic and extrinsic falls risk factors.

As will be shown in the next section, some older people believe that falls prevention is not relevant to them, which suggest that older people may be comparatively optimistic about falling. Before discussing comparative optimism and the literature regarding older people’s comparative optimism about falling, the search strategy will be described.

Search strategy

A review of the literature was conducted in two stages. The initial review was conducted in November 2005 and included a review of Pubmed and PsycInfo databases. This initial review was a broad search strategy that included psychological concepts such as ‘risk’ AND ‘falls’. A broad search strategy was repeated in November 2007, along with more specific searches of ‘experience’ AND ‘comparative optimism’ and ‘falls’ AND ‘comparative optimism’. These search strategies were linked with electronic updates and alerts.

Abstracts were reviewed so as to be considered for inclusion in the literature review. The reference lists of those articles retrieved were also reviewed and relevant articles retrieved. Masters and PhD theses were retrieved from known authors.
Conference abstracts were reviewed for the relevant conferences attended by the student to keep most up to date with the most current and often unpublished research.

All qualitative studies examining older people’s perspectives on falling were reviewed and included in the literature review. As there were few quantitative studies identified as specifically examining older people’s comparative optimism about falling, all studies found were included in the literature review. All studies that measured comparative optimism using the indirect method (the method used in this thesis) were summarised in Appendix B. This included the quoted wording of items used to measure comparative optimism, item pre-testing and the limitations of the studies, so that the reader might judge the quality of these quantitative studies. As few studies examined older people’s comparative optimism about falling, all studies that examined older people’s perceived risk of falling were summarised in Appendix C (in a similar format as presented in Appendix B). Therefore, all quantitative studies that examined older people’s comparative optimism about falling using the indirect method (Appendix B) or direct method or studies that examined older people’s perceived risk of falling (Appendix C) were included in the review.

3. Older people’s comparative optimism about falling

*Comparative optimism*

Research has found, on average, people underestimate their own perceived chance of experiencing negative events compared to other people (Weinstein, 1980; Weinstein, 1982). This phenomenon has been referred to in the literature as personal underestimation of risk, unrealistic optimism, optimistic bias, illusions of unique invulnerability and comparative optimism (Absetz, Aro, Rehnberg, & Sutton, 2000;
Comparative optimism is the most accurate term to use in this study. The ‘optimism’ in comparative optimism refers to the difference between people’s ratings of their own perceived chance of experiencing a negative event and their ratings of other people’s chance of experiencing a negative event. Comparative optimism implies that the bias in judgement may come from the rating of their chance or other people’s chance of experiencing a negative event. The other terms that are used imply that the distortion in ratings comes from people’s ratings of their own perceived chance (Shepperd, Carroll, Grace, & Terry, 2002). The terms ‘unrealistic optimism’ and ‘illusions of unique invulnerability’ apply when people rate their perceived chance of experiencing a negative event lower than their actual (objective) chance (Shepperd, Carroll, Grace, & Terry, 2002).

For over 20 years there has been research about comparative optimism towards negative events including health and safety issues, both serious and trivial. Research has consistently found that people underestimate their chance of experiencing a negative event compared to other people, in a range of populations and with various types of risks. According to Weinstein (1999), “this phenomenon is robust and appears in many different groups, with various methodologies, and with nearly all hazards” (p.19). For example, adults living in North Yorkshire \((N = 425)\) underestimated their chance of developing lung cancer, asthma, Parkinson’s disease, HIV, a chronic disabling condition and a fractured limb compared to others the same age and living in North Yorkshire (Covey & Davies, 2004); cigarette smokers underestimated their risk of developing lung cancer; heart disease or emphysema compared to other cigarette smokers (Waltenbaugh & Zagummy, 2004); female university students \((N = 120)\) who did not wish to fall pregnant in the next 12 months
underestimated their chance of becoming pregnant in the next 12 months compared to other female university students (Aucote & Gold, 2005); females ($N = 164$) underestimated their risk of developing breast cancer compared to other females the same age, and males ($N = 200$) underestimated their risk of developing prostate cancer compared to other males the same age (Clarke, Lovegrove, Williams, & Machperson, 2000).

Comparative optimism is the outcome of a group effect. Individually people may accurately rate their chance of experiencing a negative event lower than others but at a group level, not everyone can do so (Clarke, Lovegrove, Williams, & Machperson, 2000). Studies that compare comparative optimism ratings for different health conditions within the same study show that comparative optimism is not consistent across health conditions and therefore is not considered to be a trait (Fiandt, Pullen, & Walker, 1999; Kreuter & Strecher, 1995; Weinstein, 1982).

The function of being comparatively optimistic is likely to be protective in that, if people were to feel vulnerable to a range of risks and hazards in everyday life, the resulting emotional distress would constitute an almost impossible way to live (Helweg Larsen, 1999; Kos & Clarke, 2001). In this way, comparative optimism may be adaptive. Comparative optimism may be maladaptive when it interferes with people taking up health protective behaviour to reduce their chance of experiencing a negative event, particularly in necessary relevant situations (Kos & Clarke, 2001). An example is the situation where people believe that health messages are relevant to others who are considered vulnerable, but not relevant to them, and therefore are not motivated to take up health protective behaviour (Weinstein & Lyon, 1999). Correlation studies suggest that people who believed they were less at risk than others were more likely to demonstrate risky behaviours (Helweg Larsen & Shepperd,
Conversely, when people perceived that they were more at risk than others, they were more likely to take preventive activity (Dolinski, Gromski, & Zawisza, 1987). However, there is no evidence that comparative optimism causes risky behaviour.

There are various explanations for comparative optimism (see Shepperd, Carroll, Grace & Terry, 2002 for summary). Motivational explanations include self enhancement and self-presentation, where people are motivated “to perceive or portray their risk as less than the risk of others because this is what they want to believe or want others to believe” (Shepperd, Carroll, Grace & Terry, 2002, p.3). Cognitive explanations include “cognitive mechanisms that guide judgement” (p.4). One cognitive explanation is the representativeness heuristic where people, when asked to rate other people’s chance of a negative event, will think of a stereotype such as people with high risk behaviour. People may also not have enough information about other people compared to the information they have about themselves and this can lead to different risk judgements. Lastly an explanation is that mood affects ratings, with negative mood associated with a lowered comparative optimism. It is unlikely that any one explanation operates solely at one time. Instead Shepperd et al., (2002) suggests that comparative optimism has multiple causes.

Whilst there is ample research that demonstrates that comparative optimism occurs, negative events have unique properties, which is why it is important to research negative events with specific populations. Therefore, this study focused on older people’s comparative optimism about falling. Before outlining past research about older people’s comparative optimism about falling, the two ways by which comparative optimism has been measured, will be explained.
Direct and indirect method of measuring comparative optimism

There are two main ways of studying comparative optimism, the direct and indirect method. The direct method (sometimes called comparative risk judgement method) entails respondents answering one question, for example, “Compared to other men your age who live in North Yorkshire how would you rate your chances of getting lung cancer at some time in the future” (Covey & Davies, 2004, p.42). The direct method has also been used to measure perceived risk (Gerend, Erchull, Aiken, & Maner, 2006; Robb, Miles, & Wardle, 2007). However, the direct method of measuring comparative optimism is thought to introduce measurement bias, and it is recommended that the indirect method be used in measuring comparative optimism (Aucote & Gold, 2005; Covey & Davies, 2004; Klein & Helweg Larsen, 2002).

Comparative optimism has also been studied by an indirect method (sometimes called absolute risk judgement), which will be used in this thesis. The indirect method is considered to be a more conservative measurement than the direct method (Covey & Davies, 2004). The indirect method entails asking two questions: (1) the person’s rating for their perceived chance of experiencing a negative event, and (2) the person’s rating for other people’s chance of experiencing a negative event (the same age and sex as them) (Helweg Larsen & Shepperd, 2001). An example of a question used to obtain a person’s rating for his/her own perceived chance is: “How likely do you think it is that you personally will get lung cancer in the future?”. An example of a question used to obtain the rating for other people’s chance is: “On average, how likely do you think it is that a man your age who lives in North Yorkshire will get lung cancer in the future?” (Covey & Davies, 2004, p.42). The researcher compares the sample’s rating for perceived chance with the sample’s rating for other people’s chance of experiencing a negative event. If the people sampled, on
average, rate their perceived chance significantly lower than their rating for other people’s chance, then the sample is comparatively optimistic. The researcher can also determine a bias score, by subtracting the person’s own risk rating from his/her rating of other people (Helweg Larsen & Shepperd, 2001). Comparative optimism is evident when on average, respondents rate themselves significantly lower than other people, and comparative pessimism applies when respondents rate themselves significantly higher than others. No comparative optimism is evident when there is no significant difference between people’s own rating and their rating of other people.

Comparative optimism studies using the indirect method have used various scales such as Likert scales (Covey & Davies, 2004; Parry, Miles, Tridente, & Palmer, 2004; Weinstein, Marcus, & Moser, 2005) and percentage scale (Waltenbaugh & Zagummy, 2004). Data have been collected via different modes such as telephone, face-to-face, computer and paper surveys (Aucote & Gold, 2005; Covey & Davies, 2004; Parry, Miles, Tridente, & Palmer, 2004; Weinstein, Marcus, & Moser, 2005).

Older people’s comparative optimism about falling in the next 12 months

Consistent findings in the qualitative falls prevention literature suggest that older people recognise the importance of falls as a problem for older people and recognise the importance of falls prevention messages, information and strategies to prevent falls and injury. However there is little acknowledgement that falls prevention is relevant to them (Cameron & Quine, 1994; Health Education Board for Scotland, 2003; Managing Innovation Marketing Consultancy Network Pty Ltd, 2000; Yardley, Bishop, Beyer, Hauer, Kempen, Piot-Ziegler, Todd, Cuttelod, Horne, Lanta, & Holt, 2006; Yardley, Donovan-Hall, Francis, & Todd, 2006). Older people (who sometimes had fallen but referred to themselves as not having fallen) advocated falls prevention
information and strategies for other older people who fall or were frail, not for themselves (Cameron & Quine, 1994; Health Education Board for Scotland, 2003; Yardley, Donovan-Hall, Francis, & Todd, 2006).

It is speculated that one reason why older people do not take up health or social services is because older people “do not desire to adopt a social identity as an ‘older person’” (Howse, Ebrahim, & Goobeman-Hill, 2005, p.67). It is possible that people trade off the benefits of taking up recommended falls prevention activities with being identified or seen as having a risk of falling, or as being seen as old (Managing Innovation Marketing Consultancy Network Pty Ltd, 2000). Older people believed falling was for old and frail people and they did not consider themselves as being old and/or frail (Ballinger & Payne, 2002; Health Education Board for Scotland, 2003; Managing Innovation Marketing Consultancy Network Pty Ltd, 2000; Yardley, Donovan-Hall, Francis, & Todd, 2006). That is, the concept of falls being personally relevant threatened older people’s identity (Health Education Board for Scotland, 2003; Yardley, Donovan-Hall, Francis, & Todd, 2006). The topic of falls, therefore is one from which many older people distance themselves, as it has overriding negative connotations (Ballinger & Payne, 2002; Health Education Board for Scotland, 2003).

The findings from the qualitative studies highlighted above suggest that older people may be comparatively optimistic about their chance of falling. However, there are no quantitative studies that have examined this, in the population of community-dwelling older people, in terms of their perceived chance of falling compared to other older people the same age. Four related studies were found and will be reviewed here; see Appendix B for a summary of comparative optimism studies using the indirect method.
One pilot study ($N = 14$) used the direct method of measuring comparative optimism. They recruited volunteers from a seniors’ centre who attended falls prevention education sessions. The sessions were evaluated by asking older people prior to education, one month and three months post-education, to evaluate what “compared to others of the same age and sex, my risk of falling is” (Schoenfelder & Van Why, 1997, p.388). Fifty percent of the sample thought their risk of falling was about the same as other older people, before and three months after the education sessions. However, the small self-selected sample makes it difficult to interpret the findings (Schoenfelder & Van Why, 1997).

The second study by Braun (1998), despite its limitations, clearly highlighted the fact that older people view themselves differently to other older people in regard to falls. Older American people living in government subsided housing were asked about the importance of extrinsic and intrinsic risk factors in causing falls (Braun, 1998). One group of older people was asked about the importance of risk factors in causing falls for “older people your age” (p.1271) and another group of older people was asked about the importance of risk factors “in making you likely to fall” (Braun, 1998, p.1275), on a scale of zero to ten. Among the group rating other older people’s risk factors in causing falls, all risk factors including environmental factors (interior and exterior), intrinsic factors (balance, strength, osteoporosis, vision) and behavioural factors (risky behaviour, not paying attention) were rated high ($M$ ranged from 7 to 9). The group, which was rating the causes of falls for themselves, rated environmental factors (exterior) such as footpaths as similar to the group who rated the causes of falls for other people. However, this latter group rated physical and behavioural risk factors as low ($M$ ranged from 2 to 5). This study suggests that older people perceive that physical and behaviour risk factors are only important in causing
falls for other older people. However these responses were not statistically compared and so no inferential conclusions can be made. Also, the sample was a convenience sample of older people with low socio-economic status (response rate 44%), so it is not known if the sample is representative of the broader population. Therefore the study has limited external validity.

Ruthig, Chipperfield, Perry, Newall and Swift (2007) used a Canadian sample of community-dwelling older people ($N = 89$, $M$ age = 89 years) and examined their comparative optimism about their lifetime risk of sustaining a hip fracture (a very severe consequence of falling). Ruthig et al., (2007) asked respondents to imagine they were hospitalised with a hip fracture and to estimate their chance of having another hip fracture (that is, lifetime risk). Respondents were then asked to estimate the chance of another person having a hip fracture. The sample was comparatively optimistic, with 38% of the sample rating themselves as having a lower chance of having another hip fracture than other people and 16% were comparatively pessimistic (Ruthig, Chipperfield, Perry, Newall, & Swift, 2007). However, the validity of being asked to imagine being hospitalised because of a serious hip fracture does not match the reality of experiencing such a major life event. The study could have been improved by surveying a sample of older people who had experienced a hip fracture, and examining their comparative optimism towards sustaining a further hip fracture. As hip fractures are a severe, but less common, consequence of falling, and lifetime risk towards sustaining a hip fracture was examined, Ruthig’s et al. (2007) study was not directly comparable to the current study.

Lastly, a study reported by McKee and Harris (2007) used an English sample of older people ($N = 196$, age not reported) who had been admitted to hospital because of a fall (a severe consequence of falling). As a result of falling, this group would
objectively be considered a high-falls-risk group. However, a large proportion (63%) of these respondents rated their chance of falling lower than their rating of others people’s chance of falling, and 20% rated their chance of falling as being higher than others (McKee & Harris, 2007), suggesting that the majority of older people hospitalised due to a fall apparently do not view falls as a threat. The findings are counter-intuitive, as it would be expected that a lower proportion of people who have actually experienced the severe consequences of falling would rate the chance of falling again higher than other older people. Researchers have yet to conduct such a study with a representative sample of older people living in the community.

*Older people’s comparative optimism about falling and experience of falling*

Known potential moderators of comparative optimism include affect and personality such as trait anxiety, perceived control, and experience of a negative event (Helweg Larsen & Shepperd, 2001). This thesis focuses on experience of a negative event, referring to direct experience (having personal experience) and indirect experience (knowing others who have experienced the negative event, either by seeing it or hearing about it). Having direct or indirect experience might make a risk more vivid and people may believe they are more at risk themselves (Denscombe, 1993).

There was inconsistent evidence in qualitative studies that falls were more salient for some people who had personally experienced a fall or a bad fall in the past (Cheal & Clemson, 2001; Health Education Board for Scotland, 2003; Managing Innovation Marketing Consultancy Network Pty Ltd, 2000; Meadows, Mrkonjic, Lagendyk, & Petersen, 2004; Yardley, Donovan-Hall, Francis, & Todd, 2006). Except for one qualitative study, there was little mention in the literature of whether knowing
someone who had fallen would influence an individual’s perception of their own chance of falling. This study suggested that for some people, knowing that their peers had fallen did not influence their own chance of falling whilst other people suggested that if they knew others (friends or relatives) who had fallen, then they might be more likely to do something about falls (Managing Innovation Marketing Consultancy Network Pty Ltd, 2000).

Experience of falling was chosen because in qualitative studies, it was reported that even when some older people had fallen (Health Education Board for Scotland, 2003; Yardley, Donovan-Hall, Francis, & Todd, 2006), or had serious falls or at were at high risk of having a hip fracture (Cameron & Quine, 1994; Yardley, Bishop, Hauer, Kempen, Piot-Ziegler, Todd, Cuttelod, Horne, Lanta, & Holt, 2006), they believed that falls or falls prevention strategies were relevant to other older people. This suggests that some older people did not feel personally vulnerable even after falling, but qualitative research cannot determine how extensive this was. Therefore the association between experiencing a fall and comparative optimism requires further research.

This is a useful context in which to study the effect of experience on comparative optimism, because falls are a relatively common experience for older people, and one which they would have likely experienced, either directly or indirectly. Approximately one in three people report falling in the last 12 months (Gill, Taylor, & Pengelly, 2005), and many older people know other older people who have fallen (Howland et al., 1998; Howland, Peterson, W.C., Fried, Pordon, & Bak, 1993; Snodgrass, Rivett, & Mackenzie, 2005). It might be harder for older people to maintain a sense of invulnerability about their chance of falling. It is not known whether community-dwelling older people’s experience of falling would be
associated with comparative optimism. Until 2007, there were no known studies on older people’s comparative optimism about falling using the indirect method, and the existing studies do not shed much light on the issue (McKee & Harris, 2007; Ruthig, Chipperfield, Perry, Newall, & Swift, 2007).

As noted above, McKee and Harris’s (2007) study was with a sample of older people hospitalised due to a fall. This entire sample had experienced the severe consequences of falling and yet the majority believed they had a lower chance of falling than other people. There was some relationship between experiencing falls and comparative optimism. McKee and Harris report a significant small correlation between history of falls after hospitalisation and comparative optimism (the more falls experienced, the lower the comparative optimism). Ruthig, et al., (2007) did not examine experience of past falls and comparative optimism. Therefore, it is unclear whether the direct experience of falling would be associated with comparative optimism. Past research with other populations has found that experiencing a negative event was associated with comparative optimism, as will be discussed next.
Comparative optimism and experience of a negative event

Researchers have studied experiences of different types of negative events, such as experiencing a natural disaster (earthquake) (Burger & Palmer, 1992; Helweg Larsen, 1999), an environmental disaster (radioactivity) (Dolinski, Gromski, & Zawisza, 1987) and lifestyle risks (food poisoning, developing HIV) (Parry, Miles, Tridente, & Palmer, 2004; van der Velde, van der Pligt, & Hooykaas, 1994). They found that experiencing a negative event was associated with a lowered comparative optimism (Parry, Miles, Tridente, & Palmer, 2004; van der Velde, van der Pligt, & Hooykaas, 1994), eliminated comparative optimism or increased comparative pessimism (Dolinski, Gromski, & Zawisza, 1987; Helweg Larsen, 1999).

Helweg Larsen (1999) found that after recently experiencing a severe earthquake, undergraduate students (N = 100) were not comparatively optimistic about being seriously injured in further earthquakes, even after five months. However, the students were comparatively optimistic about other negative events such as having a heart attack. In another study, Parry et al., (2004) used a case control study design to examine comparative optimism about food poisoning, comparing households who had recently experienced food poisoning with a control group. The household that had experienced food poisoning had significantly lower comparative optimism compared to the household that had not experienced food poisoning. Another study examined comparative optimism about developing HIV for heterosexual men who had high-risk sexual behaviours, and found those who had previous sexually transmitted diseases had lower comparative optimism (van der Velde, van der Pligt, & Hooykaas, 1994). Therefore experiencing a negative event is found to be associated with a lowered comparative optimism.
Most studies use cross-sectional study designs to study comparative optimism, and so it is impossible to determine direction of causation. Of the few studies that have used prospective designs, Brown, Messman-Moore, Miller, and Stasser (2005) found that people who experienced the negative event had felt more vulnerable prior to the event, whilst Shepperd, Helweg-Larsen and Ortega (2003) found that experiencing a negative event resulted in reduced comparative optimism.

When people have not experienced a particular negative event they may not believe it is likely to happen to them, and may be comparatively optimistic about that negative event (Weinstein, 1982). On the other hand, when people have experienced a negative event, they may perceive they are at greater likelihood of experiencing it again, and thus have lower comparative optimism about that negative event (Dolinski, Gromski, & Zawisza, 1987; Helweg Larsen, 1999).

There could be two reasons why experience might have an influence on comparative optimism. Firstly, after experiencing a negative event, people may perceive they have less personal control over it than they thought, and therefore have no more control than others over the occurrence of the negative event (Helweg Larsen & Shepperd, 2001). They may even believe that, if it happened in the past, it could happen in the future. Secondly, having had experience makes it easier to recall and imagine through the mechanism of availability, the likelihood of the negative event happening again (Helweg Larsen & Shepperd, 2001; Weinstein, 1980). Harris (2007) found support for the second proposition. Having experienced an event, it was easier to imagine the negative event happening again. However, Harris’s study examined and manipulated the experience of university students’ comparative optimism about commonplace negative events, so it is difficult to extrapolate from these findings to the current study.
Comparative optimism and direct versus indirect experience

Whilst experience of a negative event has been associated with a lowered comparative optimism, indirect experience is also implicated. In the food poisoning study (Parry, Miles, Tridente, & Palmer, 2004), the household who had recently experienced food poisoning had lower comparative optimism compared to a control group. Importantly, it made no difference whether the interviewed case experienced the food poisoning or whether someone else living in their home did. Therefore, the indirect experience of food poisoning within the home may make the chance of it happening seem relevant to others.

In Helweg Larsen’s (1999) study, all the students experienced the severe earthquake, however some students were more personally affected. Losing valuable belongings, being injured or knowing someone who had been injured significantly reduced students’ comparative optimism compared to those not personally affected, though this was not significant after five months. Overtime, the media exposure may have made the earthquake, which caused 25,000 people to become homeless, personally relevant to many of the students, thus reducing their comparative optimism even when they were not personally affected.

In contrast, another study found that direct or indirect experience was not associated with comparative optimism. Motorcyclists (N = 723) who had direct experience of a motor cycle accident or indirect experience (had a friend injured or killed) were not influenced by their comparative optimism about having a serious accident (Rutter, Quine, & Albery, 1998). However, no details were sought about the personal accidents experienced, such as how long ago the accidents had occurred, or the degree of severity of the accident.
Another study measured the influence of direct and indirect experience of a health condition on comparative optimism about a health condition, using a five-point Likert scale (from not knowing anyone who this has happened to, knowing good friends or relatives, to it happening personally several times). Weinstein (1982) asked undergraduate students \( (N = 100) \) to indicate their risk of developing 45 health conditions. Students who reported personal experience had lower comparative optimism. Even so, this study was conducted with university students who might consider many threats to be in the distant future, and the direct method of studying comparative optimism was used.

On the basis of the literature, it seems that direct experience and indirect experience are strongly associated with comparative optimism (Helweg Larsen, 1999; Parry, Miles, Tridente, & Palmer, 2004), though this is not always so (Rutter, Quine, & Albery, 1998). Based on one study, direct experience should be more strongly associated with comparative optimism (Weinstein, 1982). It is possible that direct and indirect experience of falls might be associated with comparative optimism in older community-dwelling people. Whilst experience of falling correlated with a lowered comparative optimism in a hospitalised sample of older people (McKee & Harris, 2007), the question arises as to whether direct experience of falling has a greater association than indirect experience in a community-dwelling older sample? There is as yet no quantitative study that has examined this.
Comparative optimism and recent experience of falling

The recent experience of a negative event might lower comparative optimism, as a recent event should be more salient and vivid. The findings of other comparative optimism studies are inconsistent about this aspect. Parry et al., (2004) found that up to two months after personally experiencing or living in the same house of someone who experienced food poisoning, respondents had lower comparative optimism than those who had not directly or indirectly experienced food poisoning (Parry, Miles, Tridente, & Palmer, 2004). However, Burger et al., (1992), using a prospective study design, found that respondents immediately following an earthquake had low comparative optimism, but three months later comparative optimism had increased. It is not known whether a recent direct or indirect experience would be associated with older people’s comparative optimism about falling and if this changes with the passage of time.

Change in own chance or other people’s chance of falling

When comparative optimism is measured via the indirect method, it is possible to determine whether experience of a negative event is the result of people rating their chance higher, rating other people’s chance higher, or both, and so this is a reason to use the indirect method to examine comparative optimism (Harris, 2007; Helweg Larsen & Shepperd, 2001). Helweg-Larsen and Shepperd’s (2001) review of the few studies that examined the effect of prior experience of a negative event and reported ratings for own chance and other people’s chance, found that prior experience with a negative event was associated with a higher own chance rating, with no difference to their rating of other people (Helweg Larsen & Shepperd, 2001). Harris (2007) found
that when a negative experience was manipulated, people rated their own chance and other people’s chance higher (Harris, 2007).

As will be discussed in the next section, directly experiencing a fall in the last 12 months was associated with an increased rating of older people’s own chance of falling (Gill, Taylor, & Pengelly, 2005; Hughes, van Beurden, Eakin, Barnett, Patterson, Backhouse, Jones, Hauser, Beard, & Newman, 2008; Lord, Ward, Williams, & Anstey, 1993). It is not known whether experiencing a fall would also be associated with older people’s rating of other older people’s chance of falling. Further, it is also not known whether indirect experience would be associated with older people’s rating of their chance of falling and other people’s chance of falling, and this requires further study.

**People’s explanations for being comparatively optimistic**

While much research conclusively shows that on average, people underestimate their own chance of experiencing a negative event compared to others, little research has asked people why they think they are less at risk than others of experiencing a negative event. One study did, however, examine this. Gouveia and Clarke (2001) asked young adults ($N = 106$) why their ratings of risk for skin cancer, stroke and HIV was lower (comparatively optimistic) than their ratings of other people’s risk. Responses were content analysed. Respondents mostly related their reason for being comparatively optimistic to the control they had over their behaviour or to their actual behaviour which was known to reduce the risk of the negative event. For example, in the case of skin cancer, they stated that they wore sunscreen to prevent skin cancer, with the assumption that the average person they were comparing their risk to would not wear sunscreen. That is, the respondents had self-knowledge of
their behaviour and therefore believed they were at less risk than others who, implicit in their explanation, did not wear sunscreen. However, this study did not quantify reasons nor link these reasons to respondents’ comparative optimism.

Other quantitative studies have examined people’s reasons for being comparatively optimistic towards a negative event. These studies, using the direct method of investigating comparative optimism, used Weinstein’s (1984) categories (personal actions, heredity, physiology, environment and psychology) to content analyse the responses (Gerend, Erchull, Aiken, & Maner, 2006; Robb, Miles, & Wardle, 2007; Weinstein, 1984). These categories have been useful in demonstrating that people who are comparatively optimistic or rate themselves as having the same chance of falling are more likely to give reasons that were risk reducing rather than risk increasing (Gerend, Erchull, Aiken, & Maner, 2006; Robb, Miles, & Wardle, 2007; Weinstein, 1984). However, the categories are too broad and not descriptive enough to understand the reasons older people would be comparatively optimistic about falling. It would be more informative to use categories derived from older people’s own explanations.

Limitations of comparative optimism studies

A major limitation to the body of comparative optimism research is that there is no standardised way of measuring comparative optimism, with studies using direct or indirect measures, different questions and scales. Researchers of comparative optimism need to be confident that people respond to the comparative optimism questions in the way that is intended (Collins, 2003). Only one study was found that pre-tested items measuring comparative optimism. Undergraduate students (N = 40) ‘talked aloud’ when answering questions about theirs’ and their peers’ lifetime risk of
developing skin cancer, and there were no reports that respondents had difficulties with responding to these items (French & Hevey, 2008). There were no other studies found where researchers pre-tested comparative optimism measures with intended samples to ensure the questions were easy to understand and respond to. Researchers may conduct pre-testing on comparative optimism items but not report this, or researchers may assume that respondents answer items that measure comparative optimism in a valid way. Few studies indicated that they piloted items (Gouveia & Clarke, 2001); however, piloting is unlikely to indicate if there are problems which pre-testing can identify (Tourangeau, Rips, & Kenneth, 2000a).

Little is known about the problems older people might experience in responding to measures of comparative optimism about falling. Related comparative optimism studies using the indirect method have not reported issues raised by older people in responding to them (McKee & Harris, 2007; Ruthig, Chipperfield, Perry, Newall, & Swift, 2007) and, as will be shown in the next section, studies examining older people’s perceived chance of falling, using different questions and scales, have not reported respondent difficulties or item non-response (Braun, 1998; Gill, Taylor, & Pengelly, 2005; Hughes, van Beurden, Eakin, Barnett, Patterson, Backhouse, Jones, Hauser, Beard, & Newman, 2008; Kempton, van Beurden, Sladden, Garner, & Beard, 2000; Lord, Ward, Williams, & Anstey, 1993; McKee et al., 2002; McKee, Orbell, & Radley, 1999; Milligan, 2005; Schoenfelder & Van Why, 1997; Yardley, Donovan-Hall, Francis, & Todd, 2007). Whilst no problems have been reported, pre-testing items about older people’s comparative optimism about falling could reveal unanticipated problems.

A second gap in the comparative optimism literature is any investigation into older people’s comparative optimism about falling. As older people’s rating of their
perceived chance of falling is one item in the indirect measurement of comparative optimism, then this literature will also be reviewed in the following section.

4. Older people’s perceived chance of falling

**Perceived chance of experiencing a negative event**

Perceived chance of experiencing a negative event or developing a health condition is identified in health behaviour theories, such as the Health Belief Model, Protection Motivation Theory, Subjective Expected Utility Theory and Theory of Reasoned Action, as a key determinant to health related behaviours (Weinstein, 2003). These theories propose that “the motivation to act arises from the expectation that action can reduce the likelihood or severity of harm” (Weinstein, 2003, p.34). The stages of change model also suggest that a lack of awareness of one’s perceived chance is one of the cognitive factors that describe people in different stages of changing their behaviour (Marcus & LeighAnn, 2003). While health behaviour theories require further refinement, perceived risk of developing a health condition remains an important concept.

**Definition of perceived risk**

As perceived risk is one of the central themes in this thesis, it is necessary to outline the working definition used in this thesis. Often this concept is not defined as there is a general, shared understanding of what perceived risk means. For the purposes of this study, risk perception is defined as follows. “Risk perception involves people’s beliefs, attitudes, judgements and feelings, as well as the wider social or cultural values and dispositions that people adopt towards hazards and their benefits.
Risk perceptions are built up over time, are informed by personal experiences and social networks and are shaped by behavioural norms and media reporting” (Pigeon, Hood, Jones, Turner & Gibson, 1992, as cited in Berry, 2004, p.18). Therefore, risk perception is a subjective concept, developed from many influences.

Psychological research on risk perception mostly uses a cognitive science approach, employing quantitative methods. Risk perception is usually measured by asking respondents to rate their risk of developing a health problem on a scale, and therefore there is the assumption that perceived risk can be measured. There are criticisms of this approach. It represents individuals as rational actors, processing information and acting on this information. Further, the cognitive science approach focuses on the individual and not on the influences of the social context (Berry, 2004). Therefore, the approach can be criticised for reducing and simplifying perceived risk (Lupton, 1999), a common critique also of quantitative research. The approach does not “take into account the symbolic meanings, created through the social world, that humans give to things and events” (Lupton, 1999, p.22). The epistemology used in this approach is criticised for interpreting risk as ‘real’ and therefore a positivist construct (Lupton, 1999). Other risk theories draw on socio-cultural perspectives which view risk as culturally constructed and therefore “emphasise the social and cultural context within which risks are perceived, understood and controlled” (Berry, 2004, p.14). Therefore perceived risk is a contested and ambiguous construct (as is risk itself) (Berry, 2004; Joffe, 2003; Lupton, 1999). However, these debates will not be discussed further in this thesis.

The approach to this thesis is a mixed methods approach (see Chapter 3). The broad framework for this thesis falls within the discipline of psychology, hence the greater focus on the quantitative literature. However, to address and hence understand
this phenomenon, a mixed methods approach will enable a more complete understanding (Yardley & Bishop, 2008). Therefore these differing positions of risk perception are not viewed as problematic, and in fact are complementary to understanding risk perception.

The following section maps out the research findings on older people’s perceived chance of falling, as summarised and presented in Appendix C. These studies are categorised as (a) older people’s perceived chance of falling using low falls risk samples and high risk samples, (b) predictors of older people’s perceived chance of falling including demographic variables, self rated health and beliefs about falls, (c) association between direct and indirect history of falls and older people’s perceived chance of falling, (d) education and exercise influences on perceived chance and lastly, (e) perceived chance of falling as a predictor of falls prevention activity and as a predictor of falls or functional decline. There is no quantitative research that compares older people’s perceived chance of falling with an objective rating. As will be seen, the proportion of older people’s rating of their chance of falling reflects what one might expect as a member of an objectively low or high falls risk group. For example, there tended to be a greater proportion of older people in population studies who perceived they had a low chance of falling.

The focus of the present study is on older people’s perceived chance of falling in the next 12 months. This time period was chosen because epidemiological studies show that approximately one in three people aged 65 years and over fall within 12 months (Gill, Taylor, & Pengelly, 2005). As will be seen, few studies used any time frame and few studies used 12 months as a time frame (Yardley, Donovan-Hall, Francis, & Todd, 2007). This section will end with a summary of these findings.
Older people’s perceived chance of falls in the next 12 months

Population studies with randomly selected samples

Population studies with randomly selected samples and reasonably large sample sizes (ranging from $N = 477$ to 2,448) have examined community-dwelling older people’s perceived chance of falling. The majority of respondents did not believe they had a chance of falling, with between 57% to 75% of respondents reporting a low chance of falling (Hahn, van Beurden, Kempton, Sladden, & Garner, 1996; Hughes, van Beurden, Eakin, Barnett, Patterson, Backhouse, Jones, Hauser, Beard, & Newman, 2008; Lord, Ward, Williams, & Anstey, 1993; Milligan, 2005; Zecevic, Salmoni, Speechley, & Vandervoort, 2006). However, three of these studies had low response rates (36% to 54%) (Lord, Ward, Williams, & Anstey, 1993; Milligan, 2005; Zecevic, Salmoni, Speechley, & Vandervoort, 2006). Only two studies had acceptable response rates (67% to 69%). These studies found 63% and 75% of these samples rated their chance of falling as low or non-existent (Hahn, van Beurden, Kempton, Sladden, & Garner, 1996; Hughes, van Beurden, Eakin, Barnett, Patterson, Backhouse, Jones, Hauser, Beard, & Newman, 2008). As these are the best estimates, it can be summarised that many older people do not personally feel vulnerable to falling. However, none of these studies asked respondents about their chance of falling within a time period.

Objectively low falls risk samples

Studies have examined older people’s perceived chance of falling using convenience samples of older people with an objectively low falls risk. One study found that 26% of respondents believed they could fall and hurt themselves in the next 12 months. Respondents were aged $\geq 58$ years, and were randomly selected from people living in US housing developments in two areas in Massachusetts ($N = 196$)
(Howland, Peterson, W.C., Fried, Pordon, & Bak, 1993). Therefore it is not known how generalisable this sample might be to other populations of older people. A further limitation of this study is that the question asked about falling and hurting themselves (which was not defined), whilst other studies only asked about falling.

One study examined older people’s perceived chance of falling using a convenience sample of older people \((N = 715)\) and found that 64% of respondents believed they were not likely to fall within the next 12 months (Yardley, Donovan-Hall, Francis, & Todd, 2007), a result similar to the randomly selected population samples (Hahn, van Beurden, Kempton, Sladden, & Garner, 1996; Hughes, van Beurden, Eakin, Barnett, Patterson, Backhouse, Jones, Hauser, Beard, & Newman, 2008).

Other studies used smaller sample sizes. They found 39% \((N = 102)\) of respondents believed they had a low chance of falling (Wiens, Koleba, Jones, & Feeny, 2006), and another study found that 57% believed they had a low chance of falling \((N = 14)\) (Schoenfelder & Van Why, 1997). However, it is difficult to interpret the findings of studies using convenience samples, as neither the response rate nor population representativeness is known.

**Objectively high falls risk samples**

As population studies with randomly selected samples and satisfactory response rates found between 63% to 75% of respondents reported a low perceived chance of falling (Hahn, van Beurden, Kempton, Sladden, & Garner, 1996; Hughes, van Beurden, Eakin, Barnett, Patterson, Backhouse, Jones, Hauser, Beard, & Newman, 2008), it is expected that a sample of older people with an objectively
higher chance of falling should have a lower proportion who rate their chance of falling as low.

Two studies examined a sample of older people who had been hospitalised because of a falls-related hip fracture, one study within days of falling and one study within seven months of falling. McKee’s et al., (2002) study found that respondents hospitalised following surgery to repair a fall-related hip fracture ($N = 82$) had a mean perceived risk of falling in the next two months as 2.8, measured on a six-point Likert scale. Therefore, this group, who had recently experienced very serious consequences of falling and were at high risk of falling again, perceived their chance of falling in the next two months as moderate (McKee, Orbell, Austin, Bettridge, Liddle, Morgan, & Radley, 2002). In another study, 29% of respondents ($N = 42$) seven months after surgery from a falls-related hip fracture rated their chance of falling as low (Sherrington & Lord, 1997b). It is hard to compare these two studies as different scales as well as different time periods following the hip fracture have been used. However, in comparison to the population and convenience studies, proportionally less respondents rated their chance of falling as low. Therefore it is proposed that the experience of having had a fall with very serious consequences had an important influence on their perceived chance of falling again.

Another study that sampled patients hospitalised because of a fall ($N = 40$) (McKee, Orbell, & Radley, 1999) found the mean perceived risk of future falls in the next two months to be 3.7, measured on a seven-point scale. Similar to the studies with high falls risk samples reported above, this group who had also recently experienced very serious consequences of falling and were at high risk of falling again, perceived their chance of falling in the future as moderate. This correlated with their perceived mobility and health problems. Further, two months later, 46%
perceived they were likely to fall in the future, a higher proportion than the population studies. This also correlated with them having fallen in the past two months and with having a fear of falling.

Of another hospitalised sample (not falls-related) \(N = 50\), 39% of respondents rated themselves as not having a chance of falling (Wiens, Koleba, Jones, & Feeny, 2006). Another study of patients with Parkinson’s disease who attended a movement disorders clinic \(N = 28\) found that 32% rated themselves as not having a chance of falling (Sadowski, Jones, Gordon, & Feeny, 2007). Whilst both Wiens et al., (2006) and Sadowski et al., (2007) studies used convenience samples, both studies found that with a higher falls risk sample, there appeared to be proportionally less respondents who rated their chance of falling as low.

Having experienced a fall in the last 12 months is a risk factor for further falls (Lord, Sherrington, Menz, & Close, 2007), and therefore it would be expected that in a sample of respondents having had a fall in the last 12 months, a lower proportion of respondents would rate their chance of falling as low than those in a low falls risk population study. However, this was not the case. Gill’s et al., (2005) population study of randomly selected older people found that, of those who had fallen in the last 12 months, 72% believed they would not fall again (or did not know whether they would fall again) (Gill, Taylor, & Pengelly, 2005). This indicates that perhaps falling might not have such a big influence on older people’s perceived chance of falling, as this proportion who believed they would not fall again is similar to the proportions reported by Hahn’s et al., (1996) and Hughes’ et al., (2008) population studies.

A Finnish study \(N = 293\) found that 49% of a convenience sample of older people who had a fall in the last 12 months rated their chance of falling at home as low (Sjosten et al., 2007). There could be two explanations for the different findings
in Gill’s et al., (2005) and Sjosten’s et al., (2007) study. Firstly, Sjosten et al., asked older people about falling at home, a different question to whether older people thought they might fall again. Secondly, Sjosten’s et al., respondents were self selected and they may have nominated to be part of the study because they felt more at risk of falling. As the findings from these two studies are not comparable, and Gill’s et al., (2005) sample were randomly selected, Gill’s study constitutes the better estimate. Based on these findings, the majority of older people who had fallen in the last 12 months believed they would not fall again.

_Demographic variables, perceived health and beliefs about falls as predictors_

In a recently published study, with a population sample that was randomly selected, several variables were independently associated with older people’s perceived chance of falling. Demographic variables independently associated with a low chance of falling were as follows: men (1.4 times), those of younger age (between 60 to 69 years) (1.7 times), having a partner (1.2 times), and having private health insurance (1.2 times). Rating one’s health as excellent was associated with a low perceived chance of falling (5.9 times) (Hughes, van Beurden, Eakin, Barnett, Patterson, Backhouse, Jones, Hauser, Beard, & Newman, 2008). The belief that falls were a low priority (2.8 times) was independently associated with having a low chance of falling and believing that falls were preventable (1.7 times) was independently associated with having a low chance of falling (Hughes, van Beurden, Eakin, Barnett, Patterson, Backhouse, Jones, Hauser, Beard, & Newman, 2008).

_Direct experience of falling_

Some qualitative research suggests that once people fall they realised they were at risk of future falling, as evident by the following quote. “It’s not until you face a problem like this that you realised how vulnerable you are living alone. I never
had that concern before” (Cheal & Clemson, 2001, p.86). However, it was more consistently reported in the qualitative research that older people who had experienced falling and even serious falls to believe that other older people were at higher risk, and therefore implicitly they would not be at risk of falling (Cameron & Quine, 1994; Health Education Board for Scotland, 2003; Yardley, Bishop, Beyer, Hauer, Kempen, Piot-Ziegler, Todd, Cuttelod, Horne, Lanta, & Holt, 2006; Yardley, Donovan-Hall, Francis, & Todd, 2006). The strength of qualitative research is that it can improve understanding from another’s perspective, but it cannot determine the association of two variables (direct experience and comparative optimism) in a sample as can quantitative methodology.

Quantitative studies find that having direct experience (personal experience of falling in the last 12 months) is significantly associated with older people rating their perceived chance of falling as higher (Gill, Taylor, & Pengelly, 2005; Hughes, van Beurden, Eakin, Barnett, Patterson, Backhouse, Jones, Hauser, Beard, & Newman, 2008; Lord, Ward, Williams, & Anstey, 1993; Smith & Lewin, 2008). The most compelling finding comes from a population study with a randomly selected sample (N = 3,202, response rate 67%), which identified that those who had not fallen in the last 12 months were 2.4 times more likely to rate themselves as having a low chance of falls, and those who had not had an injurious fall in the last 12 months were 1.4 times more likely to rate themselves as having a low chance of falling (Hughes, van Beurden, Eakin, Barnett, Patterson, Backhouse, Jones, Hauser, Beard, & Newman, 2008).

Conversely, other studies examined those older people who thought they were more likely to fall. Gill et al., (2005) who also used a randomly selected sample (response rate 71%), found that those who had fallen multiple times in the last 12
months were significantly more likely (OR = 3.73) to believe they were at risk of falling again, compared to those who had fallen only once in the last 12 months (Gill, Taylor, & Pengelly, 2005). Similarly, Lord’s et al., (1993) study compared older people’s perceived risk of falling for those who had fallen in the last 12 months to those who had not fallen. Significantly more of those who had fallen rated themselves as having a moderate or high risk (52%) than those who had not fallen (32%). People with moderate or high perceived falls risk independently predicted falling in the last 12 months (OR = 2.18). A further study found a moderate correlation between the number of falls in the last 12 months and the perceived likelihood of falling in the next 12 months ($r = 0.54$) (Yardley & Todd, 2005b). One Australian study of people aged ≥60 years ($N = 2,238$) and receiving home care (therefore a higher falls risk group) found that those who had fallen in the last 12 months were significantly more likely to believe they would fall in the future (72%) compared to those who had not fallen (51%) (Smith & Lewin, 2008). However, this study used a convenience sample and only attained a response rate of 47%.

These studies consistently show that older people who have had a fall in the last 12 months were more likely to perceive their chance of falling to be higher than those who had not fallen, although, as these studies used a cross-sectional design, it is not possible to state that actual falling caused people to perceive their chance of falling to be higher. The weakness in these studies is that most of these studies did not use a time frame, so it is not possible to say that people responded as if they perceived they might fall now, within 12 months or 12 years. Further, none of these studies used the perceived seriousness of a fall and its association with the perceived chance of future falls.
**Indirect experience of falling**

As direct experience of falling in the last 12 months is associated with older people’s perceived chance of falling (Gill, Taylor, & Pengelly, 2005; Hughes, van Beurden, Eakin, Barnett, Patterson, Backhouse, Jones, Hauser, Beard, & Newman, 2008; Lord, Ward, Williams, & Anstey, 1993; Smith & Lewin, 2008) it is possible but not known if indirect experience (knowing someone who had a fall) would be associated with older people’s perceived chance of falling.

Many older people know other older people who have fallen. One Australian study that used a convenience sample ($N = 75$) found that 51% of respondents knew family or friends who had fallen in the previous six months (Snodgrass, Rivett, & Mackenzie, 2005). Two studies with similar populations (random sample from housing developments for the elderly, Massachusetts) found that 60% of respondents knew someone who had an injurious fall in the last year (Howland, Peterson, W.C., Fried, Pordon, & Bak, 1993) and 38% of respondents knew a friend or relative who had a serious fall (Howland, Lachman, Peterson, Cote, Kasten, & Jette, 1998). A limitation of both studies was that neither ‘serious’ nor ‘injurious’ was defined to older people. A limitation of the second study was that a time limit was not given, so people may have known others who had fallen some time ago.

Except for one qualitative study, there was little mention in the literature as to whether knowing someone who had fallen would influence an individual’s perception of their own chance of falling (Managing Innovation Marketing Consultancy Network Pty Ltd, 2000). No quantitative studies were found that examined whether indirect experience would be associated with older people’s perceived chance of falls. Two studies examined whether indirect experience was associated with fear of falling, and
as fear of falling correlated with older people’s perceived chance of falling in one study \((r = .62)\) (Yardley & Todd, 2005b), it is mentioned here.

In the first study, a random sample of older people were selected from housing developments for the elderly \((N = 196, \text{aged} \geq 58 \text{years})\). Those who knew others who had an injurious fall in the last 12 months were 1.8 times more likely to have a fear of falling than those who did not know others, although this was not significant \((p < .09)\) (Howland, Peterson, W.C., Fried, Pordon, & Bak, 1993). Another study suggested that knowing others who had fallen was associated with having a fear of falling and curtailing activities, a more severe form of fear of falling. Older people \((N = 266, \text{aged} \geq 62 \text{years})\) were randomly selected from six housing developments in Massachusetts. Knowing a friend or relative who had a serious fall was significantly associated \((\text{OR} = 2.7)\) with fear of falling and curtailing activities (Howland, Lachman, Peterson, Cote, Kasten, & Jette, 1998). However, this study did not define what a serious fall was, and did not use a time period, so that respondents might have known people from many years previously. It follows that knowing others who fall is not related to fear of falling, but is related to curtailing activity amongst those who have a fear of falling. Therefore, it could be possible that the indirect experience of falling might be associated with older people’s perceived chance of falling. A question emerges: if an older person knows others who have fallen in the last 12 months, does it influence their own perceived chance of falling?

Another study found that indirect experience of developing health conditions was associated with perceived chance of falling, although this was not specific to older people and their perceived chance of falling. Montgomery, Erblich, DiLorenzo, & Bovbjerg (2003) \((N = 522, M \text{ age} 40 \text{ years})\) found that knowing non-blood relatives and friends were diagnosed with health conditions such as cancer (breast, prostate and
colorectal), diabetes and heart disease, contributed to people’s perceived chance of developing these health conditions. However this was so only for women, but not for men (Montgomery, Erblich, DiLorenzo, & Bovbjerg, 2003). Based on these findings, then it could be possible that knowing other older people fall may influence older people to rate more highly their own chance of falling.

**Education**

Not much is known about the impact of falls prevention education on older people’s perceived chance of falls. Only one well conducted program of studies was found. Multi-strategic falls prevention intervention was conducted at the community level. The intervention included awareness raising, information dissemination, community education, policy development and home safety measures. To evaluate its impact, a prospective cohort study design with a control group was used. After 18 months of intervention, there was a 27% increase in the proportion of people who rated their chance of falling as medium or high (Hahn, van Beurden, Kempton, Sladden, & Garner, 1996). After four years of intervention compared to baseline, a 31% increase in proportion of respondents indicated they had a medium or high risk of falling compared to the control group (Kempton, van Beurden, Sladden, Garner, & Beard, 2000). Therefore this community based intervention was successful in raising older people’s perceived personal vulnerability to falls, although this appeared to have a relatively short impact. Five years after the intervention completed, a further prospective cohort study with a control group examined the long term impact on this intervention on older people’s attitudes towards falling. They found that there were no significant differences in perceived chance of falling between the intervention group and control group, even when adjusted for covariates (Hughes, van Beurden, Eakin, Barnett, Patterson, Backhouse, Jones, Hauser, Beard, & Newman, 2008). Based on
these well conducted studies, it appears that the majority of respondents believe they have a low chance of falling. With a large community awareness raising strategy, older people’s awareness of their chance of falling significantly increased but improvements were non-existent after five years.

Another study evaluated a pilot falls prevention education intervention, with a small sample ($N = 14$). Almost all respondents across the three time measurements thought their risk of falling in the home was moderate or low. However, the small self-selected sample makes it difficult to interpret these findings (Schoenfelder & Van Why, 1997).

**Exercise**

Exercise has also been found to influence older people’s perceived chance of falling. Sherrington and Lord (1997) conducted a randomised controlled trial with older people ($N = 43$), seven months (on average) after having surgery for a falls-related hip fracture. After participating for one month in a home based strengthening exercise intervention, individually prescribed by a physiotherapist, significantly more respondents rated their chance of falling as having decreased, compared to a control group (Sherrington & Lord, 1997b). This could be an accurate estimation, as many of the physiological outcome measures indicated significantly improved strength and mobility. However as the trial was not double blinded, respondents may have given socially desirable responses.

**Predictors of falls prevention activity**

As outlined in some health behaviour models, it is proposed that if people perceived they have a risk of falling, then they may act on modifying their behaviour to reduce their falls risk. Conversely, if older people do not perceive they are at risk of falling, then they may be less likely to act to reduce this. Is there any evidence that
perceived risk is a useful predictor of falls prevention activity? Out of three studies that have examined this, only one study found that older people’s perceived chance of falling was significant in predicting falls prevention activity, although this was in the opposite direction to the proposals of health behaviour models (Sjosten, Salonoja, Piirtola, Vahlberg, Isoaho, Hyttinen, Aarnio, & Kivela, 2007).

In a Finnish study, actual attendance at a physical exercise group was examined in a convenience sample of older people (N = 591) who had fallen in the last 12 months (Sjosten, Salonoja, Piirtola, Vahlberg, Isoaho, Hyttinen, Aarnio, & Kivela, 2007). This study found that rating their chance of falling at home as low, independently predicted higher attendance at an exercise group twelve months later (OR 1.6). Perhaps this could be explained by the possibility that people who believe they have a low chance of falling feel more confident about attending an exercise group, whereas those who do not feel confident do not attend.

Yardley’s et al., (2007) study in the UK (N = 715) examined whether older people’s perceived threat of falls (which included older people’s perceived risk and perceived possibility of falling) or coping appraisal best predicted their intention to attend strength and balance training. Threat appraisal did not predict intention to attend strength and balance training. The variables that did predict intention were the belief that balance training was suitable for someone like them, the attitudes of important others, and that balance training would be enjoyable, would improve functioning and would not be harmful. Therefore the positive messages of promoting enjoyment and function appeared to be more relevant or a greater incentive to older people to attend strength and balance training than messages aimed at motivating people to reduce their risk of falling (Yardley, Donovan-Hall, Francis, & Todd, 2007).
Cummings and colleagues (2001) examined whether older people’s perceived risk of falls would be associated with adherence to home modifications, 12 months after home modifications had been recommended by an occupational therapist. There was no significant difference in older people’s perceived risk of falls between people who adhered or did not adhere to the recommendations (Cumming, Thomas, Szonyi, Frampton, Salkeld, & Clemson, 2001).

Based on these few studies, it cannot be assumed that older people’s perceived risk of falls will predict falls prevention activity, in the way that health behaviour models propose it should (Sjosten, Salonoja, Piirtola, Vahlberg, Isoaho, Hyttinen, Aarnio, & Kivela, 2007). Sjosten’s et al., (2007) results suggest that those with higher perceived risk may limit their activity. Both Yardley et al., (2006) and Sjosten et al., (2007) study samples were self-selected, with no indication of the response rate. Therefore it was not known if the samples were representative of the population.

**Predictor of past falls or future functional decline or perceived recovery**

Three studies with clinical populations examined whether older people’s perceived risk of falls was associated with older people falling (Sutherland, 2002), older people’s functional decline (McKee, Orbell, Austin, Bettridge, Liddle, Morgan, & Radley, 2002), or perceived recovery (McKee, Orbell, & Radley, 1999) and none were significantly associated. The older people in these three studies would have an objectively greater chance of falling than community-dwelling healthy individuals.

Sutherland (2002) examined whether people’s perceived chance of falling in the next month predicted those who had fallen six months ago. The sample included people receiving domiciliary care services, so this was a higher falls risk sample ($N = 50$). Older people’s perceived chance of falling did not predict those older people who
had previous falls in the last six months, although it neared significance ($p = .09$). This could be because the sample size was small.

McKee’s et al., (2002) study found that respondents perceived chance of falling in the next two months, measured while still in hospital post repair of a fall-related hip fracture, did not independently predict functional limitation at two months follow up, after controlling for pre-fall activity problems, length of stay in hospital and history of falls. Both of these studies used small convenience sample of high-risk participants already receiving specialised services (McKee, Orbell, Austin, Bettridge, Liddle, Morgan, & Radley, 2002). A further study by McKee et al., (1999) found that, two months after being hospitalised because of a fall, older people’s perceived risk of falling did not predict how they perceived their recovered activity. Therefore, it appears that older people’s perceived chance of falling was not a useful determinant of physical functioning or perceived recovery.

**Conclusions drawn from the literature**

Whilst findings from qualitative research suggest that older people may be comparatively optimistic about their chance of falling, no quantitative studies were found that have investigated this question in a representative sample of community-dwelling older people. As the indirect measurement of comparative optimism entails asking older people to rate their chance of falling, the literature on this aspect was also reviewed. Population studies with randomly selected samples of older people and with satisfactory response rates show that the majority of older people (63%, 75%) believe they have a low chance of falling (Hahn, van Beurden, Kempton, Sladden, & Garner, 1996; Hughes, van Beurden, Eakin, Barnett, Patterson, Backhouse, Jones, Hauser, Beard, & Newman, 2008). Studies with randomly selected samples of older people
consistently show that having a fall in the last 12 months is associated with a higher rating of own chance of falling (Gill, Taylor, & Pengelly, 2005; Hughes, van Beurden, Eakin, Barnett, Patterson, Backhouse, Jones, Hauser, Beard, & Newman, 2008; Lord, Ward, Williams, & Anstey, 1993). Many (51%) older people are likely to know other older people who have fallen (Snodgrass, Rivett, & Mackenzie, 2005), but it is not known if this would be associated with older people’s perceived chance of falling or comparative optimism towards falling. The next section presents the organisation for the remainder of the thesis.

5. Organisation of thesis

This thesis has seven chapters. Chapter 1 provided a review of the background literature and highlights falls as a common problem for older people. The falls prevention evidence base was reviewed, as was older people’s beliefs regarding falls and falls prevention. Then the literature review regarding older people’s comparative optimism about falling, and older people’s perceived chance of falling was presented.

Chapter 2 presents the study rationale and the research questions. The South Australian context, including the population demographics and falls prevention activity, is also presented. Chapter 3 presents the overall methodological framework used in this thesis. The rationale for conducting a mixed methods study with sequential design is presented here. Mixed methods research is defined, the epistemology on which mixed methods are based, is described, and the benefits of using this approach are outlined.

The following chapters, Chapters, 4, 5 and 6 present the empirical studies conducted for this thesis. Chapter 4 presents a qualitative study using principles of grounded theory to develop an explanation of older people’s perceived chance of falls
compared to other older people, including the influences of the direct or indirect experience of falling on older people’s perceived chance of falls. Chapter 5 presents a cognitive interview study, which was conducted to diagnose potential problems in survey items and then to revise them prior to conducting the cross-sectional population survey reported in Chapter 6. Chapter 6 presents a quantitative study that determines whether older people were comparatively optimistic about their chance of falling and whether the direct and indirect experience of falling in the last 12 months was associated with this.

Lastly, Chapter 7 presents the integrated findings from the three empirical studies and the significant contributions to knowledge gained from this research. Based on the integrated findings, future research in this area will be proposed. This thesis concludes with recommendations for engaging older people in falls prevention.
CHAPTER 2. RATIONALE, RESEARCH QUESTIONS AND THE SOUTH AUSTRALIAN CONTEXT

1. Introduction

This second chapter has three sections. The first section includes a rationale for investigating older people’s comparative optimism about falling and the second section includes a set of research questions for that investigation. This chapter concludes by providing the South Australian context in regard to population demographics and falls prevention activity.

2. Rationale for investigating community-dwelling older people’s comparative optimism about falling

Falls are a common problem for older people (Gill, Taylor, & Pengelly, 2005). Falls can significantly reduce older people’s confidence and independence (National Ageing Research Institute, 2000), affecting morbidity and even causing death (Cripps & Carman, 2001). The proportion of older people is increasing and the cost of falls to the health system is projected to rise (Moller, 2003). Evidence-based falls prevention interventions may not be effective at a population level because older people’s uptake of falls prevention interventions is less than optimal.

Though the majority of older people (89%) know that falling is a problem for people their age (Hahn, van Beurden, Kempton, Sladden, & Garner, 1996; Milligan, 2005), a consistent reason given by older people for not participating in falls prevention activity was that they did not believe it was relevant to them (van Haastregt, van Rossum, Diederiks, de Witte, Voorhoeve, & Crebolder, 2002; Whitehead, Wundke, & Crotty, 2006; Yardley, Bishop, Beyer, Hauer, Kempen, Piot-
Ziegler, Todd, Cuttelod, Horne, Lanta, & Holt, 2006). Similarly, qualitative research indicates that older people believe that falls prevention information and strategies are relevant to other older people, who they consider are older and at risk of falls (Cameron & Quine, 1994; Health Education Board for Scotland, 2003; Yardley, Donovan-Hall, Francis, & Todd, 2006). Research about this phenomenon is required in the Australian setting to understand the meaning that older people give to their perceived chance of falling compared to that of other older people.

Quantitative research has found that the phenomenon of comparative optimism exists across a diverse range of health risks (Weinstein, 1982). However, there is no research that determines community-dwelling older people’s comparative optimism about their chance of falling, with a representative sample and the use of the indirect method. Further quantitative research is required to determine whether older people underestimate their chance of falls compared to that of other older people, and the extent of any such underestimation.

Past comparative optimism research has found that experiencing a negative event reduces or eliminates comparative optimism (Dolinski, Gromski, & Zawisza, 1987; Helweg Larsen, 1999; Parry, Miles, Tridente, & Palmer, 2004; van der Velde, van der Pligt, & Hooykaas, 1994; Weinstein, 1982). There is limited evidence that directly experiencing an event reduces comparative optimism more than indirectly experiencing it (Weinstein, 1982), and it is not known if this reduction is maintained over time. Further research is required to determine if over time, direct or indirect experience of a negative event is associated with comparative optimism.

Experience of a negative event is associated with lowered comparative optimism, as a result of people rating their own chance more highly (Helweg Larsen & Shepperd, 2001). As a history of experiencing one or more falls is associated with a
higher perceived chance of falling (Gill, Taylor, & Pengelly, 2005; Lord, Ward, Williams, & Anstey, 1993; Yardley & Todd, 2005b), then if the experience of falling is associated with a lowered comparative optimism, it is likely that older people would rate higher their own chance of falling. However, there is a gap in the research that examines the predictors of older people’s comparative optimism about falling, and whether the direct and indirect experience of falling predicts this.

In the small amount of research conducted on older people’s perceived chance of falls, there are two major limitations. First, with some exceptions (McKee, Orbell, Austin, Bettridge, Liddle, Morgan, & Radley, 2002; Sutherland, 2002; Yardley, Donovan-Hall, Francis, & Todd, 2007), most of these studies do not ask older people about their perceived chance of falls within a specified time frame (Gill, Taylor, & Pengelly, 2005; Hahn, van Beurden, Kempton, Sladden, & Garner, 1996; Kempton, van Beurden, Sladden, Garner, & Beard, 2000; Lord, Ward, Williams, & Anstey, 1993; Milligan, 2005; Schoenfelder & Van Why, 1997). It cannot be assumed that older people responded to these questions as if falls were a personal threat today, next year or in 20 years, and therefore, researchers should be specific about this.

Second, many of the studies used convenience samples, introducing the possibility of selection bias and limiting the ability to generalise their findings. Of those who used randomly selected samples of older people living in the community (Gill, Taylor, & Pengelly, 2005; Hahn, van Beurden, Kempton, Sladden, & Garner, 1996; Lord, Ward, Williams, & Anstey, 1993; Milligan, 2005; Zecevic, Salmoni, Speechley, & Vandervoort, 2006), some response rates ranged from 36% to 54%, so it is possible that these samples may be biased (Marks, 2004). Two studies had relatively good response rates (69% to 71%) that may be representative of the population (Gill, Taylor, & Pengelly, 2005; Hahn, van Beurden, Kempton, Sladden, &
Garner, 1996). To improve external validity, future studies should use randomly selected samples and maximise response rates.

There is a lack of research that connects the reasons people give for underestimating their chance of falling compared to their rating of the chance of others. Further research should quantify the meanings people give to rating themselves as the same as or different to others, using reasons given by older people rather than researcher pre-defined categories. These reasons should then be used to predict comparative optimism.

There has been no standardised way of measuring comparative optimism. Researchers have used different questions and response scales to measure comparative optimism and it is possible that respondents may interpret questions in a way which is different to that intended by the researcher. Much of the research around comparative optimism has been conducted with university students and adults (Weinstein, 1982), whilst other studies exclude older people (Clarke, Lovegrove, Williams, & Machperson, 2000). Therefore, a gap in the comparative optimism literature is found in studies that focus on older people. Little is known about how older people would respond to measures of comparative optimism. Further research using cognitive interviewing is required to develop measurements of comparative optimism.
Research questions to investigate older people’s comparative optimism about falling

The issue of community-dwelling older people’s comparative optimism about falling warrants investigation. Three studies will be conducted using mixed methods approaches (see Chapter 3) to address the following research issues.

The first research question is: ‘what meaning do older Australian people give to their chance of falling compared to other older people’s chance of falling?’ This question will be addressed by conducting a qualitative study, guided by the principles of grounded theory, to develop an in-depth understanding of this phenomenon (Chapter 4). This study will develop an explanation of older people’s perceived chance of falls compared to other older people. A secondary aim will be to develop a deeper understanding of the influences of the direct and indirect experience of falling on older people’s perceived chance of falling. This study will also be conducted to assist in developing an item (as outlined in Chapter 3) for the telephone interview study (Chapter 6). Categories that emerge for the explanations people give for rating themselves the same as, or different to others (in Chapter 4), will be developed into a closed-ended question to be used in the telephone interview study.

Second, research into comparative optimism is limited by a lack of testing of items used to measure the indirect assessment of comparative optimism, and it is not known if older people respond to these items in the way intended by researchers. The research question is as follows: ‘in measuring older people’s comparative optimism about falling, what is the wording of the items and responses that older people can respond to best?’ This question will be addressed by conducting a cognitive interview study to develop and refine questions and response categories that measure comparative optimism (Chapter 5). This will overcome limitations of previous survey
research in this field by identifying potential problems with questions and refining survey items developed to measure older people’s comparative optimism about falling. This study will also identify and refine potential problems in items intended to measure older people’s direct and indirect history of falls. The anticipated outcome would be the refinement of items to be used for self report in a telephone interview survey (Chapter 6).

The third question is: ‘do older people underestimate their own chance of falling compared to other older people?’, and ‘is direct and indirect experience of falling associated with comparative optimism?’

Other research questions will investigate: (a) whether directly experiencing falling is associated with older people’s comparative optimism, ratings of their own chance of falling and/or other people’s chance of falling; (b) whether indirectly experiencing falling is associated with older people’s comparative optimism, ratings of their own chance of falling and/or other people’s chance of falling; (c) whether the direct and indirect experience of falling independently predicts comparative optimism, ratings of own chance of falling, and ratings of other people’s chance of falling; and will also: (d) determine and quantify the explanations older people give for rating themselves the same as or higher or lower than others; and (e) determine whether these predict comparative optimism.

These questions will be addressed using a cross-sectional survey of a randomly selected, representative sample of older people in South Australia. A randomly selected sample will be used to improve generalisability (Chapter 6), a limitation of previous research.
4. South Australian context

As the three studies will be conducted in South Australia, the population demographics of South Australia and the falls prevention activity are described below.

*Population demographics*

According to the 2006 Census, South Australia was populated by 1,514,337 people, of which 15% (233,127 people) were aged ≥65 years (Australian Institute of Health and Welfare, 2007). Like other states in Australia, the proportion of people aged ≥65 years is increasing, although it is increasing faster in South Australia than in most other states in Australia (Moller, 2003). It is projected that by 2051, in South Australia, those aged ≥65 years will constitute 30% of the population, a two fold increase from 2001 and this proportion will be higher than all other states other than Tasmania. (Moller, 2003). It has been speculated that, if the trend towards an ageing population continues together with the current incidence of falls and falls-related morbidity, the treatment of falls injury will become so costly that falls prevention will be unaffordable (Moller, 2003). Therefore, there is an urgent need to engage community-dwelling older people in falls prevention activities.

*Falls prevention activity*

There have been no mass media falls prevention awareness raising strategies at a state level in South Australia. However, programs are delivered locally. The Council of the Ageing facilitate a falls prevention peer education program, where peer educators are invited to present to community groups throughout mostly metropolitan Adelaide. Therefore, it is likely that some older South Australians living in particular areas would receive falls prevention information. Locally developed falls prevention
brochures can be found in some general practitioners’ surgeries and hospital health promotion units. Falls prevention information is also available from multiple sources on the Internet. At a state level, the South Australian government holds annual forums to facilitate capacity building among health professionals working in falls prevention.

In the next chapter, the overall methodological framework for the research studies reported within this thesis will be presented.
1. Aim of this chapter

The aim of this chapter is to present the overall methodological framework for this thesis. Within each of the empirical studies reported in Chapter 4 (semi-structured interview study), Chapter 5 (cognitive interview study) and Chapter 6 (telephone interview study), the rationale for the relevant methodology and method is presented. Before presenting these three studies, the rationale for conducting a mixed methods study is presented here. This chapter will include: (a) the definition of mixed methods used in this study, (b) the epistemology that mixed methods is based on, (c) the benefits and justification for using mixed methods, (d) the mixed method strategy used in this thesis, and (e) the justification for writing this thesis using the third person.

2. Definition of mixed methods research

Mixed methods research is defined here as the collection and analysis of data using different methods, mostly as a mix of qualitative and quantitative methods, and integrating at some stage of the research process within studies or across a program of studies (Brannen, 2005; Creswell, 2003; Ivankova, Creswell, & Stick, 2006; Johnson, Onwuegbuzie, & Turner, 2007). Researchers often use this research approach to gain “breadth and depth of understanding and corroboration” (Johnson, Onwuegbuzie, & Turner, 2007, p.123).
3. Epistemological basis of mixed methods

Epistemology, the theory of knowledge, is defined by Crotty as “a way of understanding and explaining how we know what we know” (1998, p.3). The epistemologies referred to here are objectivism and constructionism, as these are usually connected with quantitative and qualitative research, although these do “not dictate which specific data collection and data analytical methods should be used by researchers” (Onwuegbuzie & Leech, 2005, p.376).

Quantitative research is often, but not necessarily, based in an objectivist epistemology. Crotty (1988) defines objectivism as the view “that things exist as meaningful entities independently of consciousness and experience, that they have truth and meaning residing in them as objects (‘objective’ truth and meaning, therefore) and that careful (scientific?) research can attain that objective truth and meaning” (Crotty, 1998, p.5-6). Objectivism emerged from the philosopher Descartes’ desire to develop knowledge by systematic observation, thus resulting in the development of the scientific method. The scientific method is used for accurate and precise observations, and so objectivity in observation is meant to increase accuracy by avoiding subjectivity. The scientific method is useful in understanding the physical world, and is the dominant approach used in psychology (Yardley & Bishop, 2008).

This research approach can be criticized for being reductionist, devoid of context and limited to the questions asked. Yardley and Bishop (2008) also suggest that this approach prevents “respondents from expressing alternative or contradictory viewpoints, and therefore impose the researcher’s conceptions on their responses” (p.355). Psychological quantitative data are to some degree unreliable because they
must indirectly measure abstractions that represent phenomenon, and therefore are subjective (Onwuegbuzie & Leech, 2005).

Commonly, but not always necessarily, qualitative research is based on a constructionist epistemology. Constructionism has emerged only in the last forty years (Creswell, 2003). Crotty (1998) describes constructionism in the following way: “truth, or meaning, comes into existence in and out of our engagement with the realities in our world” (p.8). Constructionism therefore argues the impossibility of achieving “‘objective’ knowledge” (Yardley & Bishop, 2008, p.354). Instead, knowledge is a “way of perceiving and relating to the world that is inevitably shaped by pre-existing concepts, shared assumptions, and habitual or ‘taken-for-granted’ ways of doing things” (Yardley & Bishop, 2008, p.354). Qualitative researchers often want to examine the meaning and perspectives of people within the context of their lives. This perspective is criticised by researchers who hold an objectivist view on the grounds that this research is subjective, potentially biased and not generalisable (Yardley & Bishop, 2008).

Qualitative and quantitative research approaches have often been simplistically portrayed as diametrically opposed approaches with different epistemological assumptions (Brannen, 2005). Mixed methods research approaches are still a contentious issue for ‘purist’ qualitative or quantitative researchers who believe that data collected via these approaches cannot be mixed because their epistemological assumptions are incompatible (Onwuegbuzie & Leech, 2005). Whilst these two epistemologies may appear to be in direct opposition to each other, Yardley and Bishop (2008) suggest they can be combined, to enrich the research process, by making reference to pragmatism. Pragmatism rejects the view that qualitative and quantitative approaches cannot be used together (Teddle & Tashakkori, 2003).
Pragmatism, as an epistemological framework, “can provide a philosophy that supports paradigm integration and helps mixed research to peacefully coexist with the philosophies of quantitative and qualitative research” (Johnson, Onwuegbuzie, & Turner, 2007, p.125).

Pragmatism originates from Peirce, James, Mead and Dewey (Creswell, 2003). Pragmatism uses multiple approaches to gain a better understanding of a problem phenomenon. The research problem drives the choice of research approach used to understand the research problem (Teddlie & Tashakkori, 2003). Therefore pragmatists can choose which approach is best suited to address the research question (Creswell, 2003). The use of mixed method research approaches is relatively recent, having emerged in the last 15 years (Creswell, 2003).

For this thesis, the rationale for selecting a mixed methods approach was based on addressing the research problem, that is, the investigation of older people’s comparative optimism about falling (Onwuegbuzie & Leech, 2005). Using a mixed methods approach should enable a more complete and thorough understanding of this social phenomenon (Onwuegbuzie & Leech, 2005; Yardley & Bishop, 2008). Whilst this mixed methods research is conducted taking a pragmatic perspective to combining qualitative and quantitative research, the researcher has a clear understanding of the epistemologies that influenced the methodology and methods of each study in Chapters 4, 5 and 6.
4. Benefits of a mixed methods research approach

Research methods have different strengths and the use of different methods can complement those strengths in various ways, such as, for example, with reference to internal and external validity (Morgan, 1998; Yardley & Bishop, 2008). Using the scientific method, quantitative research can have high internal validity. Because of the use of the scientific method, strong conclusions can be made. This may be at the cost of external validity. Also, the researcher has to anticipate which questions to ask and can only control for these (Yardley & Bishop, 2008).

Quantitative research answers the ‘how many’ questions (Greenhalgh, 2001), so that the magnitude of phenomena in the population can be examined. Findings from quantitative research often are the ‘bare bones’ of the phenomenon (Gillman, 2005).

On the other hand, qualitative methods usually have high external validity because the method is situated in the context of peoples’ lives. Data cannot be anticipated and therefore unusual or contradictory responses can be explored. Therefore it is appropriate to have an inductive method to examine the complexity and meaning of a phenomenon. Further, qualitative research answers the ‘what is’ questions. Findings from qualitative research get to the core of the phenomenon (Greenhalgh, 2001) and put ‘flesh on the bones’ of the phenomenon (Gillman, 2005).

5. Justification for using mixed methods

Greene, Caracelli, & Graham (1989) conceptualised the following five purposes for using mixed methods research: triangulation, complementarity, development, initiation and expansion. These are described in Table 3 as quoted from Green et al., (1989, p.259). Researchers are often motivated to conduct a mixed
methods study to triangulate the findings (Gillman, 2005). The problem with triangulation is how it has been used by researchers, according to Brannen (2005), in that it assumes one precise truth is sought, an assumption which raises epistemological issues. In this thesis, the word convergence was preferred to triangulation. Further, one should not get the impression that mixing methods will actually result in findings that converge (Morgan, 2006; Yardley & Bishop, 2008).

Table 3. Purposes for Mixed Methods Designs

<table>
<thead>
<tr>
<th>Type</th>
<th>Purpose</th>
</tr>
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<tbody>
<tr>
<td>Triangulation</td>
<td>Seeks convergence, corroboration, correspondence of results from the different methods</td>
</tr>
<tr>
<td>Complementarity</td>
<td>Seeks elaboration, enhancement, illustration, clarification of the results from one method with the results from the other method</td>
</tr>
<tr>
<td>Development</td>
<td>Seeks to use the results from one method to help develop or inform the other method, where development is broadly construed to include sampling and implementation, as well as measurement decisions</td>
</tr>
<tr>
<td>Initiation</td>
<td>Seeks the discovery of paradox and contradiction, new perspectives of frameworks, the recasting of questions or results from one method with questions or results from the other method</td>
</tr>
<tr>
<td>Expansion</td>
<td>Seeks to extend the breadth and range of inquiry by using different methods for different inquiry components</td>
</tr>
</tbody>
</table>

This mixed methods thesis has multiple purposes: complementarity, convergence and development, which will be discussed below. Other purposes (initiation and expansion) might become important as findings and insights emerge (Bryman, 2006, 2007; Greene, Caracelli, & Graham, 1989).

The first purpose of this thesis was to *complement* the development of the theory that explains older people’s comparative optimism about falling using an inductive approach to determine why this occurs, exploring and developing “a detailed view of the meaning of the phenomenon” (Creswell, 2003, p.22) (semi-structured interview study). The aim of the telephone interview study (Chapter 6) was to examine the extent of the phenomenon of older people’s comparative optimism about their chance of falling across the population of older people in South Australia (Creswell, 2003).

The second purpose of this thesis was to *converge* findings from three sources of data to determine if the direct and indirect experience of falling influenced older people’s comparative optimism. Therefore, a purpose of this thesis was to determine: (a) if the direct experience and indirect experience of falling was part of older people’s explanatory framework in influencing their perceived chance of falling (semi-structured interview study), (b) to determine if the direct and indirect experience of falling predicted comparative optimism (telephone interview study), and (c) to determine if the direct and indirect experience of falling was used by respondents to explain why they would rate themselves the same as or different to other older people (telephone interview study).

The semi-structured interview study (Chapter 4) was conducted to develop a theory that explains the phenomenon of older people’s comparative optimism about
falling. The researcher also explored whether the direct and indirect experience of falling was part of older people’s explanatory framework.

The telephone interview study (Chapter 6) was a quantitative study, using a cross sectional design. Data were collected from a random sample of older people in South Australia. As part of this study, the direct and indirect experience of falling was used to predict comparative optimism.

Further, in the telephone interview study (Chapter 6), older people’s responses to the open-ended question as to why they rated themselves the same as or different to others, was examined to determine if they used the direct and indirect experience of falling as an explanation. This transformation of open-ended responses gave an indication of the extent that people used these responses by enumerating the qualitative themes. This would give a sense of flavour to data and would be a useful check to substantiate claims made in the semi-structured interview study (Chapter 4) (Silverman, 1985). However, it is acknowledged that data collected in the telephone interview study would not be as sensitive to the context as would be the case with the semi-structured interview study.

The third purpose was to develop items (Greene, Caracelli, & Graham, 1989; Morgan, 2006) which shaped the sequence of studies. The semi-structured interview study (Chapter 4) and cognitive interview study (Chapter 5) contributed to the development of items in the telephone interview study (Chapter 6).

In the semi-structured interview study, it was planned that categories that emerged for the explanations people gave for rating themselves the same as, or different to others would be developed into a close-ended question, and were to be used to predict comparative optimism in the telephone interview study. As many categories emerged, the question was reworded as an open-ended question. The semi-
structured interview study (Chapter 4) was also conducted to develop a theory that explains the phenomenon of older people’s comparative optimism about falling. These themes were used to content analyse the open-ended question in the telephone interview study (Chapter 6).

The cognitive interview study (Chapter 5) examined respondents’ interpretations of the survey question to see if respondents interpreted the questions as intended by the researcher; and to examine whether items were clear and answerable. This method was used to diagnose potential problems in survey items so as to revise them prior to conducting the telephone interview study (Chapter 6).

6. Mixed method strategy

_Rationale for using a sequential strategy_

Mixed methods studies can be conducted in a concurrent, transformational or sequential design (Creswell, 2003) and in this thesis the sequential design was used. That is, data collection and analysis of each study were to be conducted prior to the next study. The sequence of studies was planned based on developing items for the last study, the telephone interview study (Chapter 6). It was planned to collect and analyse data for the semi-structured interview study (Chapter 4) prior to conducting the cognitive interview study (Chapter 5). It was planned to collect and analyse data for the cognitive interview study prior to conducting the telephone interview study (Chapter 6) (Creswell, 2003). The visual representation for the sequential strategy planned to be used in this mixed methods study is illustrated in Figure 1.
The timing of the mixed methods research has been documented as an issue for sequential mixed method designs where the studies may fail to synchronise with each other (Bryman, 2007). This is particularly the case with qualitative studies where it can take longer to recruit participants and analyse data, and this was problematic in this program of studies.

The actual timing of events differed from the planned timeline. The main reason was because the distribution of the recruitment newsletter for the semi-structured interview study and the cognitive interview study was delayed by two months, and the response to this was very low. Consequently, it took longer than expected to recruit interviewees for the semi-structured interview study (Chapter 4) and cognitive interview study (Chapter 5). This is illustrated in Figure 2.

As the telephone interview study was booked in at a set and inflexible time (September 2006), the data for the cognitive interview study (Chapter 5) were analysed initially to inform item revision, in order for the items to be used in the telephone interview survey (Chapter 6). A more detailed data analysis of the cognitive interview data were used after the items had been submitted, so as to understand responses better.

If the semi-structured interview study had been completed prior to commencing the cognitive interview study, and if the cognitive interview study had been completed prior to conducting the telephone interview study, the questions used in the telephone interview study may have been changed.
Priority in mixed methods research refers to the emphasis, weight or status given to either the qualitative or quantitative study during data collection and analysis (Creswell, 2003). Both the semi-structured interview study and cognitive interview study supported the development of items for the telephone interview study, so they were complementary to the quantitative method. The quantitative study (telephone interview study) had greater priority for data collection and analysis, and was the principal study (Morgan, 1998). However, as the semi-structured interview study was
also conducted to develop a theory, the findings from this study were considered equally as important as those from the telephone interview.

The three studies are presented separately in Chapter 4, Chapter 5 and Chapter 6, and are treated as independent studies, so that the assumptions of each approach are retained (Morse, 2003). A discussion of reliability and validity is also presented in each chapter and each study was evaluated based on the relevant approach (Yardley & Bishop, 2008). The integration of studies is discussed next.

**Integration**

There are two aspects to integrating mixed methods studies, firstly connection and secondly integration.

**Connection**

Connection consists of the stages in the research process where the approaches are connected, where the findings from one study inform the method of the next study (Ivankova, Creswell, & Stick, 2006). The semi-structured interview study and cognitive interview study were connected to the telephone interview study by the development and analysis of items. The semi-structured interview study and the cognitive interview study were connected to each other via recruitment strategy and sample.

**Connection of semi-structured interview study and telephone interview study**

The semi-structured interview study and telephone interview study were connected. Themes that developed out of the semi-structured interview study (Chapter 4) to explain the phenomenon of older people’s comparative optimism about falling, were used to content analyse responses to the open-ended question in the telephone interview study (Chapter 6).
Connection of cognitive interview study and telephone interview study

The findings reported in the cognitive interview study (Chapter 5) underpinned the development of items to be used in the telephone interview study (Chapter 6) and in this way the two studies were connected.

Connection of semi-structured interview study and cognitive interview study samples

The telephone interview study and cognitive interview study had overlapping recruiting strategies and overlapping samples. The intention was that volunteers from Saint Vincent de Paul Society would be recruited for both studies. This was considered appropriate because they had the same inclusion and exclusion criteria, and the same screening tool which was developed and utilised to screen potential participants.

St Vincent de Paul Society is an international Catholic welfare organisation that provides financial and material assistance for those in need, for example through home visits and ‘Vinnies Centres’ (charity shop) (St Vincent de Paul Society, no date). The Saint Vincent de Paul Society (SA) Inc has over 2500 volunteers across South Australia. Many of the volunteers are known by Saint Vincent de Paul Society to be aged over 65 years but the society does not hold demographic information about their volunteers. It was not known if or how the volunteers might be different to the wider older population. For example, there are suggestions that older people who volunteer for religious causes are less depressed than those who volunteer for secular causes (Musick & Wilson, 2003).

Saint Vincent de Paul Society (SA) Inc placed an advert into their quarterly newsletter, inviting volunteers to participate in both research studies, and to telephone the researcher if they were interested in participating (see Appendix D). Two hundred
newsletters were sent out to volunteer centres in South Australia. The distribution of
the newsletter was delayed by two months, due to St Vincent de Paul Society staffing
and workload issues. There was low response to this recruitment strategy so other
strategies were utilised, which are outlined in the semi-structured interview (Chapter
4) and cognitive interview study (Chapter 5).

Eight participants were interviewed for both the semi-structured interview
study (Chapter 4) and the cognitive interview study (Chapter 5). These interviews
were always conducted on separate occasions. It is possible that participating in both
studies may have improved respondents’ rapport with the interviewer. Respondents
may have thought more about the topic and this could have contributed to responses
in the second interview. Further, in the semi-structured interview study (Chapter 4),
three participants were selected on the basis of their responses to the cognitive
interview study (theoretical sampling) (Chapter 5).

Integration of findings from each study

Integration also refers to the integration of the findings from each study
(Creswell, 2003; Ivankova, Creswell, & Stick, 2006). Bryman (2007) suggests that
integration of mixed methods studies should enable the studies to “talk to each other,
much like a conversation or debate, and the idea is then to construct a negotiated
account of what they mean together” (Bryman, 2007, p.21). It is hoped that this thesis
will achieve this, so that the integration should achieve more than just a result of the
sum of the three studies (Bryman, 2007). Each study chapter will be integrated within
the introduction, method and discussion of the next chapters where relevant.

Finally, the entire analysis of the three studies will be integrated and reported
on in the conclusion (Chapter 7), using the purposes of complementarity and
convergence as a framework. This integration should demonstrate an enriched understanding of this phenomenon (Bryman, 2007)

7. Writing in the third person

It is conventional to write psychological quantitative studies in the third person, while in qualitative studies it is conventional to write in the first person, positioning the researcher within the research (Grbich, 1999). To remain consistent, this entire thesis is written in the third person.
CHAPTER 4. HOW OLDER PEOPLE PERCEIVE THEIR CHANCE OF FALLING COMPARED TO OTHER OLDER PEOPLE: A QUALITATIVE STUDY.
PROTECTING CHERISHED SOCIAL IDENTITIES

1. Introduction

Aim of this chapter

The aim of this chapter is to present a qualitative study, guided by the principles of grounded theory, to examine how older people perceive their chance of falling compared to others. This chapter includes a description of how the study was conducted, and of the grounded theory including core category and supporting categories. Lastly, in the discussion, the emerging theory was compared to the literature. The core category was ‘threat to identity’, and self-presentation theory validates these findings. This chapter concludes by suggesting implications for practice and recommending further research.

Suggestions that older people are comparatively optimistic about falling

As outlined in the literature review (Chapter 1), older people view falls as a potential problem for other older people, but not for themselves (Aminzadeh & Edwards, 1998; Cameron & Quine, 1994; Health Education Board for Scotland, 2003; Managing Innovation Marketing Consultancy Network Pty Ltd, 2000; Yardley, Bishop, Beyer, Hauer, Kempen, Piot-Ziegler, Todd, Cuttelod, Horne, Lanta, & Holt, 2006; Yardley, Donovan-Hall, Francis, & Todd, 2006). This suggests that community-dwelling older people may be comparatively optimistic about falling,
although this has not yet been confirmed. Further, reasons older people give for rating their chance of falling differently to other older people have not been studied.

Researchers have suggested that older people are reluctant to acknowledge falls as being personally relevant to them, because older people resist being defined as old and because it could threaten their identity and autonomy (Health Education Board for Scotland, 2003; Yardley, Donovan-Hall, Francis, & Todd, 2006). The concept ‘identity’ was not defined, and there are multiple views of identity, so the exact meaning remains unclear (Brewer, 2001; Stets & Burke, 2005).

**Direct and indirect experience of falling**

Having personal experience of, or knowing someone who has experienced a hazard, might make a risk more vivid and so people, with such experience, may believe they are more at risk themselves (Denscombe, 1993). Quantitative studies suggest that, after having experienced a fall (direct experience), older people are more likely to believe they could fall again (Hughes, van Beurden, Eakin, Barnett, Patterson, Backhouse, Jones, Hauser, Beard, & Newman, 2008; Smith & Lewin, 2008). However, there is inconsistent evidence from qualitative studies that falls are more salient for some people who have experienced a fall or a bad fall in the past (Cheal & Clemson, 2001; Health Education Board for Scotland, 2003; Managing Innovation Marketing Consultancy Network Pty Ltd, 2000; Meadows, Mrkonjic, Lagendyk, & Petersen, 2004; Yardley, Donovan-Hall, Francis, & Todd, 2006).

As falls are a common experience, it is likely that older people would know other older people who have fallen. It has been reported that 51% of older people knew a family member or friend who had fallen in the previous six months, although this was a convenience sample (Snodgrass, Rivett, & Mackenzie, 2005). It is not
known if knowing other older people who have fallen (indirect experience) would influence an older person’s perceived chance of falling. Except for one qualitative study (Managing Innovation Marketing Consultancy Network Pty Ltd, 2000), there is little mention in the literature of whether knowing someone who has fallen would influence an individual’s perception of their own chance of falling. The study suggested that knowing that their peers have fallen did not influence older persons’ own chance of falling whilst others suggested that if older people knew others (friends or relatives) who had fallen, they might be more likely to do something about falls.

Why a qualitative approach?

As outlined in the mixed methods chapter (Chapter 3), the quantitative approach to studying comparative optimism (as used in the telephone interview study, Chapter 6) has limitations. For example, crude measures are used, and the complexities in people’s lives and the meaning that older people give to their chance of falling is not accounted for. The quantitative approach can answer the ‘what’ question but is unable to answer the ‘why’ question (Bowling, 2002). The most appropriate method to develop an explanation, from the perspectives of older people, as to why the social psychological phenomenon - older people underestimating their chance of falling compared to others - exists, is a qualitative method.

The present study

The present study aims to develop an explanation of older people’s perceived chance of their falling compared to the chance of other older people. A secondary aim was to develop a deeper understanding of the influences of the direct or indirect experience of falling on their perceived chance of falls. The research question was:
‘what meaning do older people give to their risk of falling compared to other older people’s falls risk?’

This study was also conducted to assist in developing an item for the telephone interview study (Chapter 6), which was why this semi-structured interview study preceded the telephone interview study. Categories that emerged for the explanations people gave for rating themselves the same as, or different to others, were to be developed into a closed-ended question. As many categories emerged, the question was reworded as an open-ended question (see Chapter 6).

2. Method

A qualitative approach using grounded theory methodology was selected in order to best analyse data, from the perspectives of older people, about their chance of falling within the context of their lives (Yardley, 2008). This section includes the way in which the study was conducted and the reasons why it has been conducted this way. This method section includes: (a) an introduction to reliability, validity and rigour, (b) the study design used, (c) grounded theory methodology, (d) the sample, (e) data collection, (f) data analysis, (g) theoretical sensitivity, and (h) theoretical sampling.

Reliability, validity and rigour

This section will begin with a discussion of reliability, validity and rigour. Reliability is a necessary standard used in quantitative research. It refers to the stability and repeatability of a measure (Bowling, 2002). A reliable instrument should produce the same findings. However, reliability is less useful where research is concerned with perception and understanding meaning. It is unlikely that a researcher
with a different biography would come up with similar findings. Likewise, validity is 
a necessary standard for quantitative research but is more closely related to qualitative 
research than reliability. It refers to whether the research is measuring what it claims 
to measure (Bowling, 2002). However it is now widely acknowledged that the criteria 
used to assess reliability and validity in quantitative research is inappropriate for 
evaluating qualitative research (National Health and Medical Research Council, 
Australian Research Council, & Australian Vice-Chancellors Committee, 2007).

Rigour is the term used mostly in qualitative research (Rice & Ezzy, 1999). Yardley (2008) used the term validity and this encapsulates the meaning of rigour as used in this thesis. “Evaluating the validity of research involves making a judgement about how well the research has been carried out, and whether the findings can be regarded as trustworthy and useful” (Yardley, 2008, p.236). To help the reader assess the quality of this study, and to show a thorough and considered approach to the research methods used (that is, the rigour of this study), the data analysis and interpretation were written in detail. To help the reader assess the trustworthiness of the data and to ensure that the interpretation was transparent and plausible, quotes from the data were used in the text to summarise the categories. Yardley (2008) has published the following broad principles to evaluate the validity of qualitative research: sensitivity to context, commitment and rigour, coherence and transparency, and impact and importance. Throughout the conduct of this research, these principles have been applied, and it is hoped they are demonstrated in this method section, so that the reader finds this research trustworthy. The process has been described so that the reader can assess its quality, and where the process has contributed to rigour of this whole study, this has been stated. It is hoped that through judging the adequacy of this process, the reader will accept the claims being made.
**Study design**

A study design that draws on principles of grounded theory methodology was chosen to guide the design and conduct of the study (Strauss & Corbin, 1998). The method of data collection was via face-to-face semi-structured interviews with community-dwelling older people (≥65 years) in metropolitan Adelaide, South Australia during the four months of July to November 2006.

**Grounded theory methodology**

Grounded theory is a methodology used extensively in disciplines, such as medicine, nursing and psychology, to research social-psychological phenomenon. The intent of grounded theory is to “generate theory and ground that theory in data” (Strauss & Corbin, 1998, p.8). Strauss and Corbin’s (1998) grounded theory methodology offers a detailed guide for conducting qualitative research. The principle elements of a grounded theory study include: (a) data collection that involves collecting and analysing data simultaneously, (b) data coding that involves constant comparison, open coding, axial coding and selective coding, and (c) theoretical sampling and interpretation that involves memoing and diagramming (Strauss & Corbin, 1998). Researchers claiming to use grounded theory methodology in the truest sense should incorporate all of these principles.

Many researchers use only some of the principles of grounded theory, depending on the aim of their study (McCallin, 2003). Strauss and Corbin (1998) suggest that if this is the case, researchers should explain how they reach interpretations. Therefore this research student was careful to describe the process by which interpretations were reached.
Ethical considerations

Ethics approval was obtained to undertake the study from the University of Adelaide’s School of Psychology Human Research Ethics Committee. Participants were given information about the study via the telephone. If they agreed to participate and met the study criteria, they were given an information sheet, which was reiterated verbally, and given a consent form to sign, a copy of which they retained (Appendix E). Respondents were assured that personal information would remain confidential, as no identifying information would be included in the results. The audio files and transcriptions were stored electronically in the Discipline of General Practice on a computer (password access), while printed transcriptions were stored in a locked filing cabinet.

Sample

Recruitment Strategy

Community-dwelling people aged $\geq 65$ years were invited to participate. This age group was selected because the consequences of falling are more severe in this age group than other age groups (Berry & Harrison, 2007). Whilst from a scientific view, age is a risk factor associated with falling, there is heterogeneity amongst older people and some have a greater chance of falling than others. To reflect heterogeneity, it was important to seek a range of views, and therefore include older people who had fallen in the past 12 months as well as those who had not fallen, so as to consider the influences of these experiences on their perceived chance of falling.

To collect information rich data, the planned sampling strategy was purposeful by sampling “where the phenomenon occurs” (Coyne, 1997, p.625). This involved inviting Saint Vincent de Paul Society (SA) Inc volunteers, their friends and spouses
to participate in the research. It was decided to sample this way because the Volunteer Coordinator at the Saint Vincent de Paul Society believed that many of the volunteers underestimated their chances of encountering negative safety issues, including falls in relation to their voluntary work. This was of concern to the Society.

As mentioned in the mixed methods chapter (Chapter 3), the initial sampling strategy was to recruit older people by placing an advert into the Saint Vincent de Paul Society (SA) Inc quarterly newsletter (Appendix D). The distribution of the newsletter was delayed by two months, due to St Vincent de Paul Society staffing and workload issues. Further, only one potential respondent telephoned the research student six weeks after the newsletter was posted. Given the low response to the newsletter invitation, other recruiting strategies were implemented.

The Volunteer Coordinator at Saint Vincent de Paul Society invited volunteers working at the Saint Vincent de Paul Society central office, and two participants were recruited in this way. Other sampling strategies included the research student asking work colleagues if they knew of people aged ≥65 years who would be interested in participating, and if so, to give them an information sheet. Four colleagues recruited four participants. One of these participants suggested another person, and that participant suggested another person (snowball sampling). In total, four strategies were used to recruit participants (see Table 4).
Table 4. Number of Participants Recruited Per Strategy

<table>
<thead>
<tr>
<th>Sampling type</th>
<th>Recruitment strategies</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purposeful</td>
<td>Advert placed in Saint Vincent de Paul newsletter inviting volunteers to participate</td>
<td>1</td>
</tr>
<tr>
<td>Purposeful</td>
<td>Volunteer Coordinator invited volunteers from Saint Vincent de Paul Central Office</td>
<td>2</td>
</tr>
<tr>
<td>Purposeful</td>
<td>Four colleagues invited people they knew. Three of these were chosen for this study</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>based on their response during the cognitive interviewing study</td>
<td></td>
</tr>
<tr>
<td>Theoretical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Snowball</td>
<td>Respondents suggested their friends</td>
<td>2</td>
</tr>
</tbody>
</table>

As mentioned in the mixed methods approach (Chapter 3), of the nine respondents, eight participated in both this study and the cognitive interview study (Chapter 5). Three respondents were interviewed for the cognitive interview study first, then were interviewed for this study. These three were selected based on their response in the cognitive interview study, which indicated they underestimated their chance of falling compared to others (theoretical sampling). One respondent who participated in the cognitive interview was invited to participate in this study. However he believed the topic was irrelevant to him and would be a “total waste of time” so this respondent was not followed up.

It was thought that no new information (data saturation) was found when interviewing the eighth respondent, and only one additional respondent was interviewed.
**Inclusion and exclusion criteria**

The inclusion criteria included people (a) aged ≥65 years, (b) living in the community and able to participate in a face-to-face interview in metropolitan Adelaide, and (c) speaking English. The exclusion criteria included those who did not give informed consent, those who could not get out of a chair independently (to ensure they mobilised independently) and those living in residential aged care (low care and high care). The researcher screened the participants over the telephone to ensure they fitted the inclusion and exclusion criteria. All those who made contact with the researcher met the study criteria.

**Selection of participants**

A tool was developed to screen potential participants to ensure they met the inclusion and exclusion criteria (age group, living in residential aged care, assistance getting out of a chair). A physiotherapist and general practitioner assisted with developing questions about mobility. The screening tool also collected demographic information as to sex, suburb, marital status, source of income and educational qualification (adapted from Population Research and Outcome Studies Unit, 2006) and the use of a walking aid (see Appendix F). The screening tool was piloted with three colleagues, and then two family members of the research student who met the inclusion criteria.

A basic sampling frame (age, sex, direct and indirect experience of falling) was loosely followed (see Table 5) to obtain views from men and women of different ages. This sampling frame reflects the aims of the research, which is to develop an explanation of older people’s perceived chance of their falling compared to the chance of other older people. There are many risk factors associated with falls. There is a different risk profile for people falling based on age and sex, whereby older people
and females are more likely to fall. The direct and indirect experience of falls was used in the sampling frame because a secondary aim was to develop a deeper understanding of the influences of the direct and indirect experience of falling on older people’s perceived chance of falling.

Table 5. Sampling Frame

<table>
<thead>
<tr>
<th>Age</th>
<th>65 to 74</th>
<th>≥ 75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Fallen in last 12 months

Knows someone who has fallen in the last 12 months

Data collection

Semi-structured interviews

Semi-structured interviews were used to collect data (Hansen, 2006). Interviews were the chosen method to gain older people’s perspective and “to gain access to the individual’s words and interpretations” (Minichiello, Aroni, Timewell, & Alexander, 1995, p.73). One-to-one interviews were the chosen method because discussing one’s own chance of falling might be a sensitive issue and older people might not be prepared to give honest responses with others present (Rice & Ezzy, 1999; Yardley, 2008). Participants were encouraged to be interviewed on their own for this reason (Di-Cicco-Bloom & Crabtree, 2006). However if the participant wanted another person present for support, then this was considered appropriate. All
interviews were conducted one-to-one except for one interview, where a participant’s wife was present towards the end of the interview.

Participants were invited to be interviewed in a quiet place in their home (Hansen, 2006) or in an office at the University of Adelaide. Participants chose to be interviewed at the Saint Vincent de Paul’s Society (SA) Inc central office ($n = 2$), at participants’ homes ($n = 6$) and in a sports club ($n = 1$). Interviews took between 50 minutes and 77 minutes (mean time = 59 minutes).

At the completion of the interview, the research student offered the participants three brochures produced by SA Health, Government of South Australian. The brochures were entitled, ‘Reduce Your Risk of Falling’, ‘Questionnaire. How Safe are you From Falling’, ‘60% of Falls Happen at Home! Reduce Your Risk of Falls At Home’ (see Appendix G) Responses to the brochures were noted, and in some cases they stimulated further discussion about respondents’ knowledge, attitude, falls prevention behaviour or experience of falls.

The interview guide was developed by the research student based on experience with working with older people regarding falls prevention, and based on the comparative optimism and falls prevention literature (Aucote & Gold, 2005; Gouveia & Clarke, 2001; Lamb, Jorstad-Stein, Hauer, & Becker, 2005). The falls definition given in the interview was adapted to “a slip or trip in which you accidentally lose your balance and land on the floor or ground” (Lamb, Jorstad-Stein, Hauer, & Becker, 2005, p.1619). The semi-structured interview guide was developed around the following areas (see Appendix H):

- Description of their experience of falling, including perceived causes, impact, following actions, and likelihood of falling again;
- Description of the experience of falling of others known to them, including perceived causes, impact, and following actions, and influence on own perceived chance of falling;
- Perceived chance of falling in the next 12 months;
- Perceived chance of other people their age falling in the next 12 months;
- Reasons for same as or different ratings to other older people; and
- Any other issue salient to respondents.

There was no fixed order of questions. This enabled the research student to be flexible with each individual and to take a more conversational tone (Rice & Ezzy, 1999). There was no fixed wording of questions, other than for the questions about their own chance of falling and the chance of other people of their age. These two structured questions requested a numerical response and were to be used in the telephone interview study (Chapter 6). These were useful to prompt discussion about their perceived chance of falling and perceived chance of other people their age falling. In this way, the research student entered the study with preconceived concepts (perceived chance of falling) and therefore this study could be considered to build on the comparative optimism literature (Strauss & Corbin, 1998).

After the first interview, as a quality check, one member of the supervisory panel examined the interview transcript in relation to the research student’s interview technique, transcription technique and field notes. This was considered satisfactory. The interview guide was piloted on the first four interviews and the research team reviewed the transcripts and discussed the interviews with the research student. It was noted that these four respondents all attended physiotherapy. This could have been an outcome from the recruitment of three of the first four interviewees being a result of snowball sampling, which can result in homogenous samples (Rice & Ezzy, 1999).
However these respondents differed in age and experiences of falling. Data from the pilot interviews were included in the data analysis.

One question was trialled at the last interview. The participant was asked to describe the type of person who falls. This question was responded to in a slightly defensive tone of voice which suggested what a sensitive issue this is (“now, that I wouldn’t have a clue. All sorts of people fall.”)

Field notes were collected with observations and impressions about the participants, including their mobility and behaviour, home and home safety (where possible), main points from the interview, and non-verbal communication. The following was an example, that was useful to reflect upon later, from an interview field note, that reflected something of the respondent’s feelings:

“I got the sense of something that is hard to describe but it is something like antagonism (not towards me personally) towards my topic. [The respondent was indicating] The information would not be useful; why would I be wanting this information.”

Interviews were digitally audio-recorded, with consent given by participants. The research student began transcribing the entire interview verbatim into Microsoft Word as soon as possible after the interview was conducted (Hansen, 2006). As the quality of the data are likely to improve if respondents add or correct information (Mays & Pope, 2000), the interview transcript was sent back to each participant to verify its accuracy, and to allow participants to add information if they wished. Six participants contacted the research student after receiving the transcripts. Two of these participants required no changes, and four required minor grammatical changes to the
transcript. One interview did not record well as it was unintentionally set on voice
activated recording and the participant agreed to be re-interviewed. Non-verbal
behaviour such as laughter was included in the transcription within brackets, as were
interruptions and inaudible words (MacLean, Meyer, & Estable, 2004). This process
should have improved rigour by increasing the level of detail to reveal other features
in the interview and ensuring that the data analysed were as correctly represented as
was possible. Although transcribing was time consuming, it was considered important
for the research student in terms of valuable time being spent immersing herself in the
interview data, and was part of the analytical process (Hansen, 2006). Transcribing
also allowed the research student to review and reflect on her interviewing technique,
probes and questions (Rice & Ezzy, 1999).

The transcriptions and field notes were imported into NVivo 7 (QSR
International Pty Ltd, 2006) which was used for data management. When re-listening
to the audio recordings to check accuracy of the content of the transcriptions,
annotations were added as thoughts occurred to the research student, comparing
emerging concepts with what the respondent said earlier in the interview and
comparing concepts across respondents. Therefore constant comparison began early
in the analysis process.

The research student managed data collection (interviewing participants,
writing field notes, transcribing the digital audio-recording verbatim, re-listening to
the recording and making corrections to the transcript).

Theoretical sampling and saturation

The core principles to grounded theory theoretical sampling and theoretical
saturation was not followed. Theoretical sampling is sampling based on the emerging
codes and categories, until a full and varied category is developed and tested against
incoming data (Coyne, 1996). Whilst three respondents were chosen knowing that they were comparatively optimistic, ideally further data collection, based on theoretical sampling until theoretical saturation was reached, would have both ensured a full and complete substantive theory, and have verified the theory and suggested its limitations.

To implement theoretical sampling and theoretical saturation would have required further data collection and analysis beyond the practical considerations of this study, and this component of the thesis, while a substantial aspect, needed to be kept within the time line of the PhD.

Data analysis

Coding, constant comparison and diagramming

Initially the research student coded the transcripts by hand to develop a preliminary hierarchic coding scheme. The transcripts were copied into a table, which included a column for the transcript, a column for writing codes, key words and notes, and a column for writing a code to be entered in NVivo 7. For the first stage of analysis, the first eight interviews were coded line for line to generate categories (open coding), and the last interview was coded phrases and sentences at a time using the categories already generated. Through coding line for line and staying close to the data, the research student quickly developed the initial coding framework. Some of the codes tended to be descriptive and reflected the concrete data. For example, an initial code was ‘causes of falls’, with children codes ‘intrinsic’, ‘extrinsic’ and ‘behavioural’. The transcripts were coded accordingly.

After discussing the emerging findings with colleagues, it became apparent to the research student that some of the coding scheme was based on the
(epidemiological) explanatory framework of health professionals and researchers, reflecting their expert discourse. Through ongoing discussion with colleagues and supervisors, writing memos and reflection, the research student gained new insights into the data, which assisted in further coding to enable analysis of the interview transcripts at a more conceptual level (Strauss & Corbin, 1998). This was an important shift as the aim of the study was to understand the explanatory framework from an older person’s perspective. It was also considered important to move from a descriptive account of the phenomenon to an abstract conceptualisation (Strauss & Corbin, 1998). At this stage, seven participants had been interviewed. The previous coding framework was revised and included new categories (Strauss & Corbin, 1998). Transcripts were coded accordingly.

As part of open and axial coding, constant comparison was conducted. As part of this process, when the same code had been applied more than once, the information was checked to see if the code differed or remained the same (Boeije, 2002). Coding was also compared across interviews to ensure the student was dealing with the same theme and to look for similarities and differences within the code. Further axial coding, developing the relationships between codes and sub-codes, and further developing properties, was conducted in NVivo 7 (Strauss & Corbin, 1998). NVivo 7 was found to be a useful way to manage constant comparison, as it involves the researcher engaging “in rigorous checking and refining of the analysis during the research process” (McCallin, 2003, p.204), between codes and participants.

Three types of diagrams were used at the early stage of analysis (Strauss & Corbin, 1998). Firstly, to help with the analysis of the participants’ explanation of their rating of their chance of falling, using the Model function in NVivo 7, models were developed for two participants in order to assist in conceptualizing links between
themes. Secondly, diagrams for two participants were developed to get a feel for the trajectory of their perceived chance related to their experiences of falling: before and after they had fallen, the impact from falling, whether they knew others who had fallen, and the impact these factors had on their perceived chance of falling. Some respondents spontaneously referred to how they might have felt about their perceived chance of falling if they had not had a serious fall, whilst another respondent believed that, knowing how a friend had fallen, led her to believe that anybody would have fallen in a similar circumstance and that this indirect experience of falling did not influence her perceived chance. Falling was a significant event for some people in whereby the meaning of falling changed.

Based on this finding, a further coding framework was developed that would make it visually easier to be sensitive to this concept of the changed meaning of falling based on the direct experience of falling. In this way, the research student was conducting constant comparisons, looking for similarities or differences for the respondents depending on whether falling had a significant meaning to them, or not. The page was divided into the code name, definition and sensitising and theoretical questions to ask of the data (Strauss & Corbin, 1998), and then two columns were headed with ‘fallen before’ and ‘not fallen or minor falls’. An example of a sensitising question to ask the data for the code ‘I don’t belong to this group’, was “What groups do they belong to and how are these represented?” An example of a theoretical question was, “Is the code ‘I don’t belong to this group’ related to the code of ‘External to control’?” Those participants who had a past fall and for whom it seemed to have some meaning were placed into the ‘fallen before’ column, and other participants who had not fallen for years or had only minor falls were placed into this column.
This was placed alongside a folder which included a printed report for each code, the coded transcripts and memos. The research student and a member of the supervisory panel went through 27 code reports, and discussed the possible core category, coding hierarchy, and relationships between codes. This discussion resulted in agreeing that some codes were to be labelled descriptive, while other codes were to be merged, and others to be made hierarchal.

The third type of diagramming used early on in the analysis was a summary of the emerging concepts using organisation charts and Venn diagrams. This was useful to determine relationships between categories. Early in the analysis, the research student suspected that the core category might be ‘threat to identity’, but only found a way to present this towards the final stage of coding, which involved graphically representing the relationship between the core category, categories and sub-categories. Quotes used in the results section illustrate these categories and gives the reader evidence on which the interpretation was based (interpretative rigour).

*Analysis of voice intonation*

Voice intonation was part of the analysis. The research student detected a negative emotional tone at times during some of the interviews. At these times the interviewer felt like she should ‘back off’ or that she ‘did not want to probe’ further. After the research student re-listened to the digital recordings and conferred with colleagues, the tone of three of the participants’ voice at some times during the interview was labelled ‘guarded or defensive’, compared to a friendly tone at other times during the interview; and this will be discussed in the results section.

*Presenting to peers*

Throughout the coding and analysis process, the research student gave several oral presentations to various audiences at conferences about the emerging findings.
This included presenting at a (a) national falls prevention conference, (b) state public health conference, (c) state primary health care conference, and (d) national ageing conference. The research student also presented her findings in more informal settings such as a (a) falls prevention network meeting three times, whose members consisted mostly of falls prevention practitioners and (b) within the Discipline of General Practice, whose staff consisted mostly of primary health care researchers. These later presentations, in particular, provided opportunities to receive feedback, to consider other points of view, to determine whether the conclusions followed the data, to determine whether the interpretation resonated with practitioners’ experience practice, and to determine whether the interpretations and conclusions reached might reflect the phenomenon (interpretative rigour) (Rice & Ezzy, 1999).

The research student managed the data analyses (re-reading interviews, coding interviews, writing memos and diagrams). The iterative approach of data collection and analysis, immersion in the data, and discussion with supervisors, colleagues, peers and practitioners lead to data saturation where similar stories were heard and no new themes appeared.

Audit trail

An audit trail was maintained during the research process by documenting sampling, coding, analysis and interpretation in a notebook, and writing memos and linking memos with nodes in NVivo 7. An audit trail is said to enhance methodological rigour, and accounts written in this methods section highlight major decisions so that readers can judge rigour for themselves (Rice & Ezzy, 1999).
3. Results

The results section includes: (a) a summary of participants’ demographic information, (b) a summary of the ratings older people gave themselves and others for their chances of falling in the next 12 months, and (c) the development of a grounded theory, which included an explanation of the meaning older people gave to their chance of falling compared to others, and explanations for past falls.

Summary of participant demographic information

In total, six females and three males were interviewed, and their ages ranged from 65 to 86 years (see Table 6). Five females were widowed and lived alone, and one female and three males lived with their spouse. Four of the respondents received income from government pension, four from government pension and superannuation, and one described himself as semi-retired. Six of the respondents left school at age 15 years or earlier. Respondents lived in various metropolitan Adelaide suburbs surrounding the city of Adelaide (north \( n = 1 \), north west, west, south west \( n = 3 \), east and north east \( n = 5 \)).
Table 6. Age and Sex of Participants

<table>
<thead>
<tr>
<th>Age</th>
<th>Sex</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>65-69</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>70-74</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>75-79</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>80-84</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>85+</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>

*Use of mobility aid and attendance at exercise groups*

On the screening tool, respondents were asked if they used a walking aid. Three respondents currently used a walking aid, while one used a frame prior to rehabilitation. Although this was not a question asked in the interview, four respondents revealed they attended at least weekly exercise classes and four respondents attended physiotherapy services.

*Direct and indirect experience of falling*

Three respondents had fallen within the past 12 months (Table 7). All respondents had fallen at some stage in their adult life, and eight had fallen since turning 65 years. Four respondents described falls in the past (not within 12 months) that required medical intervention. Of these, two respondents had fallen within the last two years and were hospitalised (only one required immediate hospitalisation) and required rehabilitation; another suspected that falling for years on one knee may have resulted in the need for a knee reconstruction. All nine respondents personally knew others who had fallen in the last 12 months (see Table 7). Some respondents took time
to recall in the interview a number of falls experienced by their friends or acquaintances.

*Table 7. Direct and Indirect Experience of Falls in the Last 12 Months*

<table>
<thead>
<tr>
<th>Age</th>
<th>Fallen in the last 12 months</th>
<th>Knows someone who has fallen in the last 12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>65-69</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>70-74</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>75-79</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>80-84</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>85+</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>

There was not an even spread of respondents in the sampling frame, with more respondents who were in the ≥75 age group (n = 6) than in the 65 to 74 age group (n = 3); and more females (n = 6) than males (n = 3) (see Table 8). The final sample did not fill all the cells of the sampling frame, the main category being that all respondents knew others who had fallen.
Table 8. Sampling Frame Cells

<table>
<thead>
<tr>
<th>Age</th>
<th>65-74</th>
<th>≥ 75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Fallen in last 12 months</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Knows someone who has fallen in the last 12 months</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

Awareness of falls prevention health promotion

Respondents were not asked if they were aware of or had received falls prevention information. However, respondents in this study did not mention that they had seen or heard of falls prevention health promotion through media such as radio or television, except for one respondent who mentioned that, after she was invited to participate in this study, she heard on the radio someone talking about falls prevention. Respondents did not mention seeing displays of falls prevention health information set up in public hospitals, general practitioner and physiotherapy waiting rooms.

Rating own and other older people’s chance of falling in the next 12 months

Respondents ratings for their chance of falling in the next 12 months on a scale of zero (no chance) to ten (certain chance), and their rating of other people the same age and sex as them are presented in Table 9. Alongside these ratings are the respondent’s age, gender and marital status, history of falls and use of walking aid.

No respondent rated themself as having a high chance of falling. Six out of nine respondents rated themselves at the lower end of the scale, indicating the
majority of respondents believed they had a low chance of falling in the next 12 months. One respondent rated his chance of falling in the middle of the scale, indicating a moderate chance of falling. As noted earlier, two respondents were unable to rate their chance of falling, one respondent could not rate other people’s chance of falling, and another respondent was not asked to rate other people’s chance of falling.
Table 9. Rating Own Chance and Other Older People’s Chance of Falling, Age, Gender, Marital Status, Falling History and Use of Walking Aid

<table>
<thead>
<tr>
<th>ID</th>
<th>Rating for self</th>
<th>Rating for other people</th>
<th>Age</th>
<th>Gender</th>
<th>Marital status</th>
<th>Fall</th>
<th>Knows a faller</th>
<th>Uses walking aid</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>3-4</td>
<td>&quot;Much the same&quot;</td>
<td>65-69</td>
<td>Female</td>
<td>Widowed</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>02</td>
<td>0</td>
<td>5</td>
<td>80-84</td>
<td>Female</td>
<td>Married</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>03</td>
<td>5</td>
<td>5</td>
<td>85-89</td>
<td>Male</td>
<td>Married</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>04</td>
<td>2-3</td>
<td>&quot;Much the same&quot;</td>
<td>80-84</td>
<td>Female</td>
<td>Widowed</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>05</td>
<td>3</td>
<td>6</td>
<td>65-69</td>
<td>Male</td>
<td>Married</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>06</td>
<td>4</td>
<td>6-7</td>
<td>80-84</td>
<td>Female</td>
<td>Widowed</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>08</td>
<td>“Who knows”</td>
<td>Did not ask</td>
<td>80-84</td>
<td>Female</td>
<td>Widowed</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>12</td>
<td>“My chances have improved”</td>
<td>“Hard question”</td>
<td>70-74</td>
<td>Male</td>
<td>Married</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Note: Ratings were given on a scale of zero (no chance of falling) to ten (certain chance of falling). Some responses to self rating and other people’s rating were expressed in words. Respondent 08 was not asked to rate other people’s chance of falling.
The differences in participants’ rating of their chance and other older people’s chance of falling are reported in Table 10. Three respondents rated their chance of falling as being lower than others. Four respondents rated their chance of falling as being the same as others, three of which were at a low chance of falling, and one as a moderate chance of falling.

Table 10. Difference in Rating Own Chance and Other Older People’s Chance of Falling

<table>
<thead>
<tr>
<th>Difference in rating own chance and other people’s chance</th>
<th>Bias</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Different rating, less likely to fall than others</td>
<td>Comparatively optimistic</td>
<td>3</td>
</tr>
<tr>
<td>Same rating, as likely to fall as others, low chance</td>
<td>Not comparatively optimistic</td>
<td>3</td>
</tr>
<tr>
<td>Same rating, as likely to fall as others, moderate chance</td>
<td>Not comparatively optimistic</td>
<td>1</td>
</tr>
<tr>
<td>Different rating, more likely to fall than others</td>
<td>Comparatively pessimistic</td>
<td>0</td>
</tr>
</tbody>
</table>

Difficulty in rating self and others, and implications for method

Most respondents responded quickly and reported no problems in rating their chance of falling on a scale, though two respondents were unable to rate their chance of falling in the next 12 months. For instance, one respondent was unable to indicate her chance of falling because she believed it was an “imponderable” question and “who knows”, but she indicated that she was unlikely to fall [08]. Another respondent believed it was a difficult question because “there is nothing you can base it on”, but
indicated that his chance of falling had reduced because of an exercise class he had joined [12].

Some respondents reported no problems in rating other people’s chance of falling, but two respondents found it difficult or were unable to rate other older people’s chance of falling. For instance, one respondent believed it was a hard question because it had to be thought about (“not the sort of question that I even bother to think about”) but he was able to indicate others who were more or less likely to fall than him [12]. Another respondent rated other people’s chance of falling, but indicated that he did not know many people his age [03]. One respondent was not asked the question because she found it impossible to rate her own chance of falling [08].

Three respondents provided further clarification by saying that their rating would depend on other older people’s health, mobility or behaviour, such as hurrying. For example, one respondent was aware that other older people her age were not as active as she was. “Well, see that would depend on the person too, wouldn't it, how frail they are so I don’t really know” [04]. This made it difficult for them to consider the concept of rating another older person’s chance of falling as they knew that individual people differ on attributes that influence falling.

This difficulty in rating their chance of falling or other people’s chance of falling on a scale was not anticipated as similar items have been used in many comparative optimism studies (Chapter 1) with no reports of difficulties. It calls into question the assumption that these questions are easy to answer. The issue may have emerged because of the method of data collection. In an interview, respondents know, from interviewer cues, how much to include in their response, what they can say and what is expected of them. One strength of collecting data via an interview is that
respondents can give this feedback, and the fact that respondents gave this feedback
demonstrates that they felt comfortable in doing so. Further, the respondents’
difficulty in responding to these two questions led to them giving an explanation for
this fact and thereby providing useful data.

Development of a grounded theory

The next section includes a grounded theory analysis of the interview
transcripts. A core category and five major categories emerged from the interview
data. Each major category had two sub-categories as illustrated in Figure 3. Quotes
are used to demonstrate major categories and sub-categories. Important phrases in the
quotes are emphasised (underlined).
Figure 3: Outline of Grounded Theory: Threat to Identity

Core category

Type of person who would fall

I don't think I would fall but it is possible

I cannot be held responsible for falling

Type of person they know who get on with life after falling

I (and my friends) am not the type who falls

Conditions of disclosure

Taking personal responsibility for falling

Blaming self for falling

Disclosure of falling and physical decline

Exercise

Indirect influence of falls on the possibility of falling

Inevitable physical decline and vulnerability to falling

Taking care to prevent falling

Blaming self for falling for not taking care

Disclosure of falling and physical decline

Exercise

Immediate influence of falls on the possibility of falling

Falling was beyond my control

Type of people they know who get on with life after falling

I (and my friends) am not the type who falls

Conditions of disclosure

Taking personal responsibility for falling

Blaming self for falling for not taking care

Disclosure of falling and physical decline

Exercise

Immediate influence of falls on the possibility of falling

Falling was beyond my control

Type of person they know who get on with life after falling

I (and my friends) am not the type who falls


Core category: threat to their identity

The core category to emerge from the interviews as important in understanding the meaning older people gave to their risk of falling compared to other older people’s risk of falling was threat to identity. Older people’s threat to identity represents the grounded theory. Identity refers to the way respondents saw themselves, and the way they believed others might perceive them. Older people sought to maintain their identity as people who did not fall by indicating they had the same as or lower chance of falling than other older people. To protect themselves and their friends against being seen as having a chance of falling due to an intrinsic factor, they utilised multiple strategies to ensure their identity, being ‘I am not the type who falls’ was maintained, even when respondents had fallen. These strategies were type of person who does not fall, I don’t think I would fall but it is possible, I cannot be held responsible for falling, taking personal responsibility for falling, and conditions of disclosure.

1. Type of person who does not fall

This is the first major category within the core category ‘threat to identity’. This major category relates to the classification of the respondents and their friends as being a ‘type of person who does not fall’: in other words, that is how they see themselves. This type consisted of their friends and acquaintances that are around their age. The type possesses at least one of the following characteristics: good mobility and being physically active such as walking or playing sport. This response reflects the way they described themselves and their friends (identity). Respondents portrayed themselves and their friends positively, and portrayed others negatively.

There is a degree of robustness evident in respondents’ perception of type and changes in status that would otherwise see their friends and acquaintances fall into the
‘type of person who does fall’ category. The falls that their friends and acquaintances have were either excused or justified. When respondents or their friends suffer a serious fall it may result in the individual changing his/her perception of what characterises the ‘type of person who does fall’ group. For example, where the ‘type of person who does fall’ group has been defined as lazy, inactive or having poor mobility, and the individual who has fallen now finds themself incapacitated or with poor mobility, there is evidence that respondents changed their view of this group to which they now belong.

I suppose because you lead an active life you think that it will never happen to me. But it was a real ‘moment of truth’, because you look on other people then differently too. … Well you are much more sympathetic of them, that they just can’t manage. Before you had that opinion that you know that perhaps they could do more than they do, but you really can’t. [04, woman, 80 to 84 years]

Alternatively, respondents in describing the group ‘type of person who does fall’, classified them not as a friend or acquaintance, as being of a different age group and not generally possessing the characteristics described above.

1.1 I (and my friends) am not the type who falls

‘I (and my friends) am not the type who falls’ is a sub-category of ‘type of person who does not fall’ and is explicitly about respondents, their friends and acquaintances being the type of person who does not fall, that is, respondents maintain their identity. Respondents indicated they had the same as or lower chance of falling than others.
Respondents used consistently positive reasons as to why they rated themselves as having lower than or the same chance of falling as others. Four respondents indicated their friends had not fallen nor were likely to fall. True to type, respondents portrayed their friends in a positive light, in terms of health, mobility, fitness and physical activity such as croquet, bowls, walking and Tai Chi. For this type, the likelihood of falls was not attributed to personal (intrinsic) factors.

Well those I know about my age, you know, … my friends around that age, some are a little bit older, they are all pretty mobile, and touch wood, never had a fall. Around late 60s, early 70s, they haven’t, most of them are all pretty active. One plays croquet, [friend] plays bowls. … But we are all still pretty active, thank goodness you know for our age. [01, woman, 65 to 69 years]

Similarly, another respondent believed that she would not rate her friends in the same category as others who would have a good chance of falling. This supports this sub-category of older people who do not think of their friends as being the type who might fall.

Depending on their health and fitness, some people there is a big you know, quite a good chance that some of them will fall. They don’t include my friends. [06, woman, 80 to 84 years]

As evidence of the robust nature of the type (sub-category), while these respondents described how they and their friends were not likely to fall or did not fall, the same respondents also contradicted themselves by talking about the falls they and
their friends had had. However, they used excuses for these falls and, in doing so, were able to maintain the inclusion of themselves and their friends within this ‘type of person who does not fall’ category. For example, one respondent’s friend had a serious fall, but she excused this incident by arguing that her friend had good mobility and stated that she would have fallen in a similar situation because of the ditch.

No. Because like I said, that was one out of the blue too, even though ... she is in her 80s. ... Or around 82-83, but you would never have thought she was that age, mobile wise. Because she didn’t see this ditch. Which could happen to me walking. [01, woman, 65 to 69 years]

Alternatively, a respondent justified her falls history by dismissing the falls as non-serious and indicated that her mobility had been improved through acquiring a frame, leading to this respondent believing she had no chance of falling in the future.

Well, you know, if they haven’t got a walker, or something like that, and I mean some people only have to fall once and they break a hip. Me, I fell all those times, and I never ever broke anything. I smashed a bit of knee, but that was the only trouble that I had. [02, woman, 80 to 84 years]

Similarly, another excused and justified her friends’ experiences of minor falls, by minimising the seriousness of these falls and attributing the falls to external factors or to their behaviour. Behavioural aspects such as hurrying, or being ‘silly’ were also used to excuse falls amongst the ‘type of person who does not fall’,
allowing them to maintain inclusion within this group. This is related to taking responsibility for falling which is a major category discussed later.

Well looking at my friends, they have had you know, minor falls, and it is just because they are hurrying, tripping up a step and stumbling on uneven footpaths. … [14.1, woman, 75 to 79 years]

Respondents characterised the ‘type of person who does fall’, as being those who had fallen, looked frail, had decreased mobility (i.e. use of frames, gait, inactive), and various other characteristics (were older, poor health, hurried, lived alone, and had a negative outlook). One difference in the respondents’ characterisation of the ‘type of person who does fall’ is the approach taken concerning factors intrinsic to the person that were regarded as ‘age related factors’. While respondents maintained the stance that anybody could fall, they did not offer the same excuses for the ‘type of person who does fall’ group as they did for themselves, friends and acquaintances. One respondent implied that she was an active person, and suggested that others were sedentary without good reason. She is able to distance herself from others and indicated she was less likely to fall because of the type of person she was, as illustrated by the following quote.

A lot of people sit more – a lot of elderly people sit a lot and watch television in the day a lot and you know I don’t do that in the day. I like to be active or go for a walk or listen to music. I will sit and do that, but you know a lot of elderly people do sit a lot and I think that’s not good. [06, woman, 80 to 84 years]
As a further example of the comparison made by respondents belonging to the ‘type of person who does not fall’ group with those they see as belonging to the ‘type of person who does fall’ group, a woman indicated that frame users or those with poor mobility were more likely to fall than her. She indicated that women who used frames looked vulnerable just like she did before she had rehabilitation including physiotherapy and aqua-aerobics. She believed that, if others using frames were not progressing, they were likely to have a higher chance of falling.

1.2 People they know who get on with life after falling

‘The type of people they know who get on with life after falling’ is a sub-category of ‘type of person who does not fall’ that acknowledges that members of this group have fallen and is explicitly about respondents’ friends and acquaintances response to having fallen. This sub-category differs from the previous category with regard to this acknowledgement of falls, but maintains the other characteristics of ‘type of person who does not fall’, which is intrinsically linked with their identity. There is an increased emphasis upon maintaining a positive attitude and getting on with life. Several respondents believed that some of the people they knew, who had fallen, had remained positive and had got on with life despite the impact of the fall. At the same time, respondents acknowledged the impact of falling. For example, a woman respondent acknowledged that because of a fall, her neighbour now walks with a stick.

Oh the gentlemen across the road fell, but he was up a ladder. …He fell flat on his back. … and he was in hospital for quite a while and he walks with a stick now. But very cheerful he is. In spite of it. [08, woman, 80 to 84 years]
Justifications (that is, they get on with life) are offered for respondents, friends and acquaintances who have fallen that allow for them to remain in the ‘type of person who does not fall’, as described in the first major category, thereby maintaining their identity as active and mobile individuals. Once again, the definition of type is robust; for example, mobility can be seen to be maintained by the use of mobility aids when mobility has been impaired as a consequence of falling. Respondents, friends and acquaintances are still portrayed positively. This category is distinguished from the ‘type of person who does fall’, who continued to be portrayed in a negative light and as previously described.

As mentioned previously, individuals who have a fall with serious consequences may re-evaluate their assessment of the ‘type of person who does fall’ group. Respondents then may see them in a less judgemental light.

2. *I don’t think I would fall but it is possible*

This is the second major category within the core category ‘threat to identity’. This major category relates to the recognition that individuals hold the position ‘I don’t think I would fall, but it is possible’. This major category has similar characteristics to the first major category, which is analogous to the default position of respondents. This category differs in that respondents have experienced a fall, either through direct personal experience or indirectly through an association with another individual, and these comprise the two sub-categories. Direct experience of a fall was the most important factor that influenced perceived chance of falling. It influenced respondents to change from the default position and adopt the position of ‘I don’t think I would fall but it is possible’. This possibility was expressed to a greater or lesser extent, and often this was based on whether the fall was serious. However, given the seriousness of some of these falls, the shift in position remains small. That
is, respondents’ perceived chance of falling did not increase a great deal; rather they acknowledged that falls were now possible. Indirect experience of a fall did not influence their perceived chance of falling, and excuses and justifications were offered to counter this experience. It is easier for them to excuse and justify indirect experience of falls in order to retain their perceived chance of falling. This sub-category is linked to their perception of ‘type of person who does not fall’. Other factors that influenced their perceived chance of falling included believing that falls were external to control and that physical decline, with the associated vulnerability to falling, was part of the natural ageing process. These factors are discussed in detail within the third major category ‘I cannot be held responsible for falling’.

2.1 Direct influence of falls on the possibility of falling again

The ‘direct influence of falls on the possibility of falling again’ is a sub-category of ‘I don’t think I would fall but it is possible’. This sub-category acknowledges that falling influences whether people believe they would fall again. This is characterised by respondents believing that, as they have fallen once, it is possible to happen again. Respondents attributed the fall to the unexpected nature of falling and not to intrinsic factors about themselves.

I just think that having it once, with the unexpected side of it, it can happen again from the same thing. [04, woman, 80 to 84 years]

The consequences of experiencing a fall influenced the strength of shift from ‘I don’t think I would fall’ to ‘it is possible’. A serious fall that threatened respondents’ independence and the way they saw themselves as the ‘type of person who does not fall’ affected their response to the fall. A fall that threatened
respondents’ independence appeared to raise their consciousness that they may fall again. For example, two respondents increased their rating of perceived chance of falling in the future because they had experienced a serious fall. One respondent believed that when she was leading a busy active life, she would not fall, but now she believed she could just as easily fall again.

I couldn’t climb into bed, you sort of had to pick the leg up to put it in. So it was really, I suppose because you lead an active life you think that it will never happen to me. [04, woman, 80 to 84 years]

Respondents who had a fall without serious consequences shifted their position from I ‘don’t think I would fall’ to ‘it is possible’; however, this shift was weak. The experience of falling, while minor, had sufficient impact and personal meaning in that it may have represented a threat to their identity for them to not want to fall again. For example, in the quote below, the respondent’s view of falling appeared to be neutral. In talking about this fall earlier in the interview, the respondent had trivialised it by stating that it was not actually a fall, but a “running into something”. This could be interpreted to mean that she denied falling and that she is not the type of person who falls.

Nothing really, just how silly that was. Get yourself up, and you know, nothing to think or feel. I did it and that was it, and then I got up and that was it, excepting like I said, I thought ‘how stupid that was’. [08, woman, 80 to 84 years]
Another respondent believed that, at the moment, falling was not an immediate threat, because she was active and nimble on her feet. She still would not say it was never going to happen as she had experienced a minor fall 15 years ago, and having that experience she knew that ‘accidents’ can happen. This also highlights the reluctance of respondents to acknowledge intrinsic risk factors with the emphasis on factors external to control, in this case, an ‘accident’.

Oh yes, sure, I am conscious of it, but I think at the moment, but then I could trip over my own feet walking, couldn’t I. But I just think at the moment that it is not going to happen to me. [laughing]. Probably because I am active. ….. It is silly to say no chance. You would be being real optimistic. [laughing]. I suppose, accidents happen so quickly … I remember one, but it was going back 15 years ago … something happened to the ladder. [01, woman, 65 to 69 years]

The fact that many respondents indicated that falls could happen, and were not something within their control, suggests that respondents are fatalistic. Admission of having a chance of falling poses a threat to identity. As a way of avoiding this conflict, an excuse is offered, namely that external forces outside their control are at work. A threat to identity is also posed if the respondent accepts that falls are preventable and within his/her control, as a fall would represent a personal failure. Fatalism will be discussed further in the third major category, ‘I cannot be held responsible for falling’.
Respondents took care to prevent falls as a way to counter their view that falling was possible. This will be discussed further in the fourth major category of ‘taking personal responsibility for falling’.

2.2 Indirect influence of falls on the possibility of falling

The ‘indirect influence of falls on falling again’ is a sub-category of ‘I don’t think I would fall but it is possible’. Indirect experience of falls was defined as knowing someone who has fallen. This sub-category acknowledges that the indirect experience of falling does not influence the perceived chance of falling in the future, unlike the influence of a direct experience of falling. This is independent of whether the people they know have had serious or minor falls. This effect is not due to a lack of exposure to individuals who have fallen.

The indirect experience of falling was a common one for respondents. Respondents all knew at least one person who had fallen in the last year, and eight of the nine respondents knew at least one person who had a fall resulting in an injury, ranging from bruises to fractures requiring surgery and sustaining impaired mobility. Respondents knew between one and five people aged ≥ 65 years who had fallen at some stage. Some of them had trouble recalling those who they knew had fallen, even those who were close to them, until later in the interview. If respondents had been given more time, they may have been able to recall more people. This raises the question that given this wide exposure to indirect experience, why was it that respondents failed to exhibit a significant shift in their perceived chance of falling? It is reasonable to expect that such knowledge would have resulted in a significant increase in their perceived chance of falling.

Respondents did not consider knowing others’ history of falls as part of their explanatory framework of their possibility of their falling in the future. Four
respondents, when prompted to consider their indirect experience of falls, indicated that knowing others’ fall history did not influence their own likelihood of falling. Knowing someone who had fallen, whom the respondent did not believe was the same ‘type’, did not influence their rating. This is consistent with the findings discussed in the sub-category ‘I (and my friends) am not the type who fall’ and relates to the respondents’ view of themselves as belonging to the category of a ‘type of person that does not fall’, while the ‘type of person who does fall’ is viewed as inactive. For example one respondent provided the following reasons for her low perceived chance of falling; she was more active and carried less weight than those she knew who had fallen.

But hopefully I’ll walk longer than my mother and mother in law. That will help with [falls]. They probably carried a lot more weight than I did too. [laugh] I don’t know if that [helps with falls]. [01, woman, 65 to 69 years]

This respondent, when discussing a friend seen as being of the same type (she was active) but who had had a fall with serious consequences, offered the following excuse: the fall was unexpected and unrelated to something about that person. Therefore the respondent did not allow this indirect experience to shift her perceived chance of falling in the future. In this case, she maintained her own and her friend’s identity consistent with the notion: ‘I (and my friends) am not the type who falls’. The process of maintaining identity by offering excuses for falls has been explained in the major category ‘type of person who does not fall’.
3. I cannot be held responsible for falling

This is the third major category within the core category ‘threat to identity’. This major category involves the position that the respondents themselves were not responsible for falling. This category links to the second major category, which states the direct experience of falling influenced respondents to consider that falls in the future were possible. However, this category is defined by respondents positioning themselves to ensure that it is not something about them that caused the fall or could make them likely to fall. This position is defended by excuses that prevent them being seen as the type of person who would fall. Therefore respondents used excuses to deny their responsibility for falling. These excuses fell into two sub-categories of this major category. These sub-categories included: falling was associated with an ‘inevitable physical decline and vulnerability to falling’, and ‘falls were beyond my control’.

3.1 Inevitable physical decline and vulnerability to falling

‘Inevitable physical decline and vulnerability to falling’ is a sub-category of ‘I cannot be held responsible for falling’. Respondents believed that physical decline and increased falls awareness, vulnerability to falling and having fallen were linked to ageing. This was considered a natural and inevitable process. Generally, no distinction was made between themselves and others. That is, type and non-type were not distinguished. Respondents believed they were not responsible for their decline in mobility or vulnerability to falling, as they have no control over this process. For example, a woman respondent explained how the past three falls she experienced resulting in three fractures, had been due to the inevitable ageing process.
I think that would have been a natural process, an ageing thing … like failing sight or literally not lifting your feet up when you are walking. [14.1, woman, 75 to 79 years]

Respondents explicitly and implicitly compared their mobility and vulnerability to falls to what they had experienced when they were younger. Many respondents saw both declining mobility and falling as inevitable and accepted this reality for themselves and others. Respondents acknowledged the contribution of intrinsic factors such as decline in mobility to their chance of falling. However, this association was excused by the inference that this was a natural process over which they had no personal control, and which they accepted.

I notice when I move about that I have to be – my little backyard is a little bit sloped and I’ve got to really be careful because your body, it loses its flexibility or something … You can’t move as freely as you get older, so it doesn’t take much to over balance so I have to be careful what I am doing. [06, woman, 80 to 84 years]

Respondents acknowledged intrinsic factors, such as decline in mobility (things you cannot do, reduced balance, gait, reflexes, flexibility and movement), eyesight, dizziness and hypertension with ageing), both for themselves and others.

When you get over 80, perhaps we don’t lift our legs high enough, like we do when we are a bit younger. [01, woman, 65 to 69 years]
However, there was one example of a respondent with a contrasting experience. One male respondent had realised that decline in mobility was not about ageing. He had this realisation after attending a gym class designed for older people three times a week, where he realised he previously had accepted his level of mobility because of ageing. Instead, declining mobility was attributed to inactivity and being unfit. He also believed that others attributed physical decline to ageing and accepted this, when he believed it was due to inactivity.

And simple things like …doing up my shoes laces if you like. Those simple everyday things became extremely easy. Because you thought, you know, I am getting old. And I no longer think that, you just think, it wasn’t the fact that I was getting old, it was the fact that I wasn’t fit. … Things you put down to age. Nothing to do with age. They were the fact that you weren’t exercising enough. … They are like me. They blame a lot of the things on the fact, that oh well, I might be sixty, what do you expect. I think that they are that type … Until you have a realisation that um, that you are accepting something really didn’t have to accept. [12, man, 70 to 74 years]

Respondents indicated awareness that older people fall, and these falls are excused as part of the natural ageing process.

But there is people who are going to fall, like that lady who fell out there the other day walking down the street and things like that. And like as they get older, I think more inclined to fall over. … There is always people falling over. [02, woman, 80 to 84 years]
Alternatively, another respondent argued that she had been made more aware of falling since having her joint replacements, not because of her age. It might be possible that this respondent did not want to appear to be the ‘type of person who falls’, that is, those likely to fall because of age as this would threaten her identity.

I mean I am more aware now because of my age. But when I was younger I did not worry two hoots whether I would fall or not. Only now I am aware because of the hip and knee [replacements]. If I didn’t have those, I probably, I mean wouldn’t be using a stick. I am only using those out in the street because if I stumble on an uneven pavement or something like that, I don’t want to put a joint out. [08, woman, 80 to 84 years]

Whilst respondents noticed an inevitable decline in mobility compared to when they were younger, and linked vulnerability to falling with ageing, this relationship was with the notion of taking care, rather than linking it to perceived chance of falling. This will be talked about under the major category of ‘taking responsibility for falling’. Therefore respondents appeared to believe that there is little they could do to modify their mobility or vulnerability to falling.

3.2 Falling was beyond my control

‘Falling was beyond my control’ is a sub-category of ‘I cannot be held responsible for falling’ and is about respondents arguing that falling was not related to age but to forces outside of their control, including chance events, extrinsic hazards, the fault of someone else and intrinsic reasons. Respondents referred to the possibility of falling or explaining past falls as being about luck and odd or freak accidents. Respondents commonly used expressions ‘out of the blue’, ‘quickly’, ‘easily’ and
‘little things can cause a fall’ to reinforce the uncontrollable nature of these events. By externalising the cause of falls, respondents avoid personal responsibility, thereby maintaining their identity, even though they may have fallen. That is, the respondents maintained their view as the ‘type of person who does not fall’, even when they have fallen, by excusing the event as being beyond their control. Respondents frequently stressed that the falls they had were not due to age. This argument represents a means by which respondents are able to maintain their identity and remain as the ‘type of person who does not fall’. This suggests that respondents view the ‘type of person who does fall’ group as being older and falling, due to factors associated with age. This approach, like the sub-category ‘physical decline and vulnerability to ageing’, utilises an excuse for falls that avoids accepting personal responsibility. The difference between these sub-categories is the nature of the excuse offered.

If falls are random and could happen to anyone, even when individuals take care to avoid falling, then individuals cannot be held culpable and can sidestep responsibility for falling. It allowed respondents to say ‘I am not the type who falls’ without loss of or threat to identity. If respondents were to acknowledge that there was something about them that made them fall, they would have to change the way they see themselves and experience a loss of identity.

To illustrate this point, responding to a question about their or other older peoples’ chance of falling, three respondents answered with a defensive tone in their voice (underlined in quote). The tone was compared to conversation prior to and after this, which was noted as being friendly. The emotional response indicates that they reacted in a guarded or defensive manner. The following quote illustrates the reasoning to counter the notion that they, their friends or acquaintances are the ‘type of people who fall’: they argue that anybody could fall and point to external causes.
See I don’t know what you are looking for in a candidate because anyone of us could slip, we could slip on a banana peel, in Woolworth’s dear. Couldn’t we? They have always got signs up, slippery floors when they have just mopped, we still keep walking over it. [01, woman, 65 to 69 years]

Respondents argued that anybody could fall despite their age, for reasons which included:

- Falling was not “an actual age thing”
- They knew of people who had fallen who fitted into the ‘type of person who does not fall’
- Extrinsic hazards made it possible.

The following supports the suggestion that a particular age group or a type of person falls. It was argued that older people do not fall more often than younger people, and falls were unpredictable and accidental, so it could happen to anyone. Some respondents questioned the interviewer’s [implicit and explicit] assumption that a type of person (older) falls. However, at the same time as saying that falling was not age related, respondents acknowledged that older people might be more prone to falling than younger people (often in the following sentence). This indicates that respondents know falling is an issue for older people, but perhaps at times within the interview they kept the issue at a distance because it was too personally threatening to say older people are prone to fall, and I am old.

My friends are pretty mobile and active. I couldn’t see unless it was a freak thing, you know, and you know stumbling over your feet, or, you hear of freak accidents. It can happen to anyone can’t it? But I wouldn’t say it that I would
think any of my friends or my kids or my - my kids aren’t quite that old are they [laughter]. [01, woman, 65 to 69 years]

Falls were portrayed as an unusual and unpredictable occurrence, and one over of which they would not have control. The metaphor of having a car accident was used. One respondent who had three falls in the past six years, with each fall resulting in a fracture, talked about her past falls as a “freak accident” and that future falls would be an “unforeseen accident”. This suggests she perceives she has low personal control over past and future falls.

It was common for respondents to state that the causes of falls were environmental factors (footpaths, ladders and mats), thus indicating anyone of any age could fall. Respondents indicated that falling, involving extrinsic hazards, was beyond their personal control and responsibility. Sometimes tripping over an extrinsic hazard was seen as a way to deny that they did [truly] fall.

I tripped a bit, often because of the surface but I have always been able to get myself back together. So yes, I have only had one fall that I have hit the ground and that was really tripping on the mat in the shopping centre. [06, woman, 80 to 84 years]

The [gum] nuts on the footpath. See anyone could slip on them…I could slip on them. They are dangerous. …It is very hard to say, any age, we are not going to slip when even the gumnuts, or uneven footpaths, which are dreadful around here. [01, woman, 65 to 69 years]
Respondents also attributed the possible cause of falling to being the fault of someone else. This type of response leads to then having no personal blame attached.

I would not have a clue. Not a clue. It is, I mean you could fall anytime if you stubbed your toe or, I don’t know, someone could push in a crowd and down you would go. [08, woman, 80 to 84 years]

Some respondents indicated that it would be highly unlikely if they were to fall and gave intrinsic reasons, over which they would have little control. The following quote illustrates this.

Pretty remote unless I had a stroke or my bones collapse or whatever. [14.1, woman, 75 to 79 years]

The interviewer’s assumptions that falls can be prevented and that respondents have personal control were made explicit to the respondent by reading the title of the following brochures: ‘reduce your risk of falls at home’, ‘reduce your risk of falling’, ‘how safe are you from falling’ (Appendix G). This assumption was challenged by one respondent and highlights a fatalistic view of falls.

*Interviewer: These brochures, … ‘reduce your risk of falls at home’, ‘reduce your risk of falls’, ‘how safe are you from falling’ …does that mean anything to you?*
Not really. I mean, well, yes, only maybe if you were silly enough not to wear sensible shoes or something like that perhaps. I don’t know. I know about the hose. That is my fault for leaving it out. But um, I mean they are just good sense things, aren’t they really. … but how can you prevent them? That is the thing … because you can’t anticipate falling. … Because a fall is so, you know it doesn’t come into your everyday thinking, because you don’t get up and think ‘oh gosh I am going to have a fall today, I had better be careful. You know … I couldn’t imagine anybody thinking that way really. …it is a thing that you don’t anticipate and it happens so quickly that … you are not going to be able to stop it anyway once it has started, once you have started to go over, that is it … All you can do is be careful. [08, woman, 80 to 84 years]

Whilst fatalistic with respect to falls, there was no indication that the respondent was fatalistic about other health conditions. For example, she stated that she would consider picking up a brochure on psoriasis, but not a brochure on falls. Even after reading the falls brochures within the interview, this respondent remained fatalistic about falling. Therefore in this case, information on falls is insufficient to alter her fatalistic view.

4. Taking personal responsibility for falling

This is the fourth major category within the core category ‘threat to identity’. This major category relates to respondents ‘taking personal responsibility for falling’. ‘Taking care’ was identified as a sub-category of taking responsibility for falling. This sub-category involved the individual taking care, and it was when taking care was insufficient, that the second sub-category of ‘blaming self for falling for not taking care’ was formed. Taking personal responsibility to prevent falls is characterised by
the individual taking care. Taking care is a behaviour used as a falls prevention strategy to counter the uncontrollable aspect of falling. However, when respondents fell, they blamed themselves for falling, attributing the reason for the fall to not taking care. Respondents also blamed other older people for falling, again attributing this to not taking care. While taking responsibility for the behaviour that caused them to fall, this behaviour was justified and in this way responsibility was minimised. This was a way respondents maintained their identity as someone who did not fall. One respondent articulated the meaning of taking care, in response to her experience of falling.

It has happened to you once, so you are aware of the circumstances that it could happen to you again. So in the light of that, you survey what you are going to do and where you are going to go if you are going to walk, even if it is only a short thing, from here to across the other side of the road. You look: is there a gutter, is there rolling things off the tree. You just take everything into account. Before you undertake to make the move, I think you do that anyway. But as you get older you are more aware of it. And if you have had a fall, you are even more aware again.[04, woman, 80 to 84 years]

4.1 Taking care to prevent falls

‘Taking care to prevent falls’ is a sub-category of ‘taking personal responsibility for falling’ and is explicitly about respondents taking control to prevent falls.

Respondents took care not to fall. It gives insight into how respondents manage the unexpected nature of falls – that is a, moment-by-moment vigilance. This reflects that respondents believe that falls are a random event, and so taking care is in their mind
an ‘active’ way of dealing with it. Some phrases or words respondents used to indicate they were taking care were: being conscious, cautious, careful or aware, watching their step, taking precautions, and surveying the environment. It was mostly about being aware of and negotiating environmental hazards, many of which appear to be everyday hazards. Taking care included thoughts (such as planning ahead, paying attention, judging, and stopping and thinking before doing anything), and behaviour (such as not using a step ladder, holding handrails and using the crossing lights).

Taking care is an important consideration in respondents’ judgment of their future chance of falling. For some respondents, it meant that as long as they were taking care they would not fall at all, whereas other respondents knew that it was possible that they could fall, so taking care was important to counter this.

Well it could happen, it could happen. Um I don’t want to think that there is a good chance that it will happen but you know in spite of being careful and that it could still happen. I don’t go out thinking I am going to fall today or anything like that. [06, woman, 80 to 84 years]

Another respondent believed that falling could happen again from just not being aware.

I just think that having it once, with the unexpected side of it, it can happen again from the same thing. Just lack of awareness of where you are. But you would hope it wouldn’t happen but there is no reason with the same
circumstances that it happened the first time that it wouldn’t happen again, just from not being fully aware of what could happen. [04, woman, 80 to 84 years]

Respondents stated that they took more care as a strategy to prevent further falls. They also thought that others who had fallen would probably take more care now. Again, this was in their mind an active way of preventing further falls.

Well I am only more careful I think. You know when I go to the, whereas I used to look around a bit more when I walk. Now I am more concerned to putting my feet into somewhere safe so I guess that’s what the change has been so I am just a bit more careful when I walk. [06, woman, 80 to 84 years]

4.2 Blaming self for falling for not taking care

‘Blaming self for falling for not taking care’ to prevent falls is a sub-category of ‘taking personal responsibility for falling’ and is explicitly about respondents judging themselves to be directly the cause of their falls. Respondents chastised themselves by using words that reflected responsibility such as ‘been clumsy’, ‘my fault’, ‘stupid’, ‘used your brains’, and ‘not very clever’.

These respondents who took responsibility for falling specifically took responsibility for all of the falls they mentioned in the interviews. For instance, one respondent took responsibility for three falls she described in the interviews. In the quote below, she makes an important distinction that she would fall because of her behaviour, not her age.
But I mean they have been silly falls, not age falls or you know anything like that. They were just silly things. Things that if you had used your brains you wouldn’t, I mean you wouldn’t walk on slippery tiles and bare feet. Cause I didn’t know they were slippery until then so I never did that again. [08, woman, 80 to 84 years]

This same respondent took responsibility for her behaviour in causing future falls. In response to a question about whether she thought she was at risk of falling, she talked about only having falls if she was stupid, illustrating that she would be responsible for this.

*Interviewer: Do you think that you are at risk of falling?*

No, only if I am stupid. … I mean silly things like I said, like if you leave the hose down, you go out at night without a torch, and there is a bit of a loop in the hose and you sort of tread in the wrong place then you are going to stumble. That is my own fault, not the fact that I think I would go out there, I am going to fall [laugh]. [08, woman, 80 to 84 years]

Taking responsibility meant that respondents were taking responsibility for not taking care at that moment of falling. By taking responsibility because of not taking care, they believe that the falls they had were preventable, if only they had thought ahead, were taking care or had done something different. That is respondents believed they had some control over the hazard or event. Some of them related taking care to be aware of environmental factors, such as surfaces or obstacles. Whilst it appears that respondents are taking responsibility, their comments indicates that they do not
have a good understanding of the intrinsic risk factors that cause falls. This suggests that respondents do not understand what causes falls (other than not taking care). It also suggests that there is nothing about them that has caused them to fall, other than that they were not taking care.

But then if you are careful, like I wasn’t the other night [laugh]. [08, woman, 80 to 84 years]

Similarly, it seems that, when respondents judged other people to be responsible for falling, they viewed other older people as being careless or foolish, particularly when they had control over the situation. One of the respondents commented that two of her acquaintances were responsible for falling from a ladder, because this was stupid behaviour. She followed this with how she used a ladder, except that she used the ladder ‘carefully’, as follows.

Oh the gentlemen across the road fell, but he was up a ladder. Doing something on his own that he shouldn’t have been. He fell flat on his back. … I mean that was not a ‘trip fall’, that was a you know, silly fall. And plus [acquaintance] … was wallpapering, She was wallpapering, and you never go past the top two steps on a ladder but she decided that she needed to reach a bit further and she went down flat on her back and broke her shoulder too. So I mean that was, that’s stupid, you know, and those sorts of things are a bit silly. … I still use a ladder [laugh] but I am very careful. I go up one step at a time, come down the same way. The kids go crook at me but if I want something done, I want to do it. [08, woman, 80 to 84 years]
Whilst respondents do take responsibility for falling by not taking care, they do not acknowledge the cause of falls. Respondents are talking about behaviour in a particular situation (moment by moment) of which people are in control of. However their rationale does not address any of the possible intrinsic factors that could be addressed, for example balance. For some of them, by blaming themselves and others for not taking care or for their behaviour, they were removing the emphasis from their being a ‘type of person who falls’ and emphasising ‘what I did made me fall’. This is a justification and respondents are protecting their identity by indicating, ‘yes I was stupid, I am responsible for falling but I am not the type of person who falls’.

5. Conditions of disclosure

‘Conditions of disclosure’ is the fifth major category within the core category ‘threat to identity’. This major category is about ‘disclosure’ of physical decline, vulnerability to falling, or falling, and acting on this. Disclosure is defined as informing family, friends, or health professionals, and includes under what conditions disclosure occurred, and what content respondents disclosed. The outcome of disclosure is that under, most circumstances older people present an identity that is consistent with the ‘type of person who does not fall’. The way others (health professionals, family, and friends) perceived them was as important as the way respondents saw themselves. This would be an important motivation to not disclose information about vulnerability, even to those who could assist or were concerned. Alternatively, respondents who attended exercise programs were motivated to manage health problems other than falling, and therefore could maintain their identity as not the type who falls. Two sub-categories formed the major category ‘conditions of disclosure’ and included ‘disclosure of falling and physical decline’ and ‘exercise’.
5.1 Disclosure of falling and physical decline

‘Disclosure of falling and physical decline’ is a sub-category of ‘disclosure’ and is about respondents sharing personal information about themselves which is related to their own observed physical decline or having fallen. Respondents generally only told health professionals or others if they had to, that is when they required assistance, and they did not have a lot of control over disclosure. Sometimes respondents also disclosed an incident as part of storytelling about the activities of their day, perhaps trivialising falling as part of that story. On the other hand, there was reluctance to disclose falling when assistance was not required, because it was not something people talked about unless it came up in conversation. Further, it appeared there was little recognition that losing balance and tripping was something to be addressed with their health professional.

Respondents who required assistance disclosed falling to family and health professionals. The most common reason for disclosing to others that they had fallen was to receive assistance for falling (emotional support or medical help), often immediately after a fall. One respondent, who was usually reluctant to tell her daughter, sought emotional support soon after falling, as the following quote illustrates.

It was a bit of a shock when I thought about it and I sort of talked to my daughter and got it off my chest a bit and that was it … I don’t like to tell her too much because she is such a worry wart and anytime we go out now [she says], ‘mum mind that step’, and ‘it’s a bit rough there mum’ you know, which is very good but she worries a bit. But I did get it off my chest and that was it. [06, woman, 80 to 84 years]
Some respondents needed medical assistance after falling and therefore had little control over telling their doctor that they had fallen. For example, after sustaining a fracture, one respondent went to hospital. Others went to their doctor because they required sutures. Another went to her doctor a week after falling *only* when her knee had not got better. Only one respondent who did not require medical assistance told her doctor she had fallen. In informing her doctor, she attributed the cause of the fall to not being something intrinsic to her. She even denied having a fall, instead preferring to use the word ‘trip’. She also conveyed in the interview that her doctor supported her in this claim, by apparently suggesting she take care.

I told my doctor but the fact that I had tripped, that sort of was just what caused it, it wasn’t as though I fainted or anything to do with a medical condition, so they weren’t too concerned … He just told me to be careful, [laughing] which I am. [06, woman, 80 to 84 years]

Some respondents told their family that they had fallen though they had not hurt themselves and did not require assistance. This disclosure appeared to be more about relaying the story about what happened in their day, and perhaps trivializing the story. This story telling may help them distance themselves emotionally from the notion of being the type of person who falls.

I told the family and they just say, ‘you are stupid mother’. [laugh]. Or ‘nursing home’. That is the one, ‘nursing home’, watch it. Which is a joke. We make jokes about it. [08, woman, 80 to 84 years]
Falling was not disclosed when assistance was not required. Further, there appeared to be little recognition that losing balance and tripping was something serious to be addressed with their health professional. Respondents did not disclose to health professionals that they tripped often, lost their balance easily, sometimes saving themselves but other times falling, were concerned about falling or were taking care to prevent falling. This was even the case when they saw their physiotherapist or general practitioner regularly. It may be threatening to respondents’ identity to present themselves to their health professional as the ‘type of person who falls’, particularly when as shown in the first category, they see themselves as ‘type of person who does not fall’. Respondents may be keen for others to see them this way as well. The social cost of addressing falls and functional decline with a health professional could outweigh any proposed benefits.

In addition, talking about falling or physical decline was not generally something respondents spoke about with their friends. It would be consistent for respondents to be reluctant to talk about themselves in such a way when they are careful to portray themselves as the ‘type of person who does not fall’.

I don’t talk about falling very often to people, just in conversation if they mention it to me. [14.1, woman, 75 to 79 years]

5.2 Exercise

‘Exercise’ is a sub-category of the fifth major category ‘conditions of disclosure’ and is about respondents' awareness that they need to exercise and whether they did exercise. Participants joined and participated in exercise groups, without consciously attending to the reduction of their risk of falling. Respondents reported that they benefited by exercising and were able to maintain their identity as being ‘the type who does not fall’, as they had legitimate reasons to attend the class
other than to prevent falls. Joining a group that was specifically for seniors did not appear to be a barrier for those who attended. However, it was a barrier for a respondent who contemplated attending seniors’ aqua-aerobics but preferred not to be around “elderly people”. Those who were not exercising were still aware that they “should” be exercising.

Three respondents attended a weekly physiotherapist led exercise class to manage back pain and improve mobility. Specialists had referred the respondents for physiotherapy treatment to manage back pain. Another respondent was referred to a physiotherapist after having home modifications, which were required after having a fall that impaired her mobility. This led to her attending an aqua-aerobics group. Had she not had a serious fall, she probably would not be attending exercise class. After experiencing dependence, she was motivated to continue exercising, as illustrated in the quote below.

I would go on now, whatever the physio recommends I think I would. Just having had a taste of being immobile, I would really love to keep up my mobility. [04, woman, 80 to 84 years]

Lastly, a respondent joined a gym class designed for people aged over 50 years because his golf membership fees were due and he realised he was not playing well. Reasons that made it easier for him to join included: the class being designed for people aged over 50 years, weight bearing exercises being included, his wife being able to join him and the class being affordable ($5).

No respondent suggested that they joined and attended an exercise group to reduce their risk of falls. All respondents talked about the functional, social and
psychological benefits of attending the exercise classes: the benefits included being able to get out of a chair more easily; doing up shoe laces, improved walking, flexibility, mobility, balance, leg and pelvic floor strength; having more energy; feeling better; and having fun. Some of these benefits might also improve falls risk factors.

And I think we are all getting stronger. The different things we do with the dumbbells and things. I have gone up a heavier weight and some of those machines I put an extra one in because I can do it now, and the treadmill I can up that to five, whereas I think I started on about three [laughter]. It must be doing us some good. [01, woman, 65 to 69 years]

After talking about the benefits and outcomes of attending exercise class, respondents realised that attending the classes may help prevent them from falling.

Because of the exercises at the end, one of the things we do is stand on one leg like this [standing on one foot and stretching quadriceps][laughing]. … I know … So as far as falling from that point of view, it has improved. [12, man, 70 to 74 years]

Other respondents volunteered that they needed to exercise more, but they cited barriers including health (foot neuropathy, asthma), personal (too lazy, not the type, lack of motivation, not wanting to get into bathers), and financial (cost of class). This suggests that respondents do not lack knowledge about the need to exercise.
4. Discussion

The primary aim of this study was to use grounded theory methodology to develop a theory about older people’s perceived chance of falls compared to the chance of other older people. A secondary aim was to develop a deeper understanding of the influences of the direct and indirect experience of falling on older people’s perceived chance of falling. The research question was: “what meaning do older people give to their risk of falling compared to other older people’s falls risk?” The core category to emerge from the interviews was threat to identity. Respondents maintained and protected themselves and their friends from being seen as having a chance of falling as something intrinsic about them. The major categories included type of person who does not fall, I don’t think I would fall but it is possible, I cannot be held responsible for falling, taking personal responsibility for falling, and conditions of disclosure. This section includes a discussion of (a) the emergent theory in the context of social psychology theory, in particular self-presentation theory, social comparison theory and social identity theory, and falls prevention research; (b) the limitations of the study; (c) practice implications; and (d) future research recommendations.

Emergent theory: Threat to identity

The core category of the emergent theory was threat to identity. This finding is validated by self-presentation theory. Self-presentation shines a light on the emergent grounded theory findings of this study by explaining older people’s responses in the interviews. Self-presentation refers “to the processes by which individuals attempt to control the impressions that others form of them in social interaction” (Michener, DeLamater, & Myers, 2004, p.223). Self-presentation is evident in the strategies used
by respondents in this study to maintain or protect their identity when discussing their chance of falling in the future or their reasons for falling in the past. Respondents presented themselves as being the type of person who does not fall for intrinsic reasons. Self-presentation is not unique to older people talking about their past falls or future chance of falling. “In everyday settings, people routinely project specific social identities, and they must take care that others understand and accept their identity claims” (Michener, DeLamater, & Myers, 2004, p.224). Behaviours linked to self-presentation have been indicated as potentially being hazardous to one’s health (Leary, Tchividjian, & Kraxberger, 1994). These findings should be read in light of the knowledge that these respondents had direct and/or indirect experience of falling, and further, that three respondents used a walking aid, so they experienced some difficulty with mobility.

Self-presentation has been suggested as a reason for comparative optimism, among other motivated and non-motivated reasons (Chambers & Windschitl, 2004; Klein & Cerullo, 2007; Shepperd, Carroll, Grace, & Terry, 2002). This provides more support for the grounded theory.

Identity in self-presentation theory is referred to as a ‘situated identity’, referring to the self, and defined as “a conception of who he or she is in relation to the other people involved in the interaction” (Alexander & Wiley, 1981, as cited in Michener et al., 2004. p.225). In this study, the identity claimed by older people was relevant to the particular situation in a research interview conducted by a younger ‘professional’ researcher inquiring about their direct and indirect experiences of falling and their chance and other older people’s chance of falling in the future.

For older people, the concept of identity has been implicated in extant qualitative studies examining older people’s perspectives of various aspects of falls
prevention. Studies that examined older people’s perceived chance of falling, their perspective on falling and their responses to falls prevention advice or mobility aids, suggest that older people may not admit that they are at risk of falling or that falls prevention information or strategies would be relevant to them, because this would threaten their identity as competent, autonomous and physically independent people (Aminzadeh & Edwards, 1998; Ballinger & Payne, 2000; Health Education Board for Scotland, 2003; Yardley, Donovan-Hall, Francis, & Todd, 2006).

Ballinger and Payne (2002) found that older people’s participation in rehabilitation services, including falls prevention activities, can create personal and social risks for older people’s identity. On the other hand, another study suggested that older people attending a falls prevention group represented themselves as having a positive and capable social identity, and were not stigmatised. However, these respondents were self selected and it is suggested that those who did not choose to attend may have done so for these reasons (Ballinger & Clemson, 2006).

Whilst older people’s identity has been implicated in the falls prevention research, no research has drawn these findings together as a theory that explains this social phenomenon. By weaving self-presentation theory, and to a lesser extent social comparison and social identity theory and findings from falls prevention research into the grounded theory, new knowledge has been developed. The next section will outline the accounts given by people, when they feel they fail to present their claimed identity, and how this relates to the emerging theory.

Failing to present as claimed identity: giving accounts

During social interaction, people might suspect that they have not succeeded in presenting the identity that they claim (Cody & Dunn, 2007; Michener, DeLamater,
& Myers, 2004; Schlenker, 2005). For example, people might believe others have a negative impression of them, they might be uncertain of the impression they have made, or they might realise that their own actions undermine their claimed identity (Cody & Dunn, 2007; Michener, DeLamater, & Myers, 2004; Schlenker, 2005). Failing to create a certain impression can cause negative consequences such as embarrassment, distress or even lowered self-esteem and depression (Leary, 1995).

According to self-presentation theory, when people believe they have failed in presenting the identity that they claim, they attempt to redefine or remediate their actions, for example by using accounts. Accounting strategies are explanations people offer to others for behaving in an unexpected or inappropriate way (Cody & Dunn, 2007). Account giving can achieve the desired impression by creating or maintaining “a positive public image” (Cody & Dunn, 2007, p.240), can protect the self from being accused of an action or situation, and can be effective in avoiding negative interpersonal interaction (Schlenker, 2005). The aim of account giving is to repair “cherished social identities, restore meaning to the situation, and re-establish smooth interaction” (Michener, DeLamater, & Myers, 2004, p.232). Fittingly then, this chapter is called ‘protecting cherished social identities’.

To present themselves as the type who does not fall, respondents in this study used four forms of accounts, including excuses, justifications, apologies and defences of innocence. As outlined below, each form of account giving depends on whether the person accepts responsibility for the situation and whether the person accepts the desirability of the outcome of that situation (Hareli, 2005).

Excuses are a form of account giving. Excuse givers deny they had control over past actions or situations and/or have control over anticipated, but accept that the undesirable situation occurred (Cody & Dunn, 2007). Excuses then can shift the locus
of control for the action from internal to external causality (Synder & Higgins 1988).
By denying control over the action or situation, they reduce their responsibility for the act (Cody & Dunn, 2007). Excuses may include for example “citing uncontrollable events, … coercive external pressures … or compelling internal pressures” (Michener, DeLamater, & Myers, 2004, p.233).

The second form of account giving was justifications. Justifications are different to excuses, because people accept responsibility for the action or situation but attempt to reduce the undesirability of the situation by providing a more positive interpretation (Hareli, 2005; Michener, DeLamater, & Myers, 2004). Accepting responsibility suggests that respondents believe they have control over the situation. One type of justification is a “denial of injury”. The justification giver admits to the act but denies that the act caused harm, and therefore should not be evaluated as such (Cody & Dunn, 2007, p.238).

Apologies are the third form of account giving. Apology givers accept responsibility for the action or situation and the undesirability of the situation (Hareli, 2005). However they apologise for this and promise to act in future according to the rules. If the apology seems sincere, then others will blame them less than if the apology appears insincere. Lastly, defences of innocence as a form of account giving, deny responsibility and/or undesirability of the outcome, or deny that the event occurred (Hareli, 2005; Schlenker, 2005).

During the interviews in this study, respondents used accounts, when they explained why they, or their friends, fell in the past or why they, or their friends, would be unlikely to fall in the future, maintaining they were not the type who falls. These accounts will be discussed with reference to self-presentation theory, as well as social comparison and social identity theory, and to the findings in relation to the falls
prevention research, so as to demonstrate that respondents were motivated to present themselves in a certain positive way to the interviewer.

*Type of person who does not fall: Claim to identity*

Respondents portrayed themselves positively as belonging to a type that would not fall, and saw their friends and acquaintances as belonging to the same type. This has not been reported elsewhere. On the other hand, they viewed others who were likely to fall as having negative characteristics, intrinsic to the person (that is having a fall history, poor mobility or negative attitude), as found in other studies (Cameron & Quine, 1994; Health Education Board for Scotland, 2003; Meadows, Mrkonjic, Lagendyk, & Petersen, 2004; Yardley, Donovan-Hall, Francis, & Todd, 2006). Respondents could be correct in believing that they and their friends had a low chance of falling, as there was no objective check on this. However, if respondents were not correct, their responses may be explained by two theories, namely social comparison theory and social identity theory.

Social comparison theory and social identity theory both focus on the individual’s enhancement of his/her self-esteem (Stets & Burke, 2005). There are two dimensions of self-esteem: efficacy based self-esteem and worth based self-esteem. Efficacy based self-esteem is described as “seeing oneself as competent and capable” (Gecas & Schwalbe, 1983, as cited in Stets & Burke, 2005, p.131) and is highlighted by downward social comparison. Worth-based self-esteem is considered to be “feeling that one is accepted and valued” (Gecas & Schwalbe, 1983, as cited in Stets & Burke, 2005, p.131), and is highlighted by identifying self and friends as being a type with positive characteristics.

In this study, some respondents were conducting downward social comparison, by indicating they were better off than other older people on dimensions
of mobility and activity and on their chance of falling, thereby enhancing their self-esteem. Social comparison theory can in part explain this (Michener, DeLamater, & Myers, 2004), as the contrast effect which is a part of social comparison has been implicated in playing a role in people’s judgement of risk (Klein, 2002). Social comparison theory suggests that one way to maintain a positive view about oneself is to compare oneself to others and thereby experience self-enhancement, thus protecting or raising self-esteem. This can be achieved by downward social comparison, or by comparing the self with someone, particularly a stranger who is worse off.

Some respondents perceived themselves as having the same chance of falling as others (lateral comparison) and there was no mention of this in the falls prevention research. However, findings in the comparative optimism literature suggest that there is less difference in ratings between people rating their chance of experiencing a negative event and their rating of a friend’s chance of experiencing a negative event, than when rating other people’s chance of experiencing a negative event (Gouveia & Clarke, 2001). The study findings could also be explained by social comparison theory, which suggests that comparing the self to someone very close who is found to be worse off lowers self-esteem (Michener, DeLamater, & Myers, 2004). The reason for this is because of the association with their inferiority via an assimilation effect (Michener, DeLamater, & Myers, 2004).

Another possible explanation for portraying oneself as belonging to a positively construed group is social identity theory. The desire to maintain a positive self-concept creates pressures to evaluate one’s own group positively (Michener, DeLamater, & Myers, 2004). Through social categorisation, people view the self as belonging to a particular group and others as belonging to another group. The in-
group is viewed positively whilst the out-group is viewed negatively and presumed to have more undesirable traits.

Older people, both in this study and also identified in other qualitative falls prevention studies, gave accounts involving defence of innocence or denial. In this study, some respondents fell but indicated they never hurt themselves and that the fall should not be evaluated as a fall. Some respondents talked about how they had fallen, but then rephrased it to give the impression that the fall was really a trip or a ‘running into something’. This gave the impression that they reduced the outcome of falling to tripping over something. Others have also noted that people who had fallen defined themselves as someone who had not fallen (Yardley, Donovan-Hall, Francis, & Todd, 2006), or switched their language from falling to tripping (Health Education Board for Scotland, 2003; Kong, Lee Fk, Mackenzie, & Lee, 2002; Ward-Griffin et al., 2005). The negative identity associated with the perceptions of people who fall has been implicated here (Health Education Board for Scotland, 2003).

Respondents gave justifications for people who they knew who had fallen and who had got on with life after falling. Some of these friends and acquaintances were blamed for their fall, so they were held responsible, but they were reported to have got on with life. The justification was given to again maintain that their friends and acquaintances were not the type who fall. It is probable that the majority of people ‘get on with life’ after falling. Perhaps there are people who do not cope with falling, but their friends or acquaintances are the ones who remain positive. Maybe the respondents’ friends hide the reality of their situation or it may be a threat to the respondents’ identity to suggest anything other than that their friends do not let a fall stop them from getting on with life.
I don’t think I would fall but it is possible

Respondents indicated that they could very well fall in the future because they had fallen in the past. This was particularly so for people who had falls with a serious impact which had threatened their independence, as found in other studies where falls were more salient to some people who had experienced a bad fall (Health Education Board for Scotland, 2003; Managing Innovation Marketing Consultancy Network Pty Ltd, 2000; Ross et al., 2004). Even people who had fallen with no consequences, or had fallen some time ago, believed they could fall again, albeit to a lesser extent (Managing Innovation Marketing Consultancy Network Pty Ltd, 2000). Yardley and Todd (2005) also found that 58% of their respondents believed that falling was possible in the coming year. The reasons that older people in this study gave for believing it was possible that they could fall was based on their experience that falls can occur unexpectedly and accidentally, and are therefore seen as out of their control (Managing Innovation Marketing Consultancy Network Pty Ltd, 2000).

All respondents knew at least one person who had fallen in the last 12 months. Whilst knowing other people fall was a common experience, it did not influence respondents’ perceived chance of falling. When they believed a person, of the type who does not fall, did fall, they gave excuses, such as that the fall occurred unexpectedly, and therefore was out of their friend’s control. This will be discussed more fully below.

I cannot be held responsible for falling

Some respondents in this study gave excuses as to why they had fallen in the past or why they might fall in the future, explaining that falls were accidental, uncontrollable and unpredictable, or citing compelling external situations (Michener, DeLamater, & Myers, 2004). Respondents in this study also maintained that their
friend or acquaintance was the type who did not fall, even when they had fallen, by excusing the fall as being beyond their control, generally stating external factors. This was not found elsewhere in the falls prevention literature. Some respondents argued that anybody could fall at any age because of external factors such as footpaths. In one study, 31% of respondents attributed their fall entirely to their surroundings (Weinberg & Strain, 1995). Some respondents in this study also gave the inevitable ageing process linked to vulnerability to falling and functional decline as the excuse as to why they fell in the past or why they might fall in the future.

These types of explanations placed respondents in the position of not being responsible for and not having control over past or future falls, as has been found in several studies where older people gave similar explanations (Allen & Simpson, 1999; Ballinger & Payne, 2000; Cameron & Quine, 1994; Cheal & Clemson, 2001; Clemson, Cusick, & Fozzard, 1999; Furstenberg, 1988; Health Education Board for Scotland, 2003; Kong, Lee Fk, Mackenzie, & Lee, 2002; Managing Innovation Marketing Consultancy Network Pty Ltd, 2000; Meadows, Mrkonjic, Lagendyk, & Petersen, 2004; Roe et al., 2008; Simpson, Darwin, & Marsh, 2003; Ward-Griffin, Hobson, Melles, Kloseck, Vandervoort, & Crilly, 2005; Weinberg & Strain, 1995; Yang, Haralambous, Angus, & Hill, 2008; Yardley, Donovan-Hall, Francis, & Todd, 2006). This suggests that older people have a degree of fatalism about falling.

Kingston (2000) who applied the theoretical framework of Glaser and Strauss (1971) status passage and Charmaz’s (1987) preferred identities to falls, also explained that the believed causation of a fall could impact on identity. Kingston (2000) posited that older people, who believed that their fall was an indicator of decline because of age, may present themselves in the best possible light, “a salvaged self” rather than “a restored self” (Kingston, 2000, p.219).
Maybe it is adaptive for older people to believe that they had no control over falling and therefore were not responsible, rather than believing that it was something about them that made them fall. Indeed it has been found that older people attributing falls to extrinsic reasons (such as physical surroundings) rather than intrinsic reasons (due to their own limitations) have better self-rated health (Weinberg & Strain, 1995), and better recovery from falling (McKee, Orbell, & Radley, 1999). There may be benefits for giving excuses, such as having better self-esteem and lowered anxiety (Synder & Higgons, 1988).

Excuses work to counter negative evaluations of their falling. When people interact, they generally accept other persons’ claims of self-presentation and such acceptance allows social interaction to flow smoothly (Schlenker, 2005). In the research interviews, the interviewer was questioning respondents and seeking further explanations, an action which may have been interpreted as suspicion that their claims were not accepted (Cody & Dunn, 2007; Schlenker, 2005). This may explain why some respondents, as indicated by the tone of voice, came across as guarded or defensive, suggesting that the respondent felt that their claim was questioned (Cody & Dunn, 2007). At these times, respondents used excuses, particularly the excuse that anybody could fall at any age, indicating that falling was related to something external and that they, therefore, were not responsible. Yardley et al., (2006) also suggest that older people may be genuinely fatalistic or may react against being blamed for falling (Yardley, Donovan-Hall, Francis, & Todd, 2006).

_Taking responsibility for falling_

In this study, some respondents attributed their fall to not taking care, blaming and chastising themselves, as has been found in other qualitative studies where people attributed falls to their being clumsy, silly and stupid (Furstenberg, 1988; Horton,
2007; Kong, Lee Fk, Mackenzie, & Lee, 2002; Roe, Howell, Riniotis, Beech, Crome, & Ong, 2008; Simpson, Darwin, & Marsh, 2003; Ward-Griffin, Hobson, Melles, Kloseck, Vandervoort, & Crilly, 2005; Yang, Haralambous, Angus, & Hill, 2008; Yardley, Donovan-Hall, Francis, & Todd, 2006). Hence, account giving using apologies was evident in this study where respondents accepted responsibility for falling, and viewed falling as undesirable.

Many respondents also stated that they would prevent further falls by taking more care, a strategy commonly used by older people (Cheal & Clemson, 2001; Clemson, Cusick, & Fozzard, 1999; Kong, Lee Fk, Mackenzie, & Lee, 2002; Roe, Howell, Riniotis, Beech, Crome, & Ong, 2008; Ross, Donovan, Brearley, Victor, Cottee, Crowther, Clark, & Simpson, 2004; Simpson, Darwin, & Marsh, 2003; Yang, Haralambous, Angus, & Hill, 2008). Furstenberg (1988) suggested that by claiming responsibility for falling, older people were asserting they had control over the event if they took care, demonstrating their competence. However, taking care is not a strategy necessarily linked to successfully preventing falls as it does not address intrinsic risk factors and has been linked to older people limiting their activity (Simpson, Darwin, & Marsh, 2003). Kingston (2000) also proposed that if a fall was perceived as preventable, then older people would consider their preferred identity as returning to their normal self, as opposed to a fall that was inevitable because of ageing.

Disclosure

In this study, some respondents did not inform their general practitioner they had fallen unless they required assistance or unless they trivialised falling, and this problem has been reported in the literature. Apart from those who required medical assistance post falling, in one study, only 5% (convenience sample) disclosed falling
to the general practitioner (Allen, 2004). In another study with a randomly selected sample, up to 38% of respondents went to their general practitioner, although it is not known how many of these were injured (Weinberg & Strain, 1995). This is even the case when older people report that general practitioners are influential sources of falls prevention information (Mackintosh, Fryer, & Sutherland, 2007; Managing Innovation Marketing Consultancy Network Pty Ltd, 2000; Yang, Haralambous, Angus, & Hill, 2008).

Elsewhere, older people cited embarrassment, that it would be put down to old age, and that they did not want to bother them, particularly for minor falls, as reasons for not disclosing to health professionals that they had fallen (Allen, 2004; Yang, Haralambous, Angus, & Hill, 2008). This suggests that older people may not be sure how professionals would respond, and supports the findings from this study that older people do not want to be categorised as a person who falls. Howse, Ebrahim and Gooberman-Hill (2005) suggest that some older people may accept that decline or disease is related to ageing, and that doctors can do little for this. On the other hand, older people may choose not to disclose their experience of falling to others. “If older people do not desire to adopt a social identity as an ‘older person’, then they are unlikely to accept that they are in ‘need’ of forms of help that they associate with older age” (Howse, Ebrahim, & Gooberman-Hill, 2005, p.67). Others speculate that a lack of disclosure of falling suggests that there is stigma attached to discussing fear of falling, as with discussing mental health issues, as well as a fear of losing their independence (Dugan & Bonds, 2002).

It has been postulated that self-presentational motives, such as not disclosing information, called ‘accountability avoidance’ in self-presentation terms, may interfere with people seeking health care, revealing relevant information during
consultation or adhering to recommendations, if the image individuals present is not the same as the image they would like to present (Leary, Tchividjian, & Kraxberger, 1994). This avoids being judged, which is “designed to put off, avoid, or escape from tasks, situations, and audiences that threaten desired identities” (Schlenker, 2005, p.509). If older people only inform their health professional after they have had injurious falls, then falls prevention strategies cannot be put in place.

Further, in this study, some respondents did not inform family or friends that they had fallen unless they required assistance or unless they trivialised falling, and this has also been reported elsewhere (Health Education Board for Scotland, 2003). Similarly, in a quantitative study, those who had a fear of falling and curtailed activities because of this fear (and were therefore at objectively higher falls risk), were less likely to talk to friends about this (OR = .38) (Howland, Lachman, Peterson, Cote, Kasten, & Jette, 1998). This suggests that disclosure of falling is a major issue for older people. As falling is viewed as socially undesirable, older people may prefer not to tell their friends or family they have fallen especially if this has implications for any type of pressure being placed upon them (Kingston, 2000).

The few respondents in this study who attended an exercise class, did not mention joining to reduce their risk of falls, as also found by Horne (2007). It is not well known amongst older people that exercise can improve balance and prevent falls (Managing Innovation Marketing Consultancy Network Pty Ltd, 2000; Vernon & Ross, 2008; Yang, Haralambous, Angus, & Hill, 2008; Yardley, Donovan-Hall, Francis, & Todd, 2006). One of the reasons why respondents in this study joined exercise programs was because of referral by a health professional to manage health issues other than reducing their risk of falling. They had a legitimate reason to attend, a factor which may be important. An important reason for attending exercise groups
has been because important others, such as their doctor or friends, refer them (Snodgrass, Rivett, & Mackenzie, 2005; Vernon & Ross, 2008; Yardley, Donovan-Hall, Francis, & Todd, 2007).

Whilst talking about the benefits respondents experienced from exercising, some then realised that it could also be helping them to prevent falls. Similarly, in a UK study, some older people who attended a falls prevention exercise group reported improvements in their confidence (Vernon & Ross, 2008). Another study found similar findings, where older people perceived benefits, such as improved confidence and mobility, from participating in a falls prevention program, and did not tend to mention a reduced likelihood of falling (Ballinger & Clemson, 2006). This suggests older people may not be motivated to exercise by the notion of reducing their chance of falling or expect these benefits (Yardley, Donovan-Hall, Francis, & Todd, 2007).

**Theoretical sensitivity and treatment of the literature**

The research student’s professional experience was the precursor to interest in this topic. She worked as a project officer on a falls prevention project which involved working with health professionals and older people living in the community. The research student had an in-depth understanding of falls risk factors, the falls prevention evidence base, and health promotion strategies and materials used in practice to engage older people. She was familiar with the falls prevention literature, as prior to conducting the study, the research student reviewed this literature and wrote a literature review (McCallin, 2003).

The research student was mindful of Strauss and Corbin’s (1998) statement that there is “no need to review all of the literature in the field beforehand” (p.49). During interviewing and coding, the research student did not re-read the related
literature or the research student’s literature review, until the writing stage. However, the life of a research student presented opportunities, such as attending conferences and seminars, which continued to sensitise the way the research student saw her data. Two examples are given. Firstly, the research student attended a seminar on depression in ageing. Presenters talked about how older people were less receptive to the stigmatised word ‘depression’, preferring the word ‘blues’. This highlighted the fact that stigma was relevant to some health issues and language was important in communication to avoid stigmatisation and to increase acceptance.

Secondly, through presentations at conferences, researchers’ dominant discourse in falls prevention was made salient to the research student. For example, at (a) a state falls prevention seminar and (b) a national falls prevention conference, keynote speakers talked about the need to increase older people’s recognition of their risk of falling in order to motivate them to adhere to recommendations. Further, in response to the research student’s presentation of preliminary findings at a national falls prevention conference, a conference delegate suggested that perhaps health professionals could force older people to accept their risk of falling, and thus motivate them to change their falls prevention behaviour. The conference delegate called this approach ‘tough love’. These experiences demonstrated that both treating older people as children (infantilisation), not respecting their autonomy and also giving priority to the need for older people to reduce their risk of falls through acknowledging their risk, prevailed amongst some researchers in falls prevention. These experiences assisted the research student to be mindful of unhelpful dominant discourse when analysing the data and maintaining the aim of seeing the data from the respondents’ perspective.
Strauss and Corbin (1998) suggest that having this background knowledge and experience should make the research student sensitive to the data. However, at the same time, the research student was mindful not to be stifled or constrained by the literature or her own background and experience when coding (Strauss & Corbin, 1998), and to avoid terms such as ‘denial’ that had been used in the falls prevention literature (Managing Innovation Marketing Consultancy Network Pty Ltd, 2000). As an indication of the research student being grounded throughout this process, unexpected concepts were found in the data (e.g. belonging to a group).

Strauss and Corbin (1998) suggest using ‘questioning’ to assist in stimulating thinking about the concept, to see things in a new way and move beyond assumptions. This involves questioning the data about a concept, asking questions such as who, when, why, where, what, how, how much and with what results. An example of questioning the concept ‘taking responsibility for falls’ is asking: ‘who does and does not take responsibility for falling?’ Constant comparison was also used to manage researcher bias (Corbin & Strauss, 1990).

Constant comparison can be used to integrate data and literature by comparing the findings with those identified in the literature (Strauss & Corbin, 1998). When the researcher is at the writing stage, “the literature can be used to confirm findings and, just the reverse, findings can be used to illustrate where the literature is incorrect, is overly simplistic, or only partially explains phenomena” (Strauss & Corbin, 1998, p.51-52). Where extant literature confirms the findings, it provides a validation.

The main findings and the core category were discussed with a social psychologist, who suggested that social psychological theories and concepts could guide interpretation of the findings. The suggested theories were social identity theory, social comparison, self esteem, attribution theory and defensive attribution,
and these were reviewed. Social identity theory and social comparison theory appeared to best explain aspects of the findings and were retained. Other theories about identity in the social psychology literature were also reviewed. Self-presentation theory supported the findings most adequately. The researcher had not read this body of literature prior to analysing the data. Reading self-presentation and impression management was the ‘aha’ moment that for the researcher encapsulated the core category (Michener, DeLamater, & Myers, 2004). Further, self-presentation has been demonstrated as a ‘cause’ for comparative optimism (Shepperd, Carroll, Grace, & Terry, 2002).

The concept ‘identity’ had been mentioned in the falls prevention literature (Ballinger & Payne, 2000; Ballinger & Payne, 2002; Health Education Board for Scotland, 2003; Yardley, Donovan-Hall, Francis, & Todd, 2006). It is possible that reading this material prior to conducting the study may have influenced the research student’s data analysis, or perhaps sensitised her to the possibility that the concept of ‘identity’ would be significant. However, it was not clear what identity really meant in the falls prevention literature. In this study it has been articulated as meaning the type of person who does not fall. Comparing how identity is defined in the self-presentation literature (situated identities) provided support for this explanation and also further insights and refinement of the concept of identity (Williams, 2005).

Despite having knowledge of the falls prevention literature, after being immersed in the data, the research student had the experience of rereading the falls prevention literature as if reading it for the first time. For example, concepts, such as ‘anybody can fall’ found in this study were also found in the falls prevention literature (Health Education Board for Scotland, 2003). There was support for most of the categories in the falls prevention qualitative research. It was also clear that only part
of the phenomenon had been explained, and that no study had explained this phenomenon in the way that this present study had (Strauss & Corbin, 1998).

Through data analysis, the research student constructed a framework that represented the theory. Self-presentation theory supported the findings in an overarching way. Going from the body of self-presentation literature and back to the interpretation, the research student was able to fine-tune the naming of the types of respondents’ accounts to that used in the self-presentation literature (that is excuses and justifications) (Michener, DeLamater, & Myers, 2004). This ‘ground up’ study demonstrates that the findings confirm other research (self-presentation theory) and that this rigorous and careful research is generalisable to findings in similar contexts. This theory is a substantive theory, applying to this situational context of older community-dwelling people. Interviewing more people using theoretical sampling may have resulted in a more elaborate theory.

By integrating and weaving its findings into the well developed self-presentation research and less developed falls prevention research, this study has contributed to knowledge by explaining the phenomenon of older people’s underestimation of their own chance of falling compared to the chance of others. This knowledge challenges current conceptions and the practice of engaging older people in falls prevention. At this stage, the research student questioned what to do with the findings, believing the current approach of engaging older people would not be successful, yet uncertain about different approaches that would be successful.


Limitations

The use of a small sample size could be considered a limitation of the study. The indicator used for sample size was the realisation that a point had been reached where no new information emerged (data saturation). To improve the study, and to develop the theory, data could have been collected until theoretical saturation was reached.

As a qualitative study with a small sample size, interviewees were not (nor were they meant to be) representative of the wider population of older people and therefore the findings are not considered directly generalisable to the population of older people in South Australia or elsewhere. In qualitative research, the goal of the sample was not to be representative of the population so that the findings can be generalisable, as is the goal of quantitative research (Rice & Ezzy, 1999). Instead, the goal of the study was to describe a social phenomenon, and the focus of the research question was suitably narrow.

Further, all the respondents were of an English speaking background. It is known that ethnicity (Aminzadeh & Edwards, 1998; Health Education Board for Scotland, 2003; Horne, 2007; Yang, Haralambous, Angus, & Hill, 2008) and gender (Horton, 2007) influences perspectives on perceived risk of falling, ageing and independence and it is likely that class and rurality would also influence these perspectives. It is also not known what effect sampling Saint Vincent de Paul Society volunteers may have had on these findings.

A further limitation is that the final sample did not represent all the characteristics that were chosen at the start of the study. That is, there were some cells in the sampling frame that were not filled, whereas other cells were over-represented. Specifically males aged ≥75 years who had not fallen were not interviewed, and
females aged between 65 to 74 years who had fallen were not interviewed. On the other hand, there were four females who were aged ≥75 years who had not fallen. Further, all participants knew someone who had fallen. When screened for the study, two of these respondents did not recall knowing anybody who had fallen, but within the hour long interview, they recalled knowing people who had done so. This was unexpected as, in the literature, 51% of respondents knew family or friends who had fallen in previous six months (Snodgrass, Rivett, & Mackenzie, 2005). Therefore it could be expected to see, in this study, variability between people who knew others who had fallen and those who did not know any such people. In retrospect, as falling is common in this age group, this was not necessary to be part of the sampling frame.

There are implications for the validity of using these items to study comparative optimism. An example of this was the reported difficulties that some respondents had in responding to comparative optimism questions: these have been used many times in the quantitative comparative optimism literature without problems being reported. The assumption that such questions can be responded to without problems will be examined further in the cognitive interview study (Chapter 5), as will the implications this has for the findings reported in the telephone interview study (Chapter 6).

The interviewer was at least 28 years younger than the respondents (Yardley, 2008). As the interviewer would appear to be less familiar with the lifestyle of this group, this may have been an advantage as respondents may have regarded her as less judgemental or they may have been given more explicit answers to her than to someone of their own age (Nyman, 2007). The interviewer, dressed professionally and wearing a hospital name badge, may have been perceived as a professional and therefore respondents may have given socially desirable responses. It is not known
how this might influence responses, and whether respondents felt free to express themselves. Respondents were interviewed in places that were convenient and comfortable to them (Yardley, 2008), and they chose to be interviewed in their own home, at their sports venue, or volunteering centre. Respondents were also interviewed at times which suited them.

The very low response to the invitation placed in the Saint Vincent de Paul newsletter was disappointing. Difficulty in recruiting participants for interviews about falls prevention has been reported before, and might reflect including falls in the title of the recruitment material (Yardley, Donovan-Hall, Francis, & Todd, 2006).

**Strengths**

The findings from this qualitative study have theoretical generalisation. Given that most of the findings in this study were supported by findings in other qualitative studies examining older people’s perspectives around falls, it is expected that some of these insights may well apply to other groups of older people living in the community.

The qualitative approach used in this study was an appropriate method to develop an explanation as to why, from the perspectives of older people, this group were comparatively optimistic towards their chance of falls – such an explanation has been sought by the comparative optimism literature (Clarke, Lovegrove, Williams, & Machperson, 2000). Using semi-structured interviews as a method to collect data allowed (a) older people’s perspectives to be explored within the context of their lives, (b) rich data to be collected in which unexpected and or contradictory views could emerge, and (c) people to give their responses unconstrained by the interviewer (Yardley, 2008).
Non-verbal information, such as the respondents’ tone of voice, was analysed as data. This proved useful, because the emotion carried in the voice conveys meaning that would be missed by using a quantitative method. Further, interviewing people face-to-face, particularly in their own home, gave context to the data, permitting the observation of mobility and falls hazards, such as the placements of mats, in people’s homes.

Falls prevention research usually examines respondents’ self-reported history of falls within the last 12 months, as is planned in the telephone interview study (Chapter 6). One respondent in this study talked about the influence of a fall experienced 15 years ago. This valuable and unexpected insight would be missed in a quantitative study that limited the timeframe of reference to 12 months. Further, the one hour interview allowed respondents time to recall knowing other older people who had fallen, which they may not remember during the completion of a short survey.

The collection, analysis and interpretation of data in this study are likely to be influenced by the researcher’s biography, professional experiences and reading of the literature. However, as outlined in the method section of this chapter, questioning of the data was conducted to assist moving beyond one’s assumptions and in seeing concepts in a new way (Strauss & Corbin, 1998). Indeed the researcher went from analysing the data using an epidemiological framework, to being sensitive to what was in the data.
**Implications for practice**

These findings have direct implications for falls related health promotion messages (Yardley, Donovan-Hall, Francis, & Todd, 2006). Researchers, health professionals and policy makers should not assume that older people view falls prevention or health promotion initiatives as they do (Ballinger & Payne, 2000). Clinical approaches should avoid presenting direct messages that older people are at risk of falling, as these have unknown, unanticipated and possibly negative effects on older people. The benefits for older people to appear as ‘not the type who fall’ might outweigh being seen as someone who falls.

Having an identity as an independent person may be a barrier to disclose the experience of having fallen and it is suggested that approaches to older people need to be cognisant of their need to be seen as independent (Health Education Board for Scotland, 2003). Researchers recommend “alternative approaches that emphasise opportunity and valued social identities” (Ballinger & Payne, 2002, p.321), and the promotion of information that supports an independent lifestyle (Managing Innovation Marketing Consultancy Network Pty Ltd, 2000). The findings from this study confirm that health professionals should accept and affirm older people’s claim to identity, that is, that they perceived themselves as the type who do not fall. Health professionals should not promote or convince older people that they have a chance of falling for intrinsic reasons. If they do so, it might be at the risk of older people ignoring and considering this information as irrelevant to them (Yardley, Donovan-Hall, Francis, & Todd, 2006). They may also feel patronized and respond by being defensive (Yardley, Donovan-Hall, Francis, & Todd, 2006).
Lastly, older people may need legitimate reasons for themselves and their peers to participate in exercise. This could include being referred by a health professional for reasons other than to reduce their risk of falls.

**Recommendations for further research**

Research should determine whether community-dwelling older people are comparatively optimistic about their chance of falling in the future. A survey research study design should be used with a randomly selected sample of community-dwelling older people so that the findings can be generalisable. To the author’s knowledge, this has not been conducted before. The influence that the direct and indirect experience of falling has on comparative optimism, as well as the reasons older people give for being comparatively optimistic should also be explored.

This study unexpectedly found that, for some respondents, rating their own and other people’s chance of falling on a scale was difficult or impossible. Therefore, before studying this topic using similar items in a quantitative approach, a cognitive interview study is required to diagnose potential problems and thus improve the items to be used.

Further research could analyse older people’s explanations for the type of accounts they provide for past or future falls. Do accounts work for older people in terms of improving their self esteem and psychological adjustment (Snyder & Higgins, 1988)? Further research could determine whether older people believe their accounts have been accepted by health professionals and whether health professionals actually accept older people’s accounts (Cody & Dunn, 2007; Hareli, 2005).
The potential for self-presentation theory as well as social identity theory and social comparison to explain this emerging theory would be worth investigating. To the author’s knowledge, such a study has not been conducted before.

Conclusion

This study has contributed to the body of literature, using interviews to obtain the views and perspectives of older people about falls prevention in the context of their lives, and suggests strategies to engage older people in falls prevention activities. It was not the aim of this study to analyse the interviews in terms of self-presentation theory, but the findings can be explained by self-presentation theory. Self-presentation theory supports the emergent theory that older people present themselves in a certain way so as to appear not to be the type who falls for intrinsic reasons, as being viewed as such a type would be a threat to their identity. As evidenced in this study, the most prominent belief in the accounts given by older people was that they would not be responsible for falling; other research in falls prevention also supports the prominence of such a belief (Health Education Board for Scotland, 2003). The research presented here has found that older people do not want to be seen as being at risk of falls. It is a threat to older people’s identity for health professionals to suggest that they are at risk of falling for intrinsic reasons. Health promotion activities that target older people about falls prevention are unlikely to be successful if this is not recognised. As the study was conducted with relatively non-frail community-dwelling older people, the explanation developed might not reflect what might emerge if frail community-dwelling older people were studied.
CHAPTER 5. DEVELOPING SURVEY ITEMS TO DETERMINE OLDER PEOPLE’S COMPARATIVE OPTIMISM ABOUT FALLING. A COGNITIVE INTERVIEW STUDY

1. Introduction

_Aim of this chapter_

The aim of this chapter is to present a cognitive interview study (a pre-testing method). This method was used to diagnose potential problems in survey items and revise them prior to conducting a cross-sectional population survey (Chapter 6). The survey items were intended to be used to determine if older people living in the community rated their chance of falling in the next 12 months lower than their rating of other older people’s chance of falling. In this chapter data are presented which illustrates that responding to comparative optimism items was problematic for older people, supporting the findings of the semi structured interview study.

_Why conduct a pre-testing study?_

In conducting survey research, researchers often rely on psychometrics tests, conducted after surveys have been constructed and data collected, to confirm reliability and internal validity (Willis, 2005). Researchers often assume that “all respondents understand the questions in a consistent way; the questions are asking for information that respondents have and can retrieve; [and] the wording of questions provides respondents with all the necessary information they require to be able to answer them in the way required by the researcher” (Collins, 2003, p.230). This chapter will demonstrate that these assumptions are questionable and may affect the
reliability and internal validity of survey research. One way of towards improving the development of reliable and valid survey items is to pre-test items.

A growing literature contends that pre-testing is an essential part of the process of rigorous survey development or the survey of new populations (Drennan, 2003; Knafl et al., 2007). The aim of pre-testing is to identify how people understand and respond to items with the aim of finding problems in the items (Drennan, 2003). If researchers do not pre-test their surveys, they are unable to tell if respondents can comprehend and respond to the survey in the way intended by the researcher (Collins, 2003). By identifying problems and refining survey items, measurement error in data collection can potentially be reduced, and thus data quality improved (Collins, 2003; Presser et al., 2004; Szuster, 2003).

Pre-testing does not replace pilot testing (Tourangeau, Rips, & Kenneth, 2000a). Pilot testing is unlikely to give an indication of some problems such as how respondents interpret questions, problems which can be refined prior to pilot testing (Conrad, Blair, & Tracy, 1999). Pilot testing can reveal other problems such as the ease of administration and flow of items (Collins, 2003).

The most common pre-testing method is cognitive interviewing (Tourangeau, Rips, & Kenneth, 2000a) which has been used since the 1980s (Beatty & Willis, 2007). A definition of cognitive interviewing is:

Administering draft survey questionnaire while collecting additional verbal information about the survey responses, which is used to evaluate the quality of the response, or to help determine whether the question is generating the information that its author intends (Beatty, 2004, p.8)
Outcomes from cognitive interviews

Cognitive interviewing has been used to develop and evaluate surveys in psychology (Morlock et al., 2008; Prochaska, Leek, Hall, & Hall, 2007; Wu & McSweeney, 2004). Theoretically, items that have been cognitively tested should be more effective in reducing measurement error than those that have not been so tested and evidence suggests that revised items perform better (Tourangeau, Rips, & Kenneth, 2000a).

Studies have found that cognitive interviewing is useful in identifying unanticipated problems. For example, Jobe and Mingay (1990) found several problems in items while cognitive interviewing their target population of older American people. Some respondents preferred providing narrative responses instead of the category responses provided; some respondents interpreted a question asking about what they do as asking about what they can do; some denied having problems with functional performance because they compensated for their limitations; and one question had multiple interpretations (Jobe & Mingay, 1990). The authors assert that responses to these questions sounded logical and yet issues that threatened validity would not have been highlighted without cognitive interviewing.

While cognitive interviewing can diagnose problems with survey items, it does not necessarily provide suggestions as to how to revise them (Presser, Couper, Lessler, Martin, Martin, Rothgeb, & Singer, 2004), nor necessarily result in the right way to word an item (Beatty & Willis, 2007). Beatty and Willis (2007) suggest that cognitive interviewing can give researchers the information to make the best decisions in developing survey items. Cognitive interviewing:

should simply provide questionnaire designers with insights about the consequences of various questionnaire design decisions …Rather than
attempting to find the “right” way to ask a survey question, cognitive interviewing may be more suited to helping researchers assess *tradeoffs* - the advantages and disadvantages of asking questions in a certain manner (Beatty & Willis, 2007, p.304).

*Theory of survey response*

Before describing cognitive interviewing techniques, the theory of survey response will be outlined. Cognitive interviewing draws upon cognitive psychology to understand the theory underlying the way in which people respond to surveys (Tourangeau, Rips, & Kenneth, 2000a). According to information processing models, in responding to survey items people go through four information-processing stages: comprehension, retrieval of information, confidence judgement and response (Tourangeau, Rips, & Kenneth, 2000a). There is the potential for measurement error to be introduced at each stage (Collins, 2003). These four stages are outlined below, with discussion as to how researchers can assess them.

*Comprehension*

Comprehension requires respondents to understand the words used in the question, the purpose of the question and how much detail is required in answering it. An evaluation of comprehension involves asking the respondent to paraphrase the question, or to explain what the key words used in the question mean to them to determine if the respondent interprets and comprehends the question in the way intended by the researcher (Collins, 2003).

*Retrieval of information*

Retrieval of information refers to whether respondents can retrieve the information from memory to answer the question. Retrieval of information might be
problematic if, for example, a respondent experienced an event but it never entered long term memory (Collins, 2003). Two errors in retrieval commonly occur in survey research. The first is omission (forgetting that an event occurred in the time period) which results in underreporting, and telescoping (remembering an event as taking place in the wrong time period) which results in over-reporting (Taylor-Davis & Smiciklas-Wright, 1993). A method to evaluate retrieval of information is for the respondent to state how they remembered or calculated their answer (Collins, 2003).

*Confidence judgement*

It is assumed that respondents have the information to answer survey items, yet respondents may not have considered the issue being studied for some time or not at all, or not be certain of when an event such as falling actually occurred (Collins, 2003). An evaluation of confidence judgement can be used to indicate how confident the respondent is about his/her response (Collins, 2003).

*Response*

There are two aspects to response. The first is whether respondents can fit their response to the item with the response categories provided, and this can be evaluated by checking with respondents. The second involves respondents in the editing of their response, to, for example, present their response in a socially desirable way (according to social norms) or to manage the way they present themselves (self presentation) (Collins, 2003; Jobe & Mingay, 1989; Tourangeau, Rips, & Kenneth, 2000a). Respondents may be more likely to edit their response if they view a survey item as threatening (Collins, 2003). This factor can be evaluated by asking respondents how they felt about answering the question (Collins, 2003).
Thinking aloud and probing

Two techniques, ‘thinking aloud’ and ‘probing’ are used in cognitive interviewing to diagnose problems in survey items (Collins, 2003).

Thinking aloud

In ‘thinking aloud’ cognitive interviewing, respondents are instructed to voice what they were thinking as they answer questions. Thinking aloud interviewing was designed to understand the cognitive processes involved in answering items (Szuster, 2003), revealing information retrieved from memory and the decision making process involved in retrieving that information (Knafl, Deatrick, Gallo, Holcombe, Bakitas, Dixon, & Grey, 2007). Therefore thinking aloud interviewing mostly examines the information processing stage of ‘retrieval of information’. Thinking aloud interviewing can either be a concurrent process (respondents provide information as they go) or a retrospective process (respondents provide information after answering the question). The respondent talks and, in a sense, directs the interview while the researcher plays a more unobtrusive role (Conrad, Blair, & Tracy, 1999). The researcher can ask thinking aloud probes, such as “I noticed you hesitated before you answered – what were you thinking about?” (Collins, 2003, p.235). Thinking aloud interviewing relies on participants voicing what they are thinking. Thinking aloud interviewing was the dominant cognitive interviewing technique used, during which probing could take place (Beatty & Willis 2007).

Probing

The purpose of probing, as the predominant technique used in cognitive interviewing (Beatty & Willis 2007), is to detect problems with items and responses (Szuster, 2003). Probing can provide additional information that might not otherwise emerge using thinking aloud interviewing (Beatty & Willis 2007). Standard probes
can be used to examine the four information-processing stages (Collins, 2003). The interviewer can be flexible and follow up issues in the interview as they emerge (Beatty & Willis, 2007; Willis, Royston, & Bercini, 1991), using non-standard probes, based on the respondent’s responses or reactions (Noel & Prizeman, 2005). Probing can be concurrent (respondents provide information after completing each item) or retrospective (respondents provide information after completing the survey). In contrast to thinking aloud interviewing, with probing, the interviewer directs the interview (Collins, 2003).

Survey research and older people

Older people may experience difficulties in responding to survey items. Older people can experience a decline in physical health (such as pain, fatigue or frailty), mental health (such as depression), sensory function (such as hearing and eyesight) and cognitive ability (such as short term memory and cognitive speed), individual variation increasing with age (Christensen, 2001; New England States Consortium, 2001; Rabbitt, Diggle, Smith, Holland, & Innes, 2001). These difficulties can become a source of error or non-response to survey items. For example, cognitive impairment, as measured by the Mini Mental State Exam, has been associated with a less accurate recall of falls history by older people (Cummings, Nevitt, & Kidd, 1988).

Older people may have less experience in attempting cognitive tasks such as responding to survey items (Jobe, Keller, & Smith, 1996) and be less familiar with language used in surveys (Taylor-Davis & Smiciklas-Wright, 1993). This may make it difficult for older people to respond to survey items.

Motivational factors may be another source of error. Older people may not see the worth or relevance of questions or have low interest in answering certain
questions (New England States Consortium, 2001; Taylor-Davis & Smiciklas-Wright, 1993). Like all people, older people may report in a socially desirable way (according to social norms) (Taylor-Davis & Smiciklas-Wright, 1993) and may present themselves in such a way that their identity is maintained (as was identified in Chapter 4), with possible editing of their responses. Any concerns or embarrassment older people may have in reporting their history of falls, or rating themselves as having a chance of falling may not be consistent with the way they see themselves, leading them to edit their responses. If this was the case, then older people might systematically underreport falls and rate their chance of falling as low.

As older people are a highly heterogeneous group (for example in cognitive ability) (Rabbitt, Diggle, Smith, Holland, & Innes, 2001), then best practice in survey development would be to ensure that even those with the most difficulties can respond to items. Therefore, it is important that survey items intended for use by older people are pre-tested (New England States Consortium, 2001).

Cognitive interviewing and older people’s comparative optimism about falling

Little is known about problems older people might have in responding to measures of comparative optimism about falling. Findings from the semi-structured interview study (Chapter 4) indicated that there might be problems for some people to rate their own and other people’s chance of falling. However, related studies using a structured interview approach and the indirect method administered face-to-face have not reported that older people had problems with responding (McKee & Harris, 2007; Ruthig, Chipperfield, Perry, Newall, & Swift, 2007). Studies examining older people’s perceived chance of falling, using different questions and scales for measurement have not reported respondent difficulties or item non-response (see
literature review Chapter 1) (Cumming, Thomas, Szonyi, Frampton, Salkeld, & Clemson, 2001; Gill, Taylor, & Pengelly, 2005; Hahn, van Beurden, Kempton, Sladden, & Garner, 1996; Howland, Peterson, W.C., Fried, Pordon, & Bak, 1993; Hughes, van Beurden, Eakin, Barnett, Patterson, Backhouse, Jones, Hauser, Beard, & Newman, 2008; Kempton, van Beurden, Sladden, Garner, & Beard, 2000; Lord, Ward, Williams, & Anstey, 1993; McKee, Orbell, Austin, Bettridge, Liddle, Morgan, & Radley, 2002; McKee, Orbell, & Radley, 1999; Milligan, 2005; Sadowski, Jones, Gordon, & Feeny, 2007; Schoenfelder & Van Why, 1997; Sherrington & Lord, 1997a; Sjosten, Salonoja, Piirtola, Vahlberg, Isoaho, Hyttinen, Aarnio, & Kivela, 2007; Smith & Lewin, 2008; Sutherland, 2002; Wiens, Koleba, Jones, & Feeny, 2006; Yardley, Donovan-Hall, Francis, & Todd, 2007; Zecevic, Salmoni, Speechley, & Vandervoort, 2006). Cognitive interviewing could reveal unanticipated problems in these survey questions. To date, no studies have reported pre-testing items about older people’s comparative optimism about falling. Further, only three studies reported pre-testing items which included older people’s perceived chance of falling (Hahn, van Beurden, Kempton, Sladden, & Garner, 1996; Kempton, van Beurden, Sladden, Garner, & Beard, 2000; Sadowski, Jones, Gordon, & Feeny, 2007). Therefore, a cognitive interview study was required, before conducting the planned population survey study using those survey items reported in Chapter 6.

Cognitive interviewing techniques and older people

Techniques used to assess older people’s responses to survey items in cognitive interviewing studies have included thinking aloud, probing and spontaneous responses (Hayes, Morris, Wolfe, & Morgan, 1995; Ingersoll-Dayton, Saengtienchai, Kespichayawattana, & Aunguroch, 2004; Jobe & Mingay, 1990; Keller, Kovar, Jobe,
& Branch, 1993; Mallinson, 2002; Murtagh, Addington-Hall, & Higginson, 2007; O'Rourke, Sudman, Johnson, & Burris, 1999; Oremus, Cosby, & Wolfson, 2005). In choosing cognitive interviewing techniques suitable for use with older people, these studies were scanned for any difficulties reported by older people. One thinking aloud study reported that some respondents were not able to verbalise their thought processes in responding to the questions, but they were able to respond to probing questions (Jobe, Keller, & Smith, 1996). In another probing study with older people living in residential care, some respondents reported frustration with repetitive questioning (Frank, Flynn, & Rothman, 2001).

**Cognitive interviewing and history of falls**

The accuracy of older people’s recall of falls experienced in the last 12 months is less accurate (sensitivity 80% to 89%) and falls are likely to be underreported when studied retrospectively (remembering events during the last 12 months) than prospectively (monthly calendars or diary) (Cummings, Nevitt, & Kidd, 1988; Ganz, Higashi, & Rubenstein, 2005; Hale, Delaney, & Cable, 1993; Mackenzie, Byles, & D'Este, 2006; Peel, 2000). However, retrospective recall is less resource intensive and considered satisfactory for a comparative optimism study. Even so, few studies were found in the literature that indicated they pre-tested items on older people’s self reported falls. Those studies that did report conducting some form of pre-testing did not provide information about this issue (Hahn, van Beurden, Kempton, Sladden, & Garner, 1996; Kempton, van Beurden, Sladden, Garner, & Beard, 2000; Sadowski, Jones, Gordon, & Feeny, 2007).

Little is known about older people’s knowledge of other people falling in the last 12 months (indirect experience). In one Australian study that surveyed a
convenience sample of people aged over 60 years \((N = 75)\), 51% of respondents knew of a family or friend who had fallen in the last 6 months (Snodgrass, Rivett, & Mackenzie, 2005). However, it is not known if there are problems for respondents in answering this type of question.

**Cognitive interviewing and comparative optimism**

Only one study was found that pre-tested items measuring comparative optimism. French and Hevey (2008) using thinking aloud technique, examined what undergraduate students \((N = 40)\) thought about when answering questions about their’s and their peers’ lifetime risk of developing skin cancer. There were no reports that respondents had difficulties with responding to these items, and it is not known if problems would emerge if respondents were probed about their comprehension, confidence judgement and response.

No studies were found that used probing technique to examine items measuring comparative optimism. It may be unreported in publications, or researchers may assume that respondents answer items that measure comparative optimism in a valid way. This study, therefore, will fill a gap in the comparative optimism literature on cognitive interviewing.

**Aim of study**

The primary aim of this study was to overcome the limitations of survey research by identifying potential problems and refining survey items developed to measure older people’s comparative optimism about falling. The secondary aim was to identify and refine potential problems in items to be used to measure older people’s direct and indirect history of falls. The probing technique would be used in the
cognitive interviews. For the purpose of this study, cognitive interviewing was defined as a one-on-one interview, in which comments were sought on respondents’ comprehension, retrieval of information, confidence judgement and response to survey items.

The research question was: ‘in measuring older people’s comparative optimism about falling, what is the wording of the items and responses that older people can respond to best, after cognitive interviewing and refinement?’ The anticipated outcome would be the refinement of items to be used for self report in a telephone interview survey (Chapter 6).

2. Method

Participants

A purposive sample of older people aged ≥65 years and living in the community was invited to participate. To ensure a wide range of views, participants were selected according to a sampling frame that included age, sex and direct and indirect history of falling. This was the same sampling frame used in the semi-structured interview study (Chapter 4).

Inclusion and exclusion criteria

The inclusion and exclusion criteria were identical to the semi-structured interview study. The inclusion criteria included: (a) being aged ≥65 years, (b) living in the community and able to participate in a face-to-face interview in metropolitan Adelaide, and (c) speaking English. The exclusion criteria included those who did not give informed consent, those who could not get out of a chair independently (to ensure the screened respondents mobilised independently) and those living in
residential aged care (low care and high care). The researcher screened the
participants, using the screening tool described in the semi-structured interview study
(Chapter 4) over the telephone to ensure they met the inclusion and exclusion criteria
(see Appendix F).

Sample size

Semi-structured interviews were conducted with 13 older people. This was
considered a large enough sample (non-probability) to detect problems in items
(Caspar, Lessler, & Willis, 1999). No claims are made that the sample is
representative of older people. Instead, a diverse sample was sought through using the
sampling frame. Further interviewing may have detected more problems, but
cognitive interviewing was conducted within the limited timeframe available to
complete the study (see Chapter 3) (Blair, Conrad, Ackermann, & Claxton, 2006;
Caspar, Lessler, & Willis, 1999).

Recruitment procedure

Some people participated in both this study and the semi-structured interview
study (Chapter 4), and thus some of the recruitment procedure has been described in
the mixed methods approach (Chapter 3). The research student invited Saint Vincent
de Paul Society (SA) Inc volunteers, friends and spouses to participate in the research.
An advertisement was placed in the Saint Vincent de Paul Society newsletter, inviting
volunteers to participate in the research, and to telephone the researcher if they were
interested (see Appendix D).

The intention was to interview respondents for this study once the semi-
structured interview study was completed. As the semi-structured interview study
took longer to conduct, the timeframe for the present study was shortened. No
volunteers contacted the researcher in response to the newsletter advertisement in
time to participate in this study. Therefore the Volunteer Coordinator from Saint Vincent de Paul Society personally invited four volunteers. The researcher’s colleagues invited five respondents and a further four respondents were invited via other respondents (snowballing; see Table 11).

In all, 13 respondents contacted the researcher and all respondents were eligible according to the selection criteria. Eight of the 13 respondents interviewed in this study were also interviewed in the semi-structured interview study (see Chapter 3 and Chapter 4). Of these, five respondents participated in the semi-structured interview study and then were interviewed for the cognitive interview study, and three respondents were interviewed for the cognitive interview study first, then were interviewed for the semi-structured interview study.

Table 11. Number of Participants Recruited Per Strategy

<table>
<thead>
<tr>
<th>Sampling type</th>
<th>Recruitment strategies</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purposeful</td>
<td>Volunteer Coordinator invited volunteers from Saint Vincent de Paul Central Office</td>
<td>4</td>
</tr>
<tr>
<td>Purposeful</td>
<td>Four colleagues invited people they knew</td>
<td>5</td>
</tr>
<tr>
<td>Snowball</td>
<td>Respondents suggested their friends</td>
<td>4</td>
</tr>
</tbody>
</table>
Survey items to be tested in the cognitive interview

Items to measure older people’s comparative optimism about their chance of falling were adapted from Covey and Davies’ (2004) study. Specifically the items were intended to measure how older people perceive their chance of falling in the next 12 months and how they perceive other older people’s chance of falling in the next 12 months. The 11-point numeric scale used numeric and verbal anchors at both ends.

Participants were asked for three main reasons for rating their chance of falling the same as or different to the chance of others, in a similar fashion to Gouveia and Clarke’s (2001) study.

Items about the respondents’ direct and indirect history of falls were adapted from the Prevention of Falls Network Europe’s consensus recommendation for how older people participating in falls prevention clinical trials should be asked about their history of falls (Lamb, Jorstad-Stein, Hauer, & Becker, 2005), an approach which takes into account older people’s preference for using the word ‘tripping’ rather than ‘falling’ (Health Education Board for Scotland, 2003).

One reason older people may underreport falls is if their belief that their fall was not actually a ‘fall’ (Lord, Sherrington, Menz, & Close, 2007). Accordingly, the researcher’s meaning of a fall was defined twice during the interview.

Cognitive interviewing

Probes

The cognitive interviewing protocol was based on Willis’ protocols (1999; 2005). The cognitive interviewing technique used was probing as this technique might be easier for this age group, than thinking aloud. Probes were developed prior to the interview (pre-scripted) and were adapted from other cognitive interviewing studies or
guidelines (Caspar, Lessler, & Willis, 1999; Collins, 2003; Oremus, Cosby, & Wolfson, 2005; Willis, 2005). They were used to examine respondents’ comprehension, retrieval of information, confidence judgement and response to the survey items used to measure older people’s chance of falling and their ratings of other older people’s chance of falling (see Table 12). Unscripted probes were also used to follow up leads as issues emerged, allowing the interviewer “to explore issues that might have been missed through more tightly scripted interviews” (Beatty & Willis, 2007, p.297). Respondents were also encouraged to offer spontaneous thoughts at any time (Mallinson, 2002).
Table 12. Probes Used According to Information Processing Stages for Items Rating of Own Chance and Other People’s Chance of Falling and Reasons Why Ratings Were the Same or Different

<table>
<thead>
<tr>
<th>Information processing stage</th>
<th>Probes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehension</td>
<td>Could you please repeat the question in your own words?</td>
</tr>
<tr>
<td></td>
<td>What does the term ‘falling’ mean to you?</td>
</tr>
<tr>
<td></td>
<td>What does the term ‘chance of falling’ mean to you?</td>
</tr>
<tr>
<td></td>
<td>What does the term ‘perceived risk of falling’ mean to you?</td>
</tr>
<tr>
<td>Retrieval</td>
<td>How did you get to the answer?</td>
</tr>
<tr>
<td></td>
<td>Was this question hard to answer?</td>
</tr>
<tr>
<td>Confidence judgement</td>
<td>Are you confident of your answer of your answer?</td>
</tr>
<tr>
<td>Response</td>
<td>Was it hard to put a number between zero and ten to your answer?</td>
</tr>
<tr>
<td></td>
<td>Did you feel uncomfortable answering this question?</td>
</tr>
</tbody>
</table>

The items for the direct and indirect history of falls were examined using pre-scribed probes for comprehension; retrieval of information; confidence judgement; and response (see Table 13).
Table 13. Probes Used According to Information Processing Stages for Items Recall of Direct and Indirect History of Falls

<table>
<thead>
<tr>
<th>Information processing stage</th>
<th>Probes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehension</td>
<td>Could you please repeat the question in your own words?</td>
</tr>
<tr>
<td></td>
<td>What does the term ‘bad fall’ mean to you?</td>
</tr>
<tr>
<td></td>
<td>What does the term ‘serious fall’ mean to you?</td>
</tr>
<tr>
<td>Retrieval</td>
<td>How did you get to the answer?</td>
</tr>
<tr>
<td></td>
<td>Was it hard to remember back 12 months to answer this question?</td>
</tr>
<tr>
<td>Confidence judgement</td>
<td>Are you confident of your answer?</td>
</tr>
<tr>
<td>Response</td>
<td>Did you feel uncomfortable answering this question?</td>
</tr>
</tbody>
</table>

Concurrent and retrospective probing

In the first ten interviews, the interviewer asked respondents the survey item and then immediately probed (concurrent probing) (Collins, 2003). Concurrent probing was used within the cognitive interview to limit possible recall problems. For the following three interviews, the researcher asked the respondents all the survey items, as would happen in the telephone interview study (Chapter 6), followed by probing (retrospective probing). Respondents’ spontaneous responses were also followed up with probes (Mallinson, 2002), allowing for flexibility (Caspar, Lessler, & Willis, 1999).
**Procedure**

*Data collection procedures*

The interview commenced with the interviewer explaining to respondents the purpose and process of the study (adapted from Willis, 2005). The interviewer stressed that the objective of the interview was to develop questions (as can be seen in the text below), so that respondents would feel more comfortable in providing feedback (Bowling, 2002).

“The purpose of this study is to improve questions that I have developed that ask people in your age group about their perceived risk of falls. I want to make sure the questions I ask make sense, are easy enough to understand and respond to. I am seeking your feedback, so that I can improve the questions. I am interested in your honest thoughts and opinions about this. I will eventually use the improved questions in a survey of older people about their risk of falling. […] I’ll start by asking a question and if you could answer that question as carefully as possible. Then I’ll ask further questions. These may seem a bit repetitive, but remember I am trying to find any problems with the questions. If you have other thoughts, or react to a question, please tell me, even if it seems critical or it seems trivial to you [spontaneous responses]. There are no wrong answers.”

All but one interview was a one-to-one interview (as planned). A husband and wife had a last minute commitment and wanted to be interviewed together to shorten the interview time. Therefore, for these two respondents, the first three items examining comparative optimism and probes were asked before the interview was terminated.
Cognitive interviews were conducted face-to-face \((n = 8)\), either in the respondents’ home or at St Vincent de Paul head office or via the telephone \((n = 5)\). Face-to-face interviews were conducted to gather information about non-verbal clues, a process which would not be possible in the telephone interview. Telephone interviewing was used because the items were being developed for telephone administration (as reported in Chapter 6) and so it was deemed appropriate to also trial the items in this mode of data collection (Caspar, Lessler, & Willis, 1999; Drennan, 2003).

Three rounds of iterative cognitive interviewing and item revision were implemented (see Table 14). For example, four cognitive interviews were conducted on the items in survey version 1, and were subsequently revised, before further cognitive interviewing was implemented. The researcher conducted cognitive interviews for each version face-to-face and via the telephone. The wording and order of the items are included in Appendix I.

<table>
<thead>
<tr>
<th>Survey version</th>
<th>Interview mode</th>
<th>No. of interviews face-to-face</th>
<th>No. of interviews via telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Interviews were digitally-recorded with participants’ consent. Time taken to conduct the interview ranged from 26 to 48 minutes, with a mean of 35 minutes. Interviews were conducted within 2 weeks in August 2006.
Order of questions

The order of items asked was different for the three versions of the cognitive interview. For example, as seen in Table 15, in the first two versions, the first item asked respondents to rate their own chance of falling in the next 12 months, and in the third version, this item was asked second to last. The reasons for changing the order of items are explained in the results section. In Table 15, the item order is presented for Version 1, 2 and 3. The exact wording of the question is included in Appendix I.

In the first two versions, respondents were asked how many times they fell in the last 12 months, but, as this did not provide much more information than asking if they had fallen in the last 12 months, it was not included in the third version. Instead in the third version, an item about bad or serious falls experienced in the last 12 months was included.
Table 15. Order Of Items For Each Version

<table>
<thead>
<tr>
<th>Version 1 (n = 4)</th>
<th>Version 2 (n = 5)</th>
<th>Version 3 (n = 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own chance of falling</td>
<td>Own chance of falling</td>
<td>Others fall 12 months</td>
</tr>
<tr>
<td>Other people’s chance of falling</td>
<td>Other people’s chance of falling</td>
<td>Others fall 3 months</td>
</tr>
<tr>
<td>Reason for rating self same as or different to others</td>
<td>Reason for rating self same as or different to others</td>
<td></td>
</tr>
<tr>
<td>Own falls 3 months</td>
<td>Own falls 12 months</td>
<td>Own falls 12 months</td>
</tr>
<tr>
<td>Own falls 12 months</td>
<td>Own falls 3 months</td>
<td>Own falls 3 months</td>
</tr>
<tr>
<td>How many times in 12 months</td>
<td>How many times in 12 months</td>
<td>Own bad or serious falls 12 months</td>
</tr>
<tr>
<td>Other people’s fall 3 months</td>
<td>Other people’s fall 12 months</td>
<td>Own chance of falling</td>
</tr>
<tr>
<td>Other people’s fall 12 months</td>
<td>Other people’s fall 3 months</td>
<td>Other people’s chance of falling</td>
</tr>
<tr>
<td>Other people’s fall 3 months</td>
<td></td>
<td>Reason for rating self same as or different to others</td>
</tr>
</tbody>
</table>

Treatment of data

As most cognitive interview studies are conducted to inform item revision, analysis and revisions are required to occur with a reasonably quick turnaround to meet survey research deadlines (Caspar, Lessler, & Willis, 1999; Willis, 2005). For this study, item revision needed to occur quickly and this influenced the treatment and analysis of data. Treatment of data corresponded with two phases in the study: an initial phase which informed item revision, followed by detailed treatment.
Initial treatment of data

The researcher conducted the cognitive interviewing and took notes during the interview. Note taking included documenting verbal and non-verbal behaviour, as well as the researcher’s thoughts. The researcher transcribed the interviews from the digital audio recording as soon as possible after the interview was conducted, in enough detail to review the interview (Easton, McComish, & Greenberg, 2000; Hansen, 2006).

Detailed treatment of data

The researcher re-listened to and transcribed fully the audio recording, except for irrelevant text, such as the interviewer’s repetitive minimal encouragements (Hansen, 2006).

Analysis

A two phase data analysis involved an initial analysis which informed item revision, followed by detailed analysis where more time was devoted to analysis. The detailed analysis was used to better understand responses and to help interpret results. A reported limitation of cognitive interview methodology is that researchers have not described their analysis (Knafl, 2007) and therefore data analysis was carefully described.

Initial analysis

The notes taken during the interviews and partially transcribed interviews were used as data. The responses were summarised in an electronic word document, using colour to highlight problems with the items. An item by item summary of problems for each version was conducted, and these were used to guide item revision (Caspar, Lessler, & Willis, 1999). Any problems identified by the researcher were
also used to guide item revision, as “a legitimate function of cognitive interviewing is
to indicate where problems may exist, even when we have not observed these
problems” (Willis, 2005, p.171). Item revision is outlined in the results section and
Appendix I. Once the items were revised, they were submitted to the organisation
conducting the telephone interviews (Chapter 6).

**Detailed analysis**

    A more detailed analysis was conducted after the items were submitted. Using
NVivo 7 (QSR International Pty Ltd, 2006) to manage data, a taxonomy was created.
Major categories were developed for each survey item, and sub-categories were
developed corresponding to the information processing stage (Drennan, 2003). For
example, a category was developed for the item ‘own chance of falling’, then sub-
categories were developed for comprehension, retrieval of information, confidence
judgement and response (as defined in the introduction to this chapter). Further sub-
categories were developed for survey version one, two and three. Accordingly, each
transcript was coded using this taxonomy. See Table 16 for an example of the coding
frame.

**Table 16. Example of Coding Frame**

<table>
<thead>
<tr>
<th>Code name</th>
<th>Other chance of falling/comprehension/version 1/correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Correct comprehension of item, other chance of falling</td>
</tr>
</tbody>
</table>
| Example quote | “On a scale of one to ten, starting at 2 for, 4, low risk to 8 or 9 for
certain risk, chances of people my age having a fall in the next 12
months” [ID = 01] |
Within that taxonomy, data were content analysed, categorising and counting problems that respondents had with items (Beatty & Willis, 2007; Joffe & Yardley, 2004; Murtagh, Addington-Hall, & Higginson, 2007). The unit of analysis was a phrase. Codes did not have to be exclusive. Problems were inductively coded (with acknowledgement that codes cannot be purely inductive) (Joffe & Yardley, 2004). Some emerging themes did not fit into the taxonomy for example, the code ‘perceived helpfulness in interview’ was an indicator of respondents’ satisfaction with the interview.

Within the taxonomy, coding was conducted at the manifest level (explicit) and latent level (implicit) (Joffe & Yardley, 2004). These responses were collated, and summaries of the information were reported into a linked memo within NVivo 7. This summarised information was used to write the results section.

According to Beatty & Willis (2007), it is not necessary to document how many respondents might have a problem because arguably, one respondent could indicate a problem. Instead, the evaluation has to be based on “logical merits” (Beatty & Willis, 2007, p.302). Even so, the results are summarised in a table format with numbers of respondents indicating the extent of issues for this small sample.

**Ethical considerations**

Ethics approval to conduct the study was received from the University of Adelaide’s School of Psychology Human Research Ethics Committee. Participants were given information about the study via the telephone, and if they agreed to participate and met the study criteria, a time convenient to them was made for the interview. The information sheet and consent forms were posted to participants who were to be interviewed over the telephone. Prior to the interview, the interviewer
reiterated the information sheet and consent form (Appendix J). Participants signed and sent the interviewer one of the consent forms and retained a copy for themselves. Participants, who were to be interviewed face-to-face, received the information sheet which the interviewer also explained, signed the consent forms, and retained a copy (Appendix J). Respondents were assured that personal information would remain confidential by not including identifying information in the results.

The digital files and transcriptions were stored electronically in the Discipline of General Practice on a computer (password access) while printed transcriptions were kept in a locked filing cabinet.

Reliability

It has been considered that analysis from cognitive interviews is limited because of subjective judgement (Drennan, 2003; Willis, 2005). This study addressed this consideration by being specific about the way the analysis was conducted (Knafl, Deatrick, Gallo, Holcombe, Bakitas, Dixon, & Grey, 2007). Whilst there was no reliability check for how coding was conducted, the researcher made use of an audit trail of how decisions were made, retained documentation in memos linked to the categories in NVivo 7, and presented in this chapter.

Validity

Face validity refers to the subjective judgement about whether questions appear to “be relevant, reasonable, unambiguous and clear” (Bowling, 2002, p.151). In this study, face validity was assessed informally by the researcher.
3. Results

Overview

The results are presented in seven sections. In Section 1, frequency data of respondents’ socio-demographic information are presented and in Section 2, frequency data of respondents’ falls history are presented. In Section 3, 4 and 5, there is a summary of the problems identified through cognitive interviewing, concerning respondents’ rating of their own chance of falling, their rating of other people’s chance of falling, and the reasons for rating themselves the same as or different to others. In Section 6 and 7, a summary of problems, identified through cognitive interviewing, concerning older people’s history of falling are presented. The data in Section 3 to 7 is mostly presented in tables according to the stages of information processing (comprehension, retrieval, confidence and response), and according to the survey version 1, 2 or 3. Full data summaries of the cognitive interviews are presented in Appendix I.
Section 1. Respondents’ socio-demographic information

Respondents’ age and sex are summarised in Table 17. Of the 13 respondents interviewed, four were aged between 65 and 74 years and nine were aged ≥75 years. Nine respondents were female.

Table 17. Respondents’ Sex by Age

<table>
<thead>
<tr>
<th>Age group (years)</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>65-69</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>70-74</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>75-79</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>80-84</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>85+</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9</strong></td>
<td><strong>4</strong></td>
</tr>
</tbody>
</table>

Six respondents were in a married or in a de facto relationship. The highest educational level of five respondents was secondary schooling, completed at age ≤15 years. Five respondents received a government pension (Table 18).
Table 18. Marital Status, Education and Income

<table>
<thead>
<tr>
<th>Marital status</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married or de facto</td>
<td>6</td>
</tr>
<tr>
<td>Widowed</td>
<td>7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Highest educational level</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Left school ≤ 15 years</td>
<td>5</td>
</tr>
<tr>
<td>Left school &gt;15 years</td>
<td>5</td>
</tr>
<tr>
<td>Trade, apprenticeship, certificate or diploma</td>
<td>3</td>
</tr>
<tr>
<td>Bachelor degree or higher</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Income</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Government pension (aged/veteran)</td>
<td>5</td>
</tr>
<tr>
<td>Retiree/superannuation/self funded</td>
<td>3</td>
</tr>
<tr>
<td>Semi-retired</td>
<td>1</td>
</tr>
<tr>
<td>Pension and retiree</td>
<td>4</td>
</tr>
</tbody>
</table>
Section 2. Respondents’ falls history

Falls and mobility

Respondents were screened prior to participating in the study to ensure they met the inclusion and exclusion criteria (Appendix F). Screening provided an opportunity to ensure participants had a range of direct and indirect experiences of falling. Whilst this was not the reason for conducting screening of direct and indirect history of falls, screening provided an opportunity to compare self reported direct and indirect history falls at two time periods.

When potential respondents were screened, six respondents reported they had fallen in the last 12 months (Table 17) and responses to the survey item indicated that six respondents had fallen in the last 12 months (Table 18). The definition of falling was not given on screening. One respondent, who reported on screening that she had a fall, did not fit with the definition of falling used in the study. Another respondent, who said she did not have a fall on screening, during the interview recalled falling. These discrepancies reflect the potential for problems with the recall of falls over a 12 month period.

When screening for the cognitive interviews, 11 of the 13 respondents reported they knew others who had fallen in the last 12 months (Table 19). The two respondents, who on screening said that they did not know other people who had fallen, in the cognitive interview recalled people they knew who had fallen. Again, these discrepancies reflect the potential for problems with the recall of a history of indirect falls over 12 months. Therefore, in the cognitive interview, all respondents knew others who had fallen (Table 20).

On screening, five respondents stated they used a walking aid.
Table 19. Screening for Cognitive Interviewing: Direct and Indirect Experience of Falling

<table>
<thead>
<tr>
<th>Experience of Falling</th>
<th>Direct experience</th>
<th>Indirect experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fallen in last 12 months</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Not fallen in last 12 months</td>
<td>7</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 20. Cognitive Interviewing: Direct and Indirect Experience of Falling

<table>
<thead>
<tr>
<th>Experience of Falling</th>
<th>Direct experience</th>
<th>Indirect experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fallen in last 12 months (including last 3 months)</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Fallen in last 3 months</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Not fallen in last 12 months</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Did not ask</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Respondents’ rating of their own chance and other people’s chance of falling

The difference between respondents’ rating of their chance of falling and rating of other people’s chance of falling are presented in Table 21. Five respondents were not comparatively optimistic (rated their chance of falling the same as others), six were comparatively optimistic (rated their own chance of falling lower than others) and one was comparatively pessimistic (rated their own chance of falling higher than others). One respondent could not rate her own chance or other people’s chance of falling and another respondent gave ratings only after discussion. During the interview, two respondents reduced the rating they gave for their own chance of
falling and one respondent, after discussion, increased the rating he gave for other people’s chance of falling after discussion.

Table 21. Rating of Own Chance and Other People’s Chance of Falling

<table>
<thead>
<tr>
<th>ID</th>
<th>Own chance</th>
<th>Rating change</th>
<th>Other chance</th>
<th>Rating change</th>
<th>Bias</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>3</td>
<td>5</td>
<td>NO</td>
<td>CO</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>4-5</td>
<td>7-8</td>
<td>CO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>3</td>
<td>3</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>3-4</td>
<td>6-7</td>
<td>CO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>09</td>
<td>9</td>
<td>7</td>
<td>5</td>
<td>CP</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>do not know</td>
<td>do not know</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>do not know</td>
<td>2</td>
<td>do not know</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>2</td>
<td>4</td>
<td>CO</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NO= not comparatively optimistic, CO = comparatively optimistic, CP = comparatively pessimistic
Respondents’ reasons for rating themselves the same as, or different to others

Respondents were asked to consider their risk factors in rating themselves the same as or different to others. The most common reason for respondents to rate their chance of falling lower was because of ‘taking care’ (Table 22). Examples of taking care included: wearing sensible shoes, being careful of how they moved about such as being careful where they put their feet and where they walked, being careful of obstacles and slippery surfaces, leaving the kerb when the walk light went green, walking on flat surfaces, using handrails and not hurrying. Reasons given for the need for taking care were: their falls history, their awareness they could fall or their joints. The most common reason given by respondents for their increased chance of falling was their gait, balance and joints. Two respondents gave falls risk factors, but did not explicitly compare themselves to others.
Table 22. Respondents’ Reasons (About Themselves) for Rating Their Chance of Falling Same as or Different to Others

<table>
<thead>
<tr>
<th>Reasons given for rating self same as or different to others</th>
<th>Ver 1 and 2 ((n = 9))</th>
<th>Ver 3 ((n = 4))</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reasons that increased respondents’ chance of falling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gait, balance and joints</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Falls history (including trips)</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Climb ladders</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Reasons that decreased respondents’ chance of falling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taking care</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Walking aid</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Health</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Gait, balance and joints</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Alert</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Active and fit</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Home modified</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Not at stage that would fall</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Non directional reasons that influenced respondents’ chance of falling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stepping off bus</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Extrinsic risk factors</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Gait, balance and joints</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: not asked \(n = 1\). Ver = Survey version. Version 1 and 2 were combined as same question was asked
When rating their chance of falling the same as or different to the chance of others, most respondents referred to reasons about themselves (Table 22); only one respondent referred to other people (see Table 23).

Table 23. Respondents’ Reasons (About Other Older People) for Rating Their Chance of Falling Same as or Different to Others

<table>
<thead>
<tr>
<th>Reasons given for rating self same as or different to others</th>
<th>Ver 1 and 2 (n = 9)</th>
<th>Ver 3 (n = 4)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Reasons that increased respondents’ chance of falling</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gait, balance and joints</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Extrinsic risk factors</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Health</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><em>Reasons that decreased respondents’ chance of falling</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don’t climb ladders</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Health</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Active and fit</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Ver = Survey version. Version 1 and 2 were combined as same question was asked.
Section 3. Rating own chance of falling: summary of problems

In this section, the problems identified through cognitive interviewing concerning respondents’ rating of their own chance of falling are summarised and presented in tables (see summarised data in Appendix I). Tables include the problem type(s) according to the stage of information processing, the number of respondents, corresponding survey version (version 1, 2 or 3) where a problem was identified and problem description. Where survey items were revised, this was reported and where survey items were not revised, comments were made. Problems identified with respondents’ meaning of ‘falling’ and ‘perceived risk of falling’ are summarised in Table 24.

Table 24. Meaning of Falling and Perceived Risk of Falling: Type of Problem, Problem Description, Revision or Comment

<table>
<thead>
<tr>
<th>Type</th>
<th>n</th>
<th>Ver</th>
<th>Problem description</th>
<th>Revision or Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comp</td>
<td>1</td>
<td>1</td>
<td>Falling meant the consequence of falling</td>
<td>Comment. Most respondents understood the term falling</td>
</tr>
<tr>
<td>Comp</td>
<td>2</td>
<td>1</td>
<td>Could not answer or incorrectly answered what ‘perceived risk of falling’</td>
<td>Revision. Ver. 2 deleted reference to ‘perceived risk of falls’ and replaced with ‘understanding of your risk of falls’. Ver. 3 deleted reference to ‘understanding of your risk of falls’</td>
</tr>
<tr>
<td>Comp</td>
<td>5</td>
<td>1</td>
<td>‘Perceived’ was a difficult word</td>
<td>‘understanding of your risk of falls’</td>
</tr>
</tbody>
</table>

Note: Comp = Comprehension. Ver = Survey version.
Problems identified through cognitive interviewing respondents’ about the item, own chance of falling in the next 12 months, are summarised in Table 25. Problems not identified from respondent feedback but identified by the researcher were also used to guide item revision (Willis, 2005). Some problems were hard to resolve.

<table>
<thead>
<tr>
<th>Type</th>
<th>n</th>
<th>Ver</th>
<th>Problem description</th>
<th>Revision or Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comp</td>
<td>1</td>
<td>1</td>
<td>Thought the question was asking ‘how many falls would they have’ in the future</td>
<td><strong>Comment.</strong> Explanation was incorporated into question including verbal anchor. Although correctly repeated question, did not understand question. Hard to resolve</td>
</tr>
<tr>
<td>Comp</td>
<td>2</td>
<td>2</td>
<td>Reported rating scale wrong</td>
<td><strong>Revision</strong> Added Ver 3: [if rating is</td>
</tr>
</tbody>
</table>

Table 25. Own Chance of Falling: Type of Problem, Problem Description, Revision or Comment
<table>
<thead>
<tr>
<th>Type</th>
<th>n</th>
<th>Ver</th>
<th>Problem description</th>
<th>Revision or Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>way around greater than 5]. Does this mean that your chance of falling is closer to ten, ‘certainly falling in the next 12 months”? [if rating is less than 5]. Does this mean that your chance of falling is closer to zero, ‘no chance”?</td>
<td></td>
</tr>
<tr>
<td>Comp</td>
<td>1</td>
<td>1</td>
<td>Repeated the scale as ‘one to ten’ instead of ‘zero to ten’ Comment. Added to Ver 3. [if rating is less than 5]. Does this mean that your chance of falling is closer to zero, ‘no chance”?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2</td>
<td>Does question mean tripping or losing balance Comment. Falling was defined in question as both tripping and losing balance</td>
<td></td>
</tr>
<tr>
<td>Comp</td>
<td>1</td>
<td>3</td>
<td>Hard or impossible to respond to question because “Don’t know/refused, if specifically mentions “Falls are unpredictable”.</td>
<td></td>
</tr>
<tr>
<td>Retr</td>
<td>1</td>
<td>2</td>
<td>Changed ratings for their own chance of falling Comment. This would be less likely to happen in a telephone survey because respondents would not have opportunity to think about this in survey</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>n</td>
<td>Ver</td>
<td>Problem description</td>
<td>Revision or Comment</td>
</tr>
<tr>
<td>------</td>
<td>----</td>
<td>-----</td>
<td>--------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Resp</td>
<td>2</td>
<td>3</td>
<td>Hard to put rating on scale</td>
<td><strong>Comment.</strong> Hard to resolve because it is not something can quantify</td>
</tr>
<tr>
<td>Conf</td>
<td>3</td>
<td>1</td>
<td>Hard to put rating on scale</td>
<td><strong>Comment.</strong> This is a perception</td>
</tr>
<tr>
<td>Resp</td>
<td>1</td>
<td>2</td>
<td>because it might be lower or higher</td>
<td>question not a factual question</td>
</tr>
<tr>
<td>Resp</td>
<td></td>
<td></td>
<td>Own chance of falling was the first item asked. The question was potentially threatening and respondents might feel more confident if they respond to direct and indirect history of falls first (not based on feedback)</td>
<td><strong>Revision.</strong> Ver 3. Order moved so that this question was asked after direct and indirect history of falls questions</td>
</tr>
<tr>
<td>Resp</td>
<td>1</td>
<td>1</td>
<td>Indicated that they did not want to fall or they tried hard not to fall</td>
<td><strong>Comment.</strong> May rate their chance of falling lower because they do not want to fall or because they want to present in a certain way</td>
</tr>
</tbody>
</table>

Section 4. Rating other people’s chance of falling: summary of problems

Problems identified through cognitive interviewing respondents’ about the item, other people’s chance of falling, are summarised and presented in Table 26. Problems identified by the researcher as well as from respondent feedback were used to guide item revision (Willis, 2005).

Table 26. Rating Other People’s Chance of Falling: Type of Problem, Problem Description, Revision or Comment

<table>
<thead>
<tr>
<th>Type</th>
<th>n</th>
<th>Ver</th>
<th>Problem description</th>
<th>Revision or comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comp</td>
<td>1</td>
<td>1</td>
<td>Thought the question was</td>
<td>Comment.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>asking ‘how many women</td>
<td>incorporated into question</td>
</tr>
<tr>
<td>Comp</td>
<td></td>
<td></td>
<td>The main part of the question</td>
<td>Revision.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>was asked at the end, so it</td>
<td>‘what do you think is the chance</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>might be harder to remember</td>
<td>that others females about your age</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>the scale (not based on</td>
<td>in general will fall in the next 12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>feedback)</td>
<td>months’ was the first part of the</td>
</tr>
<tr>
<td>Comp</td>
<td></td>
<td></td>
<td>The upper end of the scale verbal anchor, ‘certain chance</td>
<td>Revision.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>of falling’ did not sound easy to respond to (not based on</td>
<td>think they will certainly fall in the</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>feedback)</td>
<td>emphasises this as a perceptual</td>
</tr>
</tbody>
</table>
|      |   |     | Using the terms ‘average female’ sounded too abstract (not based on feedback) | Revision. | Ver 3. Changed ‘average female’ to ‘other females about your age in general’.


<table>
<thead>
<tr>
<th>Type</th>
<th>n</th>
<th>Ver</th>
<th>Problem description</th>
<th>Revision or comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comp</td>
<td>2</td>
<td>2</td>
<td>Responded to the scale the wrong way</td>
<td>Revision: Added Ver 3: [if rating is greater than 5]. Does this mean that your chance of falling is closer to ten, ‘certainly falling in the next 12 months’? [if rating is less than 5]. Does this mean that your chance of falling is closer to zero, ‘no chance’?</td>
</tr>
<tr>
<td>Comp</td>
<td>1</td>
<td>1</td>
<td>Repeated the question as asking on a scale of ‘one to ten’ instead of ‘zero to ten’</td>
<td>Comment. Added Ver 3: [if rating is less than 5]. Does this mean that your chance of falling is closer to zero, ‘no chance’?</td>
</tr>
<tr>
<td>Comp</td>
<td>1</td>
<td>3</td>
<td>Could not give a rating for other older people’s chance of falling because they believed falls were unpredictable</td>
<td>Revision Added to final version: “Don’t know/refused, if specifically mentions “Falls are unpredictable”.</td>
</tr>
<tr>
<td>Retr</td>
<td>2</td>
<td>2</td>
<td>Depends on their health, disability, medication, fitness</td>
<td>Revision: Added Ver 3: [if says depends on health or disability of other person, repeat question with emphasis on ‘other females about</td>
</tr>
<tr>
<td>Retr</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retr</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retr</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>n</td>
<td>Ver</td>
<td>Problem description</td>
<td>Revision or comment</td>
</tr>
<tr>
<td>------</td>
<td>----</td>
<td>-----</td>
<td>---------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>3</td>
<td>answer, had not thought about this, did not have information or did not know people</td>
<td>your age in general’</td>
</tr>
<tr>
<td>Conf</td>
<td>2</td>
<td>1</td>
<td>Does not appear confident in answer</td>
<td>Revision: Ver 3. This was originally the second item. Order of items changed to give respondents more information by responding to direct and indirect history of falls items first</td>
</tr>
<tr>
<td>Conf</td>
<td>1</td>
<td>3</td>
<td>Does not have enough information</td>
<td></td>
</tr>
<tr>
<td>Resp</td>
<td>4</td>
<td></td>
<td>Found it difficult to respond on the scale of zero to ten because they did not have the information</td>
<td>Revision: Added final version: “Don’t know/refused – specifically mentions that they have insufficient information to select rating”</td>
</tr>
<tr>
<td>Resp</td>
<td>1</td>
<td>3</td>
<td>Increased rating for other people’s chance of falling.</td>
<td>Comment. This would be less likely to happen in a telephone survey as respondents would not have time to think about this.</td>
</tr>
</tbody>
</table>

Section 5. Reasons why they rated their chance the same as or different to others:

summary of problems

Problems identified through cognitive interviewing respondents’ about the item, and reasons why they rated themselves the same as or different to others are summarised in Table 27.

<table>
<thead>
<tr>
<th>Type</th>
<th>n</th>
<th>Ver</th>
<th>Problem description</th>
<th>Revision or Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comp</td>
<td>1</td>
<td>1</td>
<td>Repeated the question with a focus on giving reasons why they gave themselves a rating, instead of why they rated themselves the same as or different to others. One respondent re-interpreted question because the question was considered irrelevant</td>
<td><strong>Comments.</strong> Difficult to resolve</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td></td>
<td><strong>Revision:</strong> Ver 3. Changed ‘average female’ to ‘other females about your age in general’ which is more descriptive.</td>
</tr>
<tr>
<td>Type</td>
<td>n</td>
<td>Ver</td>
<td>Problem description</td>
<td>Revision or Comment</td>
</tr>
<tr>
<td>------</td>
<td>---</td>
<td>-----</td>
<td>--------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Retr</td>
<td>1</td>
<td>3</td>
<td>Ambiguous question - suggested to ask more specific question in regards to tripping or losing balance</td>
<td>Comment. Falling was defined as both tripping and losing balance.</td>
</tr>
<tr>
<td>Resp</td>
<td>1</td>
<td>3</td>
<td>Difficult to give a straight answer</td>
<td>Comment. Low satisfaction in answering question</td>
</tr>
<tr>
<td>Resp</td>
<td>1</td>
<td>1</td>
<td>By talking about falling it might stay in his mind</td>
<td>Comment. Cognitive interviewing increased the length of the interview</td>
</tr>
</tbody>
</table>

*Note: Ver = Survey version. Comp = Comprehension. Retr = Retrieval. Resp = Response*
Section 6. Own falls history in last twelve and three months: summary of problems

Problems identified through cognitive interviewing respondents’ about their own falls history have been summarised in Table 28 and Table 29. Tables include the problem type(s) according to the stage of information processing, the number of respondents, corresponding survey version (version 1, 2 or 3) where a problem was identified, and problem description. Where survey items were revised, this was reported and where survey items were not revised, comments were made.

Table 28. Falling in the Last 12 Months: Type of Problem, Problem Description, Revision or Comment

<table>
<thead>
<tr>
<th>Type</th>
<th>n</th>
<th>Ver</th>
<th>Problem description</th>
<th>Revision or Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resp</td>
<td>1</td>
<td>1</td>
<td>Answered question before finishing asking it</td>
<td>Revision. Ver 2. Changed question order so that respondents were asked whether they had fallen in the last 12 months, then last 3 months (should be easier to respond to 12 months then 3 months). Revision. Ver 2. Deleted repetition in question (when you have fallen in last 12 months).</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>3</td>
<td>finishing asking it</td>
<td></td>
</tr>
<tr>
<td>Retr</td>
<td>1</td>
<td>1</td>
<td>Hard to remember back 12 months</td>
<td>Comment. Suggests that no incidences stood out.</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>1</td>
<td>Recalled last fall because</td>
<td>Comment. Vers 1, 2 and 3 included in the definition of a fall as “falls even when you were not</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>2</td>
<td>remembered the physical and emotional or social consequence</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>3</td>
<td>emotional or social consequence</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>n</td>
<td>Ver</td>
<td>Problem description</td>
<td>Revision or Comment</td>
</tr>
<tr>
<td>------</td>
<td>---</td>
<td>-----</td>
<td>---------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Retr</td>
<td>2</td>
<td>2</td>
<td>Falls with no consequences</td>
<td>might make it memorable.</td>
</tr>
<tr>
<td>Retr</td>
<td>1</td>
<td>1</td>
<td>On screening, respondent did not recall falling but recalled falling in the interview</td>
<td>Comment. Reflects potential problems for recall of falls</td>
</tr>
</tbody>
</table>

*Note: Vers = Survey version. Retr = Retrieval. Resp = Response*
Table 29. Falling in Last Three Months: Type of Problem, Problem Description, Revision or Comment

<table>
<thead>
<tr>
<th>Type</th>
<th>n</th>
<th>Ver</th>
<th>Problem description</th>
<th>Revision or Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resp</td>
<td>3</td>
<td>1</td>
<td>Answered survey question before asking it</td>
<td>Revision. Ver 2. Changed question order so that respondents were asked whether they had fallen in the last 12 months then last 3 months. Deleted repetition in question (if you have fallen in the last 3 months) Revision Ver 3. Deleted repetition included in definition (this might include falls even when you were not hurt)</td>
</tr>
<tr>
<td>Retr</td>
<td>1</td>
<td>1</td>
<td>Hard to remember back</td>
<td>Comment. Hard to resolve.</td>
</tr>
<tr>
<td>Retr</td>
<td>2</td>
<td>1</td>
<td>Not sure of exact month when fell</td>
<td></td>
</tr>
</tbody>
</table>

*Note: CI = cognitive interviewing. Ver = Survey version. Retr = Retrieval. Resp = Response*
Section 7. Other people’s falls history in last 12 and three months: summary of problems

Problems identified through cognitive interviewing respondents’ about the item, recalling other people’s falls history are summarised in Tables 30 and Table 31.

Table 30. Knowing Others Fall in Last 12 Months: Type of Problem, Problem Description, Revision or Comment

<table>
<thead>
<tr>
<th>Type</th>
<th>n</th>
<th>Ver</th>
<th>Problem description</th>
<th>Revision or Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comp</td>
<td>1</td>
<td>3</td>
<td>Answered by talking about own falls first instead of knowing others fall</td>
<td>Revision. Final version. Changed order of question so asked about their own falls first then asked knowing others who fall</td>
</tr>
<tr>
<td>Retr</td>
<td>2</td>
<td>1</td>
<td>Recalled others fall because of the consequence of fall. Did not recall inconsequential falls.</td>
<td>Comment. Vers 1, 2 and 3 included in the definition of a fall as “falls even when they were not hurt”</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>2</td>
<td>Recalled others fall because assisted them</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>3</td>
<td>Not sure of date when others fell</td>
<td>Comment. Reflects difficulty in recalling falls</td>
</tr>
<tr>
<td>Retr</td>
<td>1</td>
<td>1</td>
<td>On screening, two respondents did not recall others who had fallen, but recalled others during interview</td>
<td>Comment. On screening for the interview, there was little time or cues to assist recall compared to the cognitive interview</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>n</th>
<th>Ver</th>
<th>Problem description</th>
<th>Revision or Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comp</td>
<td>1</td>
<td>3</td>
<td>Answered by talking about own falls first instead of knowing others fall</td>
<td>Revision. Final version. Changed order of question so asked about their own falls first then knowing others who fall</td>
</tr>
<tr>
<td>Comp</td>
<td>1</td>
<td>1</td>
<td>Thought question was for 12 months not three months</td>
<td>Revision. Ver 2. Changed order of questions so asked to respond to 12 months first then 3 months</td>
</tr>
<tr>
<td>Retr</td>
<td>1</td>
<td>1</td>
<td>Not sure of date when others fell</td>
<td>Comment.</td>
</tr>
</tbody>
</table>

*Note: Vers = Survey version. Comp = Comprehension. Retr = Retrieval.*
4. Discussion

The primary aim of this cognitive interview study was to identify problems in survey items intended to measure older people’s comparative optimism about falling, and the secondary aim was to identify problems in survey items intended to measure respondents’ direct and indirect history of falling in the last 12 months. Overall, items were answered with seemingly logical responses. However, using probing, respondents revealed unanticipated problems, mostly concerning respondents’ rating their own chance of falling and rating other people’s chance of falling. The major difficulty for respondents rating their own chance of falling was their belief that falls were unexpected and unpredictable. The major problems for respondents rating other people’s chance of falling were not knowing others, not having enough information and not knowing the answer. The major problem for respondents recalling their direct history of falls was that they were not sure when they fell, an uncertainty which would likely result in underreporting. The major problem identified for respondents recalling the indirect history of falls was that it was only during the cognitive interview that some respondents recalled knowing others who fell, with the result that there could be underreporting of this aspect. Respondents tended to recall only knowing people who had injurious falls, indicating that non-injurious falls may be underreported. Items were revised, and where problems were not easily resolved, the possible impacts of these problems on results were outlined. While it is consistent with cognitive interviewing methodology to interview a small number of people, the findings are more suggestive than conclusive and are interpreted cautiously (Willis, Royston, & Bercini, 1991).
Rating own chance of falling

Probing revealed unanticipated problems for the seemingly simple item of asking older respondents to rate, on a scale, their chance of falling in the next 12 months. Several respondents found it difficult and one respondent found it impossible to respond when asked to rate their chance of falling in the next 12 months. Whilst there were difficulties, respondents verbally expressed their likelihood of falling, indicating an awareness of their own chance of falling.

One reason respondents in this study found it difficult or impossible to respond to rating their own chance of falling was because they believed falls were unexpected and unpredictable. Older people’s belief that falls occurred unexpectedly and were unpredictable was also reported in the semi-structured interview study (Chapter 4) and has been reported in other qualitative research (Kong, Lee Fk, Mackenzie, & Lee, 2002; Managing Innovation Marketing Consultancy Network Pty Ltd, 2000; Yang, Haralambous, Angus, & Hill, 2008). The actual moment when people fall is unexpected and the definition of falls, as used by researchers, includes the attribute of unexpectedness (Lamb, et al., 2005; see Zecevic, Salomoni, Speechley, & Vandervoort, 2006). However, the question did not ask respondents to predict when they would fall, but how likely they would be to fall. As this problem was difficult to resolve, in the telephone interview study (Chapter 6), a non-response category – ‘falls are unpredictable’ was included for those respondents not able to rate their chance of falling because of this belief. While other comparative optimism studies have not done so, this approach would give an indication of the extent of the problem.

Most respondents appeared to comprehend the question. However, later in the interview, it became clear that two respondents who gave a numerical response misinterpreted the item which required ‘rating their own chance of falling’ as asking
‘how many falls they would have in the next 12 months’. If this occurred in the telephone interview study (Chapter 6), this would introduce error into the survey data.

One respondent was reluctant to answer the item while two concepts, tripping or falling, were grouped together. Instead, they preferred to respond to more specific questions such as the chance of ‘tripping’ or ‘losing balance’. It is known that older people prefer to use the word ‘tripping’ to ‘falling’ (Health Education Board for Scotland, 2003), which is why falling was defined twice in the interview (Lamb, Jorstad-Stein, Hauer, & Becker, 2005). It is speculated that it could be challenging for some people to rate their chance of falling using the words ‘tripping’ and ‘falling’, because to answer them together is a threat to their identity (Chapter 4). Two studies have asked older people more specific questions about their chance of falling, such as “I am not likely to fall because things such as rugs, furniture and stairs get in my way” (Braun, 1998, p.1275) and have not reported item non-response (Braun, 1998; Mackintosh, Fryer, & Sutherland, 2007). Some of these questions may be less threatening to answer.

A respondent indicated that the answer to this question could not be quantified. There might be a better response to a word scale as this has been known to be a preferred alternative (Diefenbach, Weinstein, & O'Reilly, 1993); however, in Absetz’s et al., (2000) study, 26% of respondents could not respond to a scale using verbal and numerical response categories. Therefore, it is suggested that, within the field of risk perception/comparative optimism research, there may be invalid responses as people give answers which are more of a guess. In the current study, one respondent indicated in his opinion the answers to this question were not worth much (ID = 12). Motivation indeed influences whether respondents simply answer a
question or put effort into answering a question, particularly when they judge the question as not worthy (Taylor-Davis & Smiciklas-Wright, 1993).

Some respondents repeated the lower end of the scale as ‘one’ instead of ‘zero’. Some respondents did this even when they were asked if their ‘chance of falling was closer to zero, that is, ‘no chance’’. They may have done this because they were reliant on the interviewer to state the scale, while respondents kept the verbal and numerical anchors of the scale in short term memory. If respondents used the scale beginning with ‘one’ instead of ‘zero’ to give their response, then their ratings would be slightly skewed upward for both rating their own chance and rating other people’s chance of falling. However, it would not influence the outcome of comparative optimism because comparative optimism is a measure of the difference between the two ratings.

Respondents found it difficult to rate their own chance of falling on a scale as they were not sure that their estimate was accurate (it could have been higher or lower). Two respondents also commented that the scale reminded them of pain scales used in hospital, which they did not like for the same reason. This reflected the idea that respondents attempted to give an accurate answer, and therefore treated the question as a factual concrete question. It is possible that some people cannot answer or find it difficult to answer abstract questions. Therefore this type of question may be unsatisfying to answer, and respondents need reassurance that their answers cannot be inaccurate.

Respondents indicated that they did not want to fall or tried hard not to fall, indicating that, for them, falling was a negative and undesirable event and therefore to contemplate falling was not likely to be a neutral emotion-free activity. This is not surprising given that it is known that older people fear the physical short and long
term consequences of falling as well as social consequences such as embarrassment (Tischler & Hobson, 2005; Yardley & Smith, 2002). It is not known if this response would bias respondents’ rating. It is possible that respondents will be motivated to rate their own chance of falling lower than what they actually believe. Further, it is possible that respondents do not want to disclose to the interviewer their chances of falling because that might be admitting to something about which they would prefer not to admit. On the other hand, the indication by the respondents that they did not want to fall could be a spontaneous response in an interview that does not affect their numerical response.

One respondent gave a fifty-fifty response. This respondent believed falls were unexpected and unpredictable and that this response would reflect the fact that a person could not know the answer. Similarly, in Boeiji and Janssen’s (2004) study, some respondents, in rating their chance of becoming wheelchair dependent, indicated the middle of the scale because they did not know due to the uncertainty of multiple sclerosis. Elsewhere, it was found that it was more likely that respondents gave a 50 rating from a scale of zero to 100 for events perceived lower in control, and the authors suggested that this gave “an “escape” strategy in order to avoid contemplating negative and uncontrollable events” (de Bruin, Fischoff, Millstein, & Halpern-Felsher, 2000, p.127). This would introduce systematic error into the survey, with a ‘blip’ at five on the scale of zero to ten.
Rating other people’s chance of falling

Probing revealed unanticipated problems for respondents in rating other older people’s chance of falling. The main difficulties respondents encountered in rating other people's chance of falling in the next 12 months were: (a) not knowing others, (b) not having relevant information, such as knowing their conditions, (c) not knowing the answer, and (d) believing falls were unpredictable. All of these reasons suggest that respondents wanted to give accurate and informed answers, not abstract answers.

Firstly, some respondents in this study (who were aged over 75 years) believed they did not know anyone or many people their age, which made it difficult for them to rate other people’s chance of falling. This suggests that these respondents wanted to consider specific people and not an abstract group of older people the same age and sex as them. Secondly, respondents did not believe they had enough information about other people to answer the question. This is a reported explanation for comparative optimism, as people may lack information about others (Shepperd, Carroll, Grace, & Terry, 2002). Therefore the question was difficult to answer because treating the question as requiring a factual and informed response, people wanted to rate people they knew or to have more information particularly about other people’s condition or behaviour. It appears logical that respondents have more information when thinking about people they know than when thinking about an unspecified abstract group, about which they may have insufficient information (Moore, 2007). The order of items presented in the cognitive interview was changed around to give respondents an opportunity to reflect on other older people’s recent history of falling. However, respondents still reported they did not have enough information. As this was difficult to resolve, a non-response category was added for
the telephone interview study (Chapter 6) if the respondent mentioned that they had ‘insufficient information’. This would identify how many respondents refused for this reason, and would add to the comparative optimism research.

Some respondents reported that rating other people’s chance of falling was difficult because it was not something they would naturally think about or had thought about before, and to answer the question, they had to think about the answer. In Aucote and Gold’s (2005) comparative optimism study, respondents took significantly more time (measured in seconds) to rate other people’s chance of experiencing a negative event compared to rating their own chance. A possible explanation for this is the amount of “cognitive work” (Aucote & Gold, 2005, p.378) required for respondents to rate other people’s chance of experiencing a negative event, and this is reflected in respondents’ difficulty in answering this question. Therefore, respondents had to think through the answer at the time. Some respondents believed they did not know the answer, which left one respondent unable to give a rating.

One respondent believed that falls were unpredictable and this made it impossible for them to rate other people’s chance of falling. A non-response category – ‘falls are unpredictable’ was added to the telephone interview study (Chapter 6). This would give an indication of the extent of the problem, which other comparative optimism studies have not done.

Most respondents appeared to understand the question, as shown by the way they repeated it. However, one person understood the question to rate other older people’s chance of falling to mean how many falls others would have in the future. This would be a potential problem for posing this question, since even repeating the question in the survey might not correct comprehension. This is an example of a
situation where, in a standardized survey, repetition of the question may not assist respondents’ understanding, and could result in an item non-response or error.

There were suggestions that respondents could have been referring to a non-sex specific target group and that the target group was people they knew. For example, the comprehension question identified that seven respondents recalled the question to be non-sex specific people rather than other females [males] their own age. One respondent recalled the question as asking about her friends. Further, in answering the question, all respondents talked about people they knew. Therefore, it was assumed that respondents drew on what they knew about specific people, their friends, colleagues or neighbours, as a source of information. Only five respondents talked in more general terms about people their age, so it is not known whether they were thinking more of people in the abstract or a specific person. If respondents are instructed to rate others, based on this finding, they may be thinking of known others and extrapolating to a group of people the same sex and age, or they may base their rating just on known others.

It is known that people rate the chance of a vague ‘other’ group of experiencing a negative event (such as developing disease or experiencing a natural disaster) higher than they would rate a known individual, close friend, specific person or similar types of people (Gouveia & Clarke, 2001; Helweg Larsen & Shepperd, 2001; Moore, 2007; Regan, Snyder, & Kassin, 1995). Therefore, the source of their information, either a known group such as friends or an abstract group, might mean the giving of different ratings, and this error would be likely to be systematic (Shepperd, Carroll, Grace, & Terry, 2002).

Some respondents wanted to give specific responses depending on other older people’s risk factors and lifestyle. Respondents may have found it difficult to make an
average across a range of conditions. They, therefore may have found it easier and more satisfying to respond to specific questions such as rating other people’s chance of falling if their mobility was poor. In two studies, one in which older people were asked to rate the “general elderly population” (Braun, 1998, p.1267) and another, in which they were asked to rate “among people their age group” (Mackintosh, Fryer, & Sutherland, 2007, p.4) on specific risk factors on a scale of zero to ten, the authors did not report non-response to these items.

In responding to the question, two respondents used the figure of speech, the “law of averages” and one respondent said it was a “matter of chance”. These three respondents gave a rating of five. It could be that they did not know the answer, and by giving a rating of five out of ten and justifying it with a figure of speech, that they considered this to be a sufficient response. This would introduce systematic error to the survey, with a ‘blip’ at five on the scale of zero to ten.

What does the study add to the comparative optimism literature?

The difficulties reported by respondents in rating their own chance and other people’s of falling in the future are not reported in related studies regarding older people’s comparative optimism about falling nor in studies examining older people’s perceived chance of falling. As most researchers do not provide a ‘do not know’ option; or do not report item non-response, it is not known how common this is. Gill et al., (2005) gave a ‘don’t know’ option and found that 12% of respondents agreed with this option. Comparative optimism and perceived risk studies that gave a ‘do not know’ option have no qualitative information to suggest why non-response occurs (Absetz, Aro, Rehnberg, & Sutton, 2000; Fischhoff & Bruine De Bruin, 1999).
What this study adds to the comparative optimism literature is that, without cognitive interviewing using the probing technique, researchers cannot assume that responses to these items are straightforward. There have been no cognitive interviewing studies conducted on older people’s comparative optimism about falling. It is not known whether these items are something that older people found difficult to respond to, or whether other age groups would also find the questions difficult.

Reasons for rating themselves the same as or different to others

Cognitive interviewing highlighted problems for respondents in answering the question about why they rated themselves the same as or different to others. Respondents believed (a) they did not know about other older people, (b) they did not know other people, (c) the question was not relevant to them, (d) it was difficult to give a straight answer and (e) the question was “a bit pie in the sky” [ID = 08]. Unlike the respondents in this study, Gouveia and Clarke (2001) reported that their participants had no difficulty in providing reasons why they rated lower than others their chance of developing a negative event. However, unlike Gouveia and Clarke’s (2001) study, the current study invited respondents to give feedback about the questions.

One respondent answered the question the way that she chose, because it appeared that she either could not understand the question or understood the question but could not answer it. Either way, cognitive interviewing revealed that the person interpreted the question as being irrelevant. She reinterpreted the question as asking: “can you give me three main reasons for rating yourself” instead of “can you give me three main reasons for rating yourself different/the same”. This would be a potential source of error.
Some respondents indicated that they had to think about the answer, so it was not something that was readily available in their memory. Others indicated that they did not have enough information about other people or about the future, which made it difficult to answer the question. Findings here suggest that people retrieved information mostly about themselves probably because that information is accessible. Studies suggest that comparative optimism may be the outcome of egocentrism, that is, people give little thought about others (Klein, 2002; Weinstein, 1982; Weinstein & Lachendro, 1982) or they lack evidence about others (Chambers & Windschitl, 2004). Weinstein (1984) found that “people give themselves credit for factors that reduce their own risk, but fail to ask themselves in any careful or systematic way whether other people might have as many or even more factors in their favour” (Weinstein, 1984, p.454). However as this study found, many respondents had to think about the answer found it difficult because they did not know about others.

Recalling direct history of falls

Six respondents reported falling in the last 12 months. Objective data were not collected to check the accuracy of respondents’ self reported falls, and it cannot be determined whether respondents forgot falling or remembered it in the wrong time period. The only evidence here was the discrepancy demonstrated in the accounts of one respondent, who recalled a fall between screening and the cognitive interview. As some respondents were not sure exactly when they fell, this recall bias may result in misclassification and under or over reporting. As most studies find that the recalling of falls results in under recall, then this is likely to be the outcome (Cummings, Nevitt, & Kidd, 1988; Hale, Delaney, & Cable, 1993; Mackenzie, Byles, & D'Este, 2006; Peel, 2000). The fact that some respondents answered the question before it was
completed, suggests respondents were confident in their answer. Confidence may indicate that this was autobiographical information which respondents might believe they can easily retrieve. It is not known if confidence in retrieving the history of falls is related to accuracy.

Respondents appeared to remember their last fall because of the consequences of the fall and then worked out when the fall occurred. The consequences reported were mostly physical, such as physical pain. It is plausible to suggest that the experience of falling with physical consequences enters long-term memory and becomes a time marker. Similar ease of recall has been found in other studies, with older people who had an injurious fall being more likely to recall it than those who had no such fall (87% compared with 62%) (Peel, 2000). Mackenzie, Byles and D’Este (2006), however, found that injurious falls were more likely to be underreported than non-injurious falls (24% compared with 56%). Some respondents believed that if they had not injured themselves when they fell, they may not have recalled the fall. However, the social context and the emotional impact of a fall might also aid retrieval.

Respondents also appeared to recall their last fall because of the social and emotional consequences, such as feeling embarrassed or foolish. It has not been reported in the literature that those who report social consequences of falling are more or less likely to recall them, but it is plausible that falling in a public place and feeling embarrassed may make the event more salient and enter long term memory. Indeed, the fear of immediate social consequences of falling (including being embarrassed and feeling foolish) is a higher concern to older people than long term physical injury (Yardley & Smith, 2002) (although this sample was not representative of older
people). The social and emotional consequences of falls could be as salient as physical consequences are to older people and thus enter long term memory.

**Recalling other people’s history of falls**

All respondents knew someone who had fallen in the last 12 months and two reported knowing others falling in the last three months. This is similar to the semi-structured interview study (Chapter 4), where all nine respondents knew at least one person who had fallen in the past two years. The only evidence here of inaccuracy was two discrepancies between recalling a fall when screening for the interview and the cognitive interview. As in the semi-structured interview study (Chapter 4), two respondents recalled only during the interview knowing others who had fallen. This suggests that in a short survey with not much time to remember or opportunities to be cued, older people might under recall people they know who have fallen. Even so, some respondents answered the question before it was completed, and all respondents were confident of their response, but it is not known if this relates to response accuracy.

Some respondents were not always certain exactly when the person they knew had fallen. Therefore, if misclassification occurred, it is likely to be non-differential, and result in either under or over reporting.

Many respondents in this study reported people they knew who experienced injurious or consequential falls. This was the case even though the question asked respondents to “include falls where the person was not hurt”. As the majority of falls in older people do not result in serious physical injury (Hill, Schwarz, Flicker, & Carroll, 1999), it is suggested that knowing another person has fallen is likely to be underreported by others, particular in the case of non-injurious falls. One reason for
this might be that people sometimes think of injurious falls as synonymous with a fall and therefore consider inconsequential falls as insignificant (Managing Innovation Marketing Consultancy Network Pty Ltd, 2000). For the respondent, who may well regard an injurious fall as more significant than a fall that has no consequences, knowledge of an injurious fall has a higher emotional impact (Tourangeau, Rips, & Kenneth, 2000b). The emotional impact could aid retrieval, particularly if the respondent has had contact with the person who fell, because the impact of the fall and sometimes slow and painful recovery becomes part of the respondent’s autobiographical memory. One respondent reported assisting others to get help, and this experience became part of his/her autobiographical memory. Perhaps if the respondent has only heard about the outcome, but did not have closer contact, he/she may be less likely to remember. There could be less accuracy in the recall of incidents second hand than first hand (Tourangeau, Rips, & Kenneth, 2000b) as such recall does not have the presence of sensory detail, antecedence or consequence of the event that aids recall.

Another issue in respondents’ reports about whether they knew other older people who had fallen in the last three or 12 months would be if respondents knew about other people falling. Respondents would know if others have fallen by either witnessing it first hand or being told about it. Information about other older people’s injurious fall not witnessed by the respondent may be only communicated to the respondent when injuries are hard to hide. For example, people who have fallen might not be able to do the things they normally do, such as attend exercise class. Two respondents in this study thought this would indeed be the case, when people do not talk about falling, particularly if they have not hurt themselves. That is, sometimes knowing about another’s fall relies on the person disclosing it. As found in the semi-
structured interview study (Chapter 4) some respondents did not inform others they had fallen, particularly if they had not hurt themselves. Therefore, attempting to cue the respondent to remember another person’s fall by adding to the question to “include falls where the person was not hurt” might not aid recall if the respondent does not know about the person falling. Falls which have little or no physical repercussions may be less likely to be revealed as the faller may consider them insignificant and not report these falls to others (Managing Innovation Marketing Consultancy Network Pty Ltd, 2000).

A reason put forward by a respondent for not talking about falls was that it could be embarrassing. It is embarrassing for older people to fall, particularly in public (Managing Innovation Marketing Consultancy Network Pty Ltd, 2000). Embarrassment has been identified as a social consequence of falling (Yardley & Smith, 2002). It has also been suggested (but not studied) that older people might feel stigmatised in talking about falls to health professionals (Dugan & Bonds, 2002) and older people might well feel the same way in talking to their friends. Therefore, it is likely that falls are not disclosed to others, as was found in the semi-structured interview study (Chapter 4). However, two respondents indicated that people would share this with each other. Likewise, Allen (2004) found that, in a group of people (a non-generalisable convenience sample) who attended a falls prevention peer education session, 71% told friends, relatives or neighbours they had fallen, but this could be a characteristic of people who chose to attend such a session.
Burden of cognitive interviewing

There were indicators that this methodology placed a cognitive burden on some respondents. There was confusion for some respondents over answering the survey items and responding to the probing questions. The most problematic probing question was for respondents to repeat the question in their own words. It was also difficult for some respondents to repeat the question without being reminded of the question. Respondents often answered the survey item as well as repeating the question. This indicated that asking respondents to repeat a question might place a cognitive burden on older people which left them confused and or dissatisfied. This may be related to age and its association with reduced short term memory (Rabbitt, Diggle, Smith, Holland, & Innes, 2001), or it may be difficult for any age group to recall and repeat questions. It was interpreted here as cognitive interviewing causing an unnecessary cognitive burden, as the aim was to test comprehension and not to cause unnecessary stress or highlight potential problems with older people’s short term memory. One respondent indicated that his/her memory was not as good as it used to be, while two respondents admitted to being unable to repeat the question because of their memory. This can leave people with self doubt about their memory.

Another issue appeared to be respondents’ satisfaction with the interview. Some respondents thought the interview was very repetitive. Another cognitive interview study with older people also reported dissatisfaction with repetitive questioning (Frank, Flynn, & Rothman, 2001). Others in this study indicated at the end of the interview that they were not sure what the aim of the interview was (even though it was explained to them). Some respondents were not satisfied with their contribution and did not believe they had been helpful. People often choose to participate in studies to help out researchers and in return feel satisfied about helping,
sometimes also feeling satisfied by telling their stories. However, cognitive interviewing is not necessarily a process where respondents might feel satisfied, given its repetitive nature. Therefore future cognitive interviewing studies involving older people could emphasise the fact that participating in the interview could be a bit ‘dry’ but very helpful for the researcher, so that respondents do not have unrealistic expectations.

Motivational factors could also be a source of error and the relevance of the items to people may influence motivation. Booth (2001) reported that the “relevance of questions to respondents affects their willingness to participate and to complete interviews as well as the extent to which they are willing to “work” to provide complete and thoughtful answers (Booth, 2001, p.5). In this study, some respondents indicated that they could not see the point of answering certain questions, or modified the question before answering it. In another cognitive interview study, it was reported that respondents also found questions to be irrelevant and were irritated or withdrew intellectually (Mallinson, 2002).

Reaction to being cognitively interviewed about falls

One respondent found the interviewer patronizing, with older people being treated as if they did not know what they were talking about because of their age. Falls was a topic this respondent felt was not relevant to him. He may have felt categorised by the interviewer as an ‘older person with a chance of falling’, that is a negative identity: this outcome reinforces findings from the semi-structured interview study (Chapter 4). Similarly, another study examining older people’s views of falls prevention advice found that the information could be seen as patronizing and treating
older people as if they did not know anything (Yardley, Donovan-Hall, Francis, & Todd, 2006).

This feedback, though only given by one person suggests that some older people may react negatively to being asked about their chance of falling or react negatively to probing questions. Another study, where older people living in residential care were cognitively interviewed about items examining constipation, found that one respondent was negative throughout the interview (Frank, Flynn, & Rothman, 2001). Perhaps with cognitive interviewing, respondents feel empowered to be critical and say what they think, whereas in a survey, they might just give an answer.

**Limitations**

There is little consensus in the cognitive interviewing literature about how many interviews and iteration rounds should be conducted (Beatty & Willis, 2007). This study interviewed 13 people and conducted three iterations. It is possible that more problems would have been found if interviews had been conducted with more people and with more iterations (Blair, Conrad, Ackermann, & Claxton, 2006). However, small sample sizes for cognitive interviews are not unusual as the qualitative nature of the interviews yield rich data (Willis, Royston, & Bercini, 1991).

Respondents were not chosen to represent the population of older people living in the community in South Australia. Instead, with the guidance of a sampling frame, attempts were made to chose respondents based on their age, sex and direct and indirect experience of falling, that is those “who are reasonably appropriate to the topic of the survey” (Beatty & Willis 2007, p.303). Based on the sample, no assertions are made that the findings are generalisable to other older South Australians (Oremus,
Cosby, & Wolfson, 2005). Instead the findings “reflect the detailed thoughts and problems of a few respondents who participated” (DeMaio, Ciochetto, and Davis, 1993, as cited in Beatty & Willis 2007, p.295). As five out of the 13 respondents used a walking aid, some of the respondents had impaired mobility (to some extent). It is reasonable that other older people might have similar difficulties. At the same time, difficulties emerging in cognitive interviews may not emerge as error in the survey (Beatty & Willis, 2007).

As mentioned in Chapter 3, these two studies were connected as eight respondents participated in both studies. This may have improved interviewer/respondent rapport and respondents may have thought more about the topic and this then contributed to their second interview. However, a possible limitation, which was not identified at the outset of the study, was the overlapping sample for the semi-structured interview and cognitive interview study. This could have resulted in the common findings for the emerging themes and the problems identified. However, the difficulty in recruiting older people for both studies within a short time frame made this a pragmatic approach. An alternate approach would be to use independent samples. Then it would be possible to state for example, that in two groups of people, similar themes or problems were found.

All participants in this study were sampled from within metropolitan Adelaide and spoke English as their first language. It is not possible to say that the findings reported here may be reported amongst other cultural and language groups. Interviewing people from culturally and linguistically diverse backgrounds would more than likely reveal culturally specific issues in answering the questions. For example, it could be possible that people from other cultural groups may be fatalistic
about falling, as found in the United Kingdom (Horne, 2007), and therefore may find it even harder to rate their chance of falling and other older people’s chance of falling.

In examining comprehension of an item, two respondents repeated the item correctly but later in the interview it became clear that they thought the question was asking something slightly different. Therefore, even if researchers cognitively test their items, they cannot be completely certain that respondents comprehend it in the way that is intended. Further, it is possible that cognitive interviews do not identify all problems that would eventuate in the survey. In any case, it would be impossible to suggest that all problems had been eliminated as cognitive interviewing, which calls upon the creativity of the researcher, is less useful to determine solutions (Beatty & Willis, 2007).

**Methodological strengths**

Many insights into problems with the proposed items have been highlighted. However this does not invalidate the use of these items. Instead, the researcher is aware of the limitations of the items. In contrast, other comparative optimism research is presented as un-problematic.

It is possible that many of the identified problems would only be revealed highlighted through cognitive interviewing and not through piloting or administering the items, because often the responses to the survey items were given quickly and appeared logical. Given the fact that many respondents answered questions before reporting difficulties alerts researchers to the problem that data collected without cognitive interviewing may have error (Willis, Royston, & Bercini, 1991). Most of the problems only became apparent because respondents were probed and invited to give
criticism. Based on the information gained, respondents gave critical responses, which suggested that social desirability was not such an issue.

It is likely that cognitive interviewing creates an artificial environment where an interviewer is present (Drennan, 2003). Therefore the cognitive interview does not replicate the survey for which it is intended. It is likely that respondents in this study thought more about the items than they would in a survey. Respondents were well informed that they were part of the process to develop the items and were encouraged to be critical, and this freed them to do so. Many respondents answered the question and later gave critical feedback, thus suggesting they felt comfortable to do this.

The flexible approach used whilst interviewing was a further advantage because the interviewer, whilst using pre-scripted probes followed up emerging leads (Beatty & Willis, 2007). This allowed respondents to give more detailed information than may have been gained if using an inflexible interview schedule.

A further methodological strength was that these findings inform the method, potential limitations and interpretation of data for the telephone interview study (Chapter 6).
Directions for future research

Cognitive interviewing older people about comparative optimism about falling

The majority of respondents in this study were comparatively optimistic or not comparatively optimistic about their chance of falling in the future. Only one respondent rated their chance of falling in the next 12 months as being greater than others. Whilst this sample was a non-probabilistic sample, the phenomenon requires further investigation.

Researchers planning to conduct similar comparative optimism studies with older people about falls should still cognitive interview items to determine any further difficulties, particularly for other populations for which the items will be used (Keller, Kovar, Jobe, & Branch, 1993). For instance, cognitive interviewing should be conducted with people from non-English speaking backgrounds and cultural groups, as cultural explanations might raise other unanticipated difficulties.

The only cognitive interviewing study conducted on comparative optimism questions (but using thinking aloud technique) (French & Hevey, 2008) did not report any problems with students completing indirect measures of their lifetime risk and others’ lifetime risk of developing skin cancer. It could be that difficulties this study revealed may be linked to older people, the topic of their chance of falling, or to any interaction between older people and their chance of falling. To determine this, future comparative optimism studies with older people should conduct cognitive interviewing with a range of age groups and their comparative optimism towards a range of negative events, including falling.

As some respondents recalled the scale to be ‘one’ instead of ‘zero’, future cognitive interview studies conducted to develop items for comparative optimism studies for telephone administration, should use a cognitive interview scale based on
‘one’ instead of ‘zero’, to see if respondents automatically use ‘one’. This might not be necessary for items developed for comparative optimism studies administered via paper surveys or interviews, where respondents visually see the scale.

**Cognitive interviewing of older people**

There are two recommendations for future researchers’ cognitive interviewing older people. As respondents had difficulty or were confused when repeating items to test their comprehension, future research should not ask respondents to repeat too many questions in their own words. In any case, if researchers want to ask older people to repeat the question, they should preface the question by stating, “I am going to ask you to repeat the following question in your own words” and then go on to remind the respondent of the question. Further, respondents should be reassured that the study does not aim to test their memory. One way to reduce the cognitive burden would be to only probe respondents about the items without them having to answer the items (Knafl, Deatrick, Gallo, Holcombe, Bakitas, Dixon, & Grey, 2007).

Not a lot of direct information was gained by asking respondents if they were confident in their response or uncomfortable in responding to the item, as most respondents reported they were confident and comfortable with answering most items. However, sometimes respondents contributed other important information, so future researchers should continue to ask these questions when cognitive interviewing.

Lastly, as it cannot be determined that revised versions have reduced measurement error, experimental studies are required that show that cognitive testing results in improvements, for example in item response rates compared to no cognitive interviewing (Presser, Couper, Lessler, Martin, Martin, Rothgeb, & Singer, 2004).
Conclusion

Cognitive interviewing highlights the fact that responding to survey items is more than a matter of cognitive processing: emotion, motivation, gender and age, for example are characteristics that are likely to influence survey response (Jobe, 2003).

Many quantitative studies have examined comparative optimism about various negative events (literature review, Chapter 1) (Covey & Davies, 2004). To the knowledge of the researcher, cognitive interviewing methodology incorporating probing has not been used before in comparative optimism studies using probing, and specifically in relation to older people’s comparative optimism about falling and direct and indirect history of falls.

The usefulness of cognitive interviewing is in identifying unanticipated difficulties encountered in responding to survey items, thus giving the researcher insight into “the consequences of various questionnaire design decisions” (Beatty & Willis, 2007, p.304). Questions adapted to study older people’s comparative optimism about falling were assumed by the researcher to be relatively problem free, but through cognitive interviewing (and as indicated in the semi-structured interview study), unanticipated difficulties were identified, thus demonstrating the usefulness of cognitive interviewing. Cognitive interviewing was used to improve items which were to be used in the telephone interview study (Chapter 6).
CHAPTER 6. IS FALLING ASSOCIATED WITH OLDER PEOPLE’S COMPARATIVE OPTIMISM ABOUT FALLING? A POPULATION BASED SURVEY OF COMMUNITY-DWELLING SOUTH AUSTRALIANS

1. Introduction

_Aim of this chapter_

It has been established in the literature review (Chapter 1) that falls are a common and salient issue for older people (Gill, Taylor, & Pengelly, 2005; Snodgrass, Rivett, & Mackenzie, 2005), yet many do not believe that information and strategies to prevent falls and the causes of falls are relevant to them (Aminzadeh & Edwards, 1998; Braun, 1998; Cameron & Quine, 1994; Health Education Board for Scotland, 2003; Yardley, Bishop, Beyer, Hauer, Kempen, Piot-Ziegler, Todd, Cuttelod, Horne, Lanta, & Holt, 2006; Yardley, Donovan-Hall, Francis, & Todd, 2006). This suggests that older people might be comparatively optimistic regarding their chance of falling in the future. The aim of this chapter is to present a quantitative study examining whether older people are comparatively optimistic about falling, and whether the direct and indirect experience of falling is associated with comparative optimism. Further, the reasons older people give for being comparatively optimistic will be presented.
Comparative optimism regarding many negative events has been reported (Weinstein, Lyon, Rothman, & Cuite, 2000), but not in the context of falls involving community-dwelling older people (Chapter 1). There was a need for a study regarding older people’s comparative optimism about falling, given that this age group experience the most falls and that falls have a major impact on morbidity and mortality rates. With the proportion of older people increasing in South Australia (Moller, 2003), there is a significant need to develop a low falls risk population. One aspect of this is to understand how older people perceive their chance of falling compared to other people.

The focus of the semi-structured interview study (Chapter 4) was to explain why older people might be comparatively optimistic. The focus of the cognitive interview study (Chapter 5) was to refine survey items, in order to quantify older people’s comparative optimism about falling. The focus of this chapter was to extend the findings of Chapter 4, using the survey items refined in Chapter 5, to determine whether older people were comparatively optimistic about falling and whether experiencing a fall in the last 12 months predicted this. A telephone interview was chosen over a face-to-face interview as it can result in equally high quality data and has satisfactory response rates (Biemer, 2001; Taylor, Wilson, & Wakefield, 1998). It was also considered easier and more cost-effective to telephone interview people across the state of South Australia (Taylor, Wilson, & Wakefield, 1998). A telephone interview was chosen over a postal survey as it relies less on literacy skills and the interviewer can repeat a question or prompt for a response (Bowling, 2002).
Falls and older people’s comparative optimism about falling

As discussed in the literature review (Chapter 1), older people’s comparative optimism about falling has been examined in a recent study using the indirect method of studying comparative optimism. The indirect method entails the use of two questions asking participants to specifically consider their chance of experiencing a negative event and the chance of other people of the same age and sex, as opposed to the direct method which entails using one question asking participants to compare their chances of a negative event occurring compared to other people (Aucote & Gold, 2005).

McKee and Harris (2007) used an English sample of older people (N = 196, age not reported) who had been admitted to hospital because of a fall (a severe consequence of falling) and as a result of falling could be considered at high risk of future falls. A large proportion (63%) of these cases were comparatively optimistic about their chance of falling compared to others, and 20% were comparatively pessimistic (McKee & Harris, 2007), suggesting that most hospitalised older people do not view falls as a threat. The findings are counter-intuitive, as it might be expected that fewer people would be comparatively optimistic after actually experiencing the severe consequences of falling.

Researchers have yet to examine comparative optimism about falling for older people living in the community, and whether the experience of falling was associated with comparative optimism. There are two main ways of experiencing falls. The first way, called direct experience, is to actually have a fall. The second way, called indirect experience is to know other older people who have fallen, either by seeing it or hearing about it.
Direct experience of falls and comparative optimism

Based on other comparative optimism studies (Dolinski, Gromski, & Zawisza, 1987; Helweg Larsen & Shepperd, 2001; Shepperd, Helweg-Larsen, & Ortega, 2003) that have examined the association of experience of a negative event with comparative optimism (measured using the indirect method) of experiencing a fall, especially a serious fall, an experience which it might be expected should reduce or eliminate older people’s comparative optimism about falling. However, all older people in McKee and Harris’s (2007) study had experienced a fall with consequences severe enough to be hospitalised and still almost two thirds believed they had a lower chance of falling than other people. Therefore, it is unclear whether the experience of falling, particularly serious falls would increase or decrease comparative optimism. Some findings from qualitative research suggest that even when older people had fallen (Health Education Board for Scotland, 2003; Yardley, Donovan-Hall, Francis, & Todd, 2006), or had serious falls (Cameron & Quine, 1994; Yardley, Bishop, Beyer, Hauer, Kempen, Piot-Ziegler, Todd, Cuttelod, Horne, Lanta, & Holt, 2006), they believed that falls or falls prevention strategies were relevant to other older people, rather than to themselves. Therefore the association between experiencing a fall and experiencing a serious fall with comparative optimism requires further research.

Indirect experience of falls and comparative optimism

Given that many older people indirectly experience falls (Snodgrass, Rivett, & Mackenzie, 2005), it is possible that this experience might be associated with a lower comparative optimism in the same way that direct experience is associated with it (Dolinski, Gromski, & Zawisza, 1987; Helweg Larsen & Shepperd, 2001). However, it is not known whether indirectly experiencing a fall might or might not be associated
with a lower comparative optimism (Managing Innovation Marketing Consultancy Network Pty Ltd, 2000; Parry, Miles, Tridente, & Palmer, 2004). There is no quantitative study that has yet examined whether indirectly experiencing falls is associated with comparative optimism.

**Recent experience of falling**

It is not known whether a recent direct or indirect experience would be associated with older people’s comparative optimism about falling and if this changes over time. Other comparative optimism studies are inconsistent about this (Burger & Palmer, 1992; Parry, Miles, Tridente, & Palmer, 2004).

**Change in own chance or other people’s chance of falling**

When people who experience a negative event have a lowered comparative optimism compared to those who have not, is it because the rating of own chance of experiencing a negative event or the rating of other people’s chance is affected, or both? A review of studies measuring comparative optimism via the indirect method found that people who had prior experience with a negative event rated their personal chance higher, with no difference in their rating of other people (Helweg Larsen & Shepperd, 2001), while another study found that when a negative experience was manipulated, people rated their own chance and other people’s chance higher (Harris, 2007).

Directly experiencing a fall in the last 12 months is associated with an increased rating of older people’s chance of falling (Gill, Taylor, & Pengelly, 2005; Lord, Ward, Williams, & Anstey, 1993) but it is not known whether experiencing a fall would also be associated with their rating of other older people’s chance of falling. It is not known whether indirect experience would be associated with older people’s rating of their chance of falling and other people’s chance of falling, so this
requires further study. In the literature review (Chapter 1), it was explained that a comparative optimism score was derived from respondents’ ratings of their own chance and other people’s chance of a negative event. By studying the association with older people’s ratings of their own chance and other people’s chance of falling, we might gain a better understanding of why people are comparatively optimistic (Harris, 2007; Helweg Larsen & Shepperd, 2001).

*History of falls as a predictor of comparative optimism, ratings of own chance and other people’s chance of falling*

While direct experience has been associated with comparative optimism in other studies (Dolinski, Gromski, & Zawisza, 1987; Helweg Larsen & Shepperd, 2001; Shepperd, Helweg-Larsen, & Ortega, 2003), it is not known whether indirect experience would be an independent predictor. Therefore models were developed to predict comparative optimism using the direct and indirect experience of falls in the last 12 months. These models were also used to predict ratings of own chance and other older people’s chance of falling.

*Reasons why older people rated themselves the same as or different to other people*

No studies have quantified the reasons older people give for being comparatively optimistic about their chance of falling. However, studies have found that respondents who were comparatively optimistic gave explanations for their optimism by listing their own behaviour known to reduce the risk of the negative event, whilst assuming that other people did not behave the same way (Gerend, Erchull, Aiken, & Maner, 2006; Gouveia & Clarke, 2001). To understand this phenomenon more fully, older people’s reasons for rating themselves the same as, or
lower or higher than, other people requires further investigation. To build on Gouveia & Clarke’s (2001) study, reasons should be categorised and quantified, and used to predict ratings of comparative optimism.
The present study: objectives, primary hypothesis and research questions

The five objectives of the present study are as follows:

1) To determine older people’s rating of their chance of falling compared to their rating of other people’s chance of falling (of the same age and sex). The primary hypothesis was that older people would rate themselves as having a lower chance of falling than other people.

2) To determine whether directly experiencing falling is associated with older people’s comparative optimism, ratings of their own chance of falling and/or other people’s chance of falling. Gill, Taylor and Pengelly (2005) and Lord, Ward, Williams and Anstey (1993) found that directly experiencing a fall or multiple falls in the last 12 months resulted in higher ratings of their own chance of falling, so this is also predicted to be finding in this study. It is not clear from the literature whether direct experience of falling, a serious fall or a recent fall is associated with older people’s comparative optimism, older people’s ratings of their own chance of falling and/or other people’s chance of falling. Therefore, would older people have a different level of comparative optimism, own chance of falling and/or other people’s chance of falling if they:
   a) had fallen within the last 12 months rather than if they had not?
   b) had fallen multiple times in the last 12 months rather than if they had fallen once?
   c) had a serious fall within the last 12 months compared to those who had a non-serious fall?
   d) had fallen within the last three months compared to those who had fallen in the last four to 12 months?
e) had fallen multiple times in the last three months rather than if they had fallen once?

3) To determine whether indirectly experiencing falling is associated with older people’s comparative optimism. It is not clear from the literature whether the indirect experience of falling is associated with older people’s comparative optimism, older people’s ratings of their own chance of falling and/or other people’s chance of falling. Therefore, would older people have a different level of comparative optimism, ratings of their own chance of falling and/or other people’s chance of falling if they:

a) knew other older people who had fallen within the last 12 months rather than if they had not?

b) knew more than one person who had fallen within the last 12 months rather than if they knew only one person?

c) knew other older people who had fallen in the last three months compared to those who had fallen in the last four to 12 months? and

d) knew more than one person who had fallen in the last three months rather than if they knew only one person?

4) To determine whether the direct and indirect experience of falling independently predicted:

a) comparative optimism,

b) ratings of own chance of falling, and

c) ratings of other people’s chance of falling.

5) To determine and quantify the explanations older people gave for rating themselves the same as or higher or lower than others, and to use this to predict comparative optimism.
2. Method

Study design

A cross-sectional design was employed. Data were self-reported, this being necessary for examining older people’s comparative optimism about falling. Data were collected via a South Australian population computer-assisted telephone interview (CATI) called the Health Monitor, conducted by the Population Research and Outcomes Studies Unit of the South Australian Department of Health.

Participants

The participants were people aged ≥65 years and living in the South Australian community. Two inclusion criteria were (a) people aged ≥65 years and (b) living in a household with a telephone listed in the Electronic White Pages (EWP) in South Australia. The telephone numbers were randomly selected from the EWP, using the random selection function in Excel (Microsoft® Office Excel, date unknown), so that each listed residential telephone number had an equal chance of being selected.

Sampling frame

The sampling frame comprised households with a South Australian telephone listing in the EWP. The random sampling method should result in respondents being representative of the South Australian population aged ≥65 years living within a household with a telephone number listed in the EWP. The major drawback for using the telephone to collect data were the potential for not including population subgroups who might not live in a household with a listed telephone number (potentially Aboriginal people and homeless people) (Wilson, Taylor, & Chittleborough, 2001).
Nevertheless, 97% of households in South Australia have a telephone connected (Taylor, Wilson, & Wakefield, 1998).

Further, there could be a potential for selection bias in the sampling frame for those whose numbers were not listed in South Australia. Seventy-nine percent of telephone connected households had their telephone number listed in the EWP sampling frame while 18% of households had a silent number and therefore would be unlisted (Taylor, Wilson, & Wakefield, 1998). Even so, Taylor, Wilson and Wakefield (1998) found no significant differences for demographic characteristics and prevalence of major health indicators for those listed in the South Australian EWP and those sampled from telephone random digit dialling. The only differences between those who had listed compared to unlisted numbers were that those with unlisted numbers were more likely to be living in metropolitan areas, living in single adult households, and in younger age groups (Dal Grande, Taylor, & Wilson, 2005). Therefore using the EWP as a sampling frame in an older population is comparable to using random digit dialling.

*Sample size calculation*

No studies were found of older people's comparative optimism about falling, as measured by using the indirect method, when the study was initiated in September 2006. Therefore a sample size calculation was based on another comparative optimism study with an adult population, which included questions about several health risks (lung cancer, asthma, Parkinson’s disease and sustaining a fracture), a response scale of zero to ten and a data collection mode using a paper survey (Covey & Davies, 2004). The comparison of the difference of older people’s perceived chance of falling compared to that of others, with a 90% power to detect a difference
in means of 1.0, assuming a standard deviation of differences of 2.0, using a paired t-test with a 0.05 two-sided significance level, required a sample size of 44.

**Materials**

*Development of items*

Eight questions were constructed specifically for this study, based on previous research (Chapter 1), findings from the semi-structured interview study (Chapter 4) and the cognitive interviewing study (Chapter 5). Further minor modifications were made to the questions based on the expertise of the staff of the Population Research and Outcomes Studies Unit and piloting with target participants.

*History of falling*

The self report of falls in older people living in the community is necessary because often they are the only witness of the fall (Mackenzie, Byles, & D'Este, 2006). Reporting falls retrospectively is not as accurate as measuring falls prospectively (Hale, Delaney, & Cable, 1993; Mackenzie, Byles, & D'Este, 2006; Peel, 2000) but is less resource intensive and was considered adequate for a comparative optimism study.

One of the reasons suggested for older people underreporting their falls was that older people do not believe that their fall was actually a ‘fall’ (Lord, Sherrington, Menz, & Close, 2007). To overcome this potential limitation, a fall was defined twice during the interview. The definition was adapted from a recommendation about how older people participating in research trials should be asked about falls (Lamb, Jorstad-Stein, Hauer, & Becker, 2005), taking into account older people’s perspective and possible interpretation of falls, and preference for using the word ‘tripping’ to ‘falling’ (Health Education Board for Scotland, 2003). This recommendation guided
the wording of questions about the number of falls participants had in the last three or 12 months and the number of people they knew who had fallen in the last three or 12 months. For example, “The next question is about whether you have fallen. By a fall, I mean a slip or trip in which you lose your balance and land on the floor or ground, including falls even when you were not hurt. How many falls have you had in the last 12 months? This would include falls since August last year.” Respondents were also asked if the falls they had in the last 12 months were bad or serious (Weinberg & Strain, 1995).

Rating of own chance and other people’s chance of falling

The indirect method of measuring comparative optimism, considered to be a more conservative measurement than the direct method (see Chapter 1), was chosen for this study. The indirect method utilizes two questions and entails asking participants to specifically consider their perceived chance of falling and other people of the same age and sex in the next 12 months. It has been used in many studies (Aucote & Gold, 2005; Clarke, Lovegrove, Williams, & Machperson, 2000; Covey & Davies, 2004; Gouveia & Clarke, 2001; Helweg Larsen & Shepperd, 2001; Parry, Miles, Trindete, & Palmer, 2004; van der Velde, van der Pligt, & Hooykaas, 1994; Waltenbaugh & Zagummy, 2004). The 11-point scale used in this study used both numeric and verbal anchors and was adapted from Covey and Davies (2004). For example, “What do you think is your chance of falling in the next 12 months? Please give an answer on a scale of zero to ten, with zero being ‘No chance of falling’ and ten being ‘I think I will certainly fall in the next 12 months’.

In the semi-structured interview study (Chapter 4) and the cognitive interview study (Chapter 5), some individuals indicated their belief that falls were unpredictable or that they did not have enough information to rate their chance of falling or that of
other people. The related comparative optimism study (McKee & Harris, 2007) did not report such a difficulty. Therefore, allowance for this was made by the inclusion within the non-response options of these two items. The interviewers were instructed to write down other reasons for not responding to these questions. This is an advantage of the interview over a postal survey (Bowling, 2002).

Reasons for older people rating their chance of falling as the same as, or different to other people

Participants were asked about the reason for rating themselves the same as or different to other people, similar to the approach taken in Gouveia and Clarke’s (2001) study. The original aim of this question was to explore reasons for respondents’ ratings of their chance of falling and that of other people, and to determine if these reasons predicted comparative optimism. A proposed outcome of the semi-structured interview study (Chapter 4) (and the main reason why the semi-structured interview study preceded this study) was the development of response categories for this question. Using the first four interviews, the research student and an independent researcher reviewed the reasons older people gave for rating themselves the same as, or different, to other people. Many categories emerged, so the question was reworded to an open-ended question. “You have rated your chance of falling in the next 12 months as [different to/the same as] other [females/males] about your age in general. Can you give me the main reason for rating yourself as different/the same?” The advantage of using an open-ended question was that individuals could respond in their own words and were not forced to respond to the researcher’s categories (Joffe & Yardley, 2004). The revised study plan included content analysing the responses to the open-ended question and presenting these as frequencies.
Demographic data

Standard demographic questions developed by the Population Research and Outcomes Studies Unit staff were used (Population Research and Outcome Studies Unit, 2006) (see Appendix K). The demographic data collected included age, sex, number of people living in the household aged 18 years or over, number of people living in the household aged less than 18 years, postcode, suburb, marital status, work status, pension benefits, country of birth and year of arrival to Australia, Aboriginal or Torres Strait Islander origin, main language spoken at home, educational qualification, home rented or owned, and household income.

Procedures

Data collection procedure

Data were collected via a CATI protocol called the Health Monitor. The Health Monitor is conducted by the Population Research and Outcomes Studies Unit of the South Australian Department of Health. The main focus of this Unit is monitoring and surveillance of population health in South Australia. The Health Monitor is conducted three times a year as a user-pay survey by government and non-government organisations, with several organisations sharing the cost of conducting the survey. Each question (other than the demographic questions) costs $1,200.

This survey was conducted as part of a multi-study survey, with two other organisations. The current study drew data only from respondents aged ≥65 years and included eight questions (limited by cost of questions) about falls (see Appendix K) \(n = 389\). The second research group drew data from respondents aged ≥18 years (18 questions, \(n = 2001\)) and the third research group drew data from women aged ≥45 years (11 questions, \(n = 545\)).
Data collection occurred in September 2006 over a period of one month. Professional health interviewers conducted the interviews. Telephone calls were made between 10.00 am and 8.30 pm, seven days per week, and at least six call backs were made to each household before they were categorised as non-contactable. It was not possible to elicit the length of time taken for the section of study on falls, but the complete multi-study survey interview ranged in duration from seven to 39 minutes ($M = 15, SD = 4.5$).

**Recruitment procedure**

One of the benefits of using the EWP over random digit dialling is that an invitation letter can be sent ahead to the household before telephoning. This has been shown to increase response rate (De Leeuw, Callegaro, Hox, Korendijk, & Lensvelt-Mulders, 2007; Link & Mokdad, 2005; Smith, Chey, Jalaludin, Salkeld, & Capon, 1995) reducing the threat of selection bias. Therefore, to promote maximum response, a letter from the Department of Health was sent to selected households to notify them of the upcoming interview, its purpose and of the fact that identifying information would remain confidential (see Appendix L).

When the interviewer telephoned selected households, they invited the person, who most recently had their birthday and was aged $\geq 18$ years, to participate in the study. Only one interview was conducted per household. If the person was not available to be interviewed, the household was not replaced in the sampling frame.

**Data weighting**

Data were allocated a weight twice, based on the probability of every participant being selected for the study. Firstly, data were weighted by the inverse of the individual’s probability of being selected from the Electronic White Pages (EWP) and the number of times their telephone number appeared in the EWP. This was to
ensure that those participants who were selected and had more than one telephone number listed in the EWP had a lower weighting (as they had a greater chance of being selected).

Secondly, data were re-weighted to correct for an over sampling of subgroups. Data were re-weighted based on population benchmarks for South Australia, according to age group by sex (Australian Bureau of Statistics, 2004) and geographical profile (metropolitan/country) (Australian Bureau of Statistics, 2003) (Australian Bureau of Statistics, 2003, 2004). This ensured that sub-populations with a lower probability of being selected were weighted (with their weight being the reciprocal of this probability) so that they had a higher probability of being selected than sub-populations that have a higher probability of being selected.

For example, a participant living in a rural area would be given a greater weight than someone living in a metropolitan area. To illustrate this, a participant living in a rural area (likely to be underrepresented) may be given a weight of greater than ‘one’ (for example, 1.5), so their data counts for one and a half participants. A participant living in a metropolitan area may be given a weight under ‘one’ (for example, 0.5) (as they are likely to be overrepresented) and their data would only count as half a person.

All analyses and reporting used weighted data unless otherwise specified. It is expected that the weighted data sample reflected the South Australian population characteristics of households of older people in South Australia with home telephones listed in the EWP. Due to the data being weighted, numbers were rounded to the nearest whole number, which can result in totals not adding to one hundred percent.
Quantitative data analysis

Statistical analyses of quantitative data were performed using SPSS 13.0 for Windows (Release 13.0, SPSS Inc, 2004). Bivariate analysis was used to compare independent variables, and to determine relationships between variables. Multivariate analysis was used to predict outcome variables. The criterion for statistical significance was set at .05 alpha level.

Content analysis procedure

Responses to the open-ended question were content analysed so that they could be categorised and counted, addressing the questions of ‘what categories’ and ‘the frequency of occurrence’ (Morgan, 1993). Data management and coding were facilitated by using NVivo Version 7 (QSR International Pty Ltd, 2006).

On a printed version of the open-ended questions, the first 70 responses were inductively coded with the aim of developing categories (acknowledging researcher bias) (Joffe & Yardley, 2004). After reviewing the responses, the explanations similar to the previously developed categories reported in the semi-structured interview study (Chapter 4) emerged. Therefore the following sub-categories developed in the semi-structured interview study (Chapter 4) provided the framework to deductively code responses (Hsieh & Shannon, 2005) in the current study as follows:

- I am not the type who falls;
- direct influence of falls on the possibility of falling again;
- indirect influence of falls on the possibility of falling;
- physical decline and vulnerability to falling;
- falling was beyond control;
- taking care to prevent falls; and
- blaming self for falling.
Home Safety was a further category developed for this study. Home Safety was defined as a long term view of home safety and included installing home modifications (or home already modified) and removing mats, or an assessment by respondents that their house was safe.

Quantification of these themes gave an indication of the frequency of explanations used to explain ratings, and thus tests the themes emerging from the semi-structured interview study (Chapter 4) (Silverman, 2000).

Participants who responded to both items about their perceived chance of falling and that of other people (and therefore had a comparative optimism score) were coded ($N = 385$ unweighted). Of these, 41 respondents did not give a reason, leaving 344 responses to be coded. To assist in coding, responses to the three items, namely, own chance of falling, other people’s chance of falling and comparative optimism, were reflected on when interpreting each response.

Narrow coding was conducted to assist in clearly describing the code (using a linked memo note within NVivo 7) and to identify patterns within the broad category. Through this process, the description of the broad coding was made explicit and formed part of the coding frame. The description was revised during coding to reflect the data (Morgan, 1993). All the coding was then collapsed into the broad categories prior to conducting inter-rater reliability and frequency counts. The unit of code was a phrase, and this was treated as a mutually exclusive concept. Therefore, multiple variables were created with binary values. Of those who gave reasons, 73.1% of respondents gave one reason, whilst 26.6% gave two or three reasons, and 0.3% gave four reasons.

Coding was conducted at the manifest level, defined as being “directly observable” (Joffe & Yardley, 2004, p.57): an example was respondents mention of
the terms “taking care” (ID = 373). Coding was conducted at the latent level, defined as when the concept was “implicitly referred to” (Joffe & Yardley, 2004, p.57). An example of coding at the latent level was respondents implicitly referring to taking care by stating “I am very aware of where I put my feet” (ID = 1418). Coding particularly at the latent level was made much easier because of the theoretical work reported in the semi-structured interview study (Chapter 4).

After coding all responses, each code was checked for error and inconsistency (Chamberlain, Camic, & Yardley, 2004). Following this, inter-rater reliability was conducted by an independent coder of 15% (51/344) of the responses (approximately every seventh response) to determine whether the codes were reliable indicators of the text (Joffe & Yardley, 2004). The independent coder received the coding frame and description of each code, and was given an explanation of the process. The independent coder also received older people’s ratings of comparative optimism, own chance of falling and other older people’s chance of falling, to assist in interpretation. The independent coder found the process of coding straightforward, other than a few responses that required clarification.

A simple calculation of inter-rater reliability (number of agreements/ number of agreements + number of disagreements) produced a value of 90.6% and Cohen’s kappa coefficient (which adjusts for chance) was 0.88, suggesting high agreement of coding and inter-rater reliability (Joffe & Yardley, 2004). To deal with resolution of six coding disagreements, discussion with the independent coder led to refining the description of codes with the aim of decreasing ambiguity when coding (Cavanagh, 1997). Following this process, the categories were entered into SPSS as binary variables.
Some open-ended responses were not included. For example, seven respondents stated they had the same chance, less chance or more chance than other people, but did not give an actual reason (e.g. “Some people are a lot more prone to falling than others” ID = 1308; “Most males [are] about the same” ID = 1226). One respondent stated they did not know anyone and therefore could not respond (as found in the cognitive interview study, Chapter 5). Two respondents did not give sufficient information to be able to code their responses (e.g. “balance” ID = 121).

Reliability

The CATI system has features to ensure high quality data and to reduce interviewer error or data entry error, by displaying the correct order of items, displaying one interview question at a time, and utilising direct entry of data (Population Research and Outcome Studies Unit, 2006). A previous study using this CATI system provided reliable data (high test-retest reliability) for demographic and health risk factors and co-morbidity (Starr, Dal Grande, Taylor, & Wilson, 1999).

As part of quality assurance, the data collection agency randomly audited 10% of the multi-study survey to ensure that respondents met the selection criteria, were surveyed and that selected questions corresponded to the original response (Population Research and Outcome Studies Unit, 2006).

Comparative optimism studies use single items to measure beliefs about the chance of negative events occurring for respondents themselves and other people (Helweg Larsen & Shepperd, 2001) so it was not possible to determine internal consistency using Cronbach’s alpha (Wanous, Reichers, & Hudy, 1997).
Validity

The cognitive interview study (Chapter 5), conducted prior to the administration of this survey, increased confidence that the respondents understood the questions as intended, were able to answer the questions, were confident of their answers, and were able to fit their answers to the response options (Collins, 2003). Further, the research student was aware of the limitations of the questions. In this way, face validity was strengthened.

Prior to conducting the study, in August 2006 the CATI protocol was piloted using the survey questions and procedures with 12 randomly selected households, with participants aged ≥65 years. A minor change was made based on the feedback. Initially, the survey first asked about knowing other people who fell, but pilot testing suggested that people tended to respond first about their personal falls experience. Therefore, this order was reversed so that respondents were asked about their own falls experience and then about whether they knew other people who had fallen. Pilot data were not included in the main data set. Criterion validity could not be tested as there is no gold standard for measuring comparative optimism.

Ethical considerations

The School of Psychology Human Research Ethics Committee at the University of Adelaide gave ethical approval to conduct the study. In the invitation letter sent prior to telephoning potential respondents, respondents were reassured that information would be kept confidential (Appendix L). No personally identifying information was included in the electronic data file, which were stored in the Discipline of General Practice on a computer (password access).
3. Results

Overview

The results are presented in seven sections. Section 1 presents the overall response rate, item response, and data treatment and screening. Section 2 presents frequency data of respondents’ socio-demographic information and history of falls, descriptive statistics of comparative optimism, and ratings of own chance and other people’s chance of falling. Section 3 reports on Objective 1: the hypothesis that older people would rate their chance of falling to be lower than other people their age. Section 4 reports on Objective 2: whether the direct experience of falling would be associated with comparative optimism, ratings of their own chance and other people’s chance of falling. Section 5 reports on Objective 3: whether the indirect experience of falling would be associated with comparative optimism, ratings of their own chance and other people’s chance of falling. Section 6 reports on Objective 4: whether the direct and indirect experience of falling independently predicted comparative optimism and the ratings given to their own chance or other people’s chance of falling. Section 7 reports on Objective 5: to determine the explanations people gave for people rating themselves the same as or different to other people. To guide the reader, the items comparative optimism, ratings given of their own chance and other people’s chance of falling, are underlined in the text when referred to specifically.
Section 1. Overall response rate, item response, data treatment and screening

Overall response rate

Of those who were contacted by telephone, 2001 people were interviewed with an overall response rate of 74.5% (2001/2685), which is considered satisfactory and representative (see Table 32) (Bowling, 2002; Marks, 2004). This is the calculated response rate for the multi-study survey and it is not known what the response rate was for the current study alone. There was no information collected on the non-responders to see if they differed from the responders (non-response bias). For those who were contacted and refused to be interviewed, the major reason given was that they were too busy or not interested (73% of non-responders) (see Table 32).
Table 32. Study Population: Overall Response for Multi-Study Survey and Reasons for Non-Participation

<table>
<thead>
<tr>
<th>Reason</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial sample size drawn, aged ≥18 years</td>
<td>3600</td>
</tr>
<tr>
<td>Sample loss</td>
<td></td>
</tr>
<tr>
<td>Telephone message/disconnected</td>
<td>596</td>
</tr>
<tr>
<td>Contact could not be established after six calls made at different times of the day/ different days of the week</td>
<td>192</td>
</tr>
<tr>
<td>Non-residential numbers</td>
<td>59</td>
</tr>
<tr>
<td>Facsimile</td>
<td>44</td>
</tr>
<tr>
<td>Do not live in South Australia</td>
<td>24</td>
</tr>
<tr>
<td>Minus total sample loss</td>
<td>915</td>
</tr>
<tr>
<td>Remaining sample contacted</td>
<td>2685</td>
</tr>
<tr>
<td>Respondents contacted and did not respond</td>
<td></td>
</tr>
<tr>
<td>Refusal (not interested or too busy etc)</td>
<td>497</td>
</tr>
<tr>
<td>Ill or hearing impaired</td>
<td>81</td>
</tr>
<tr>
<td>Unable to speak English</td>
<td>55</td>
</tr>
<tr>
<td>Respondent unavailable for duration of survey</td>
<td>40</td>
</tr>
<tr>
<td>Interviewer terminated interview</td>
<td>9</td>
</tr>
<tr>
<td>Person with last birthday was deceased</td>
<td>2</td>
</tr>
<tr>
<td>Minus total respondents contacted and did not respond</td>
<td>684</td>
</tr>
<tr>
<td>Total respondents interviewed</td>
<td>2001</td>
</tr>
</tbody>
</table>
Five hundred and forty-eight people aged ≥65 years were surveyed. Within South Australia in 2006, there were 233,127 people aged ≥65 years (Australian Bureau of Statistics, 2007), so 0.2 per cent of this population age group were interviewed. Weighting reduced the sample size to 389 respondents (see Table 33). All respondents, who commenced the interview, completed it.

Table 33. Interviews Conducted for Multi-study Survey

<table>
<thead>
<tr>
<th>Interviews conducted</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age ≥18 years</td>
<td>2001</td>
</tr>
<tr>
<td>Age ≥65 years</td>
<td>548</td>
</tr>
<tr>
<td>Age ≥65 years - weighted sample size</td>
<td>389</td>
</tr>
</tbody>
</table>

Note: “Weighted according to the individual’s probability of being selected and number of times their telephone number appeared in the EWP, then re-weighted according to South Australian profile for age group, sex and geographic profile.

Item response to own chance and other people’s chance of falling

Item response and non-response (defined as those unable or unwilling to respond to an item) were examined for the following two items, ratings of their own chance of falling and other people’s chance of falling. Eighty-five percent of participants responded to the item about own chance of falling, and 10% did not respond because they believed falls were unpredictable (see Table 34). Seventy-one percent responded to the item of other people’s chance of falling, and 18% did not respond because they believed falls were unpredictable.
Sixty-seven percent ($n = 263$) of participants responded to both items, rating own chance and other people’s chance of falling, while 12% ($n = 45$) of respondents did not respond to either of the items (see Table 35).

<table>
<thead>
<tr>
<th>Response</th>
<th>Own chance</th>
<th>Other people’s chance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n$</td>
<td>%</td>
</tr>
<tr>
<td>Response</td>
<td>330</td>
<td>85</td>
</tr>
<tr>
<td>Non-response</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Believed falls were unpredictable</td>
<td>39</td>
<td>10</td>
</tr>
<tr>
<td>Insufficient information</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Various reasons</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>389</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 35. Non-response and Response to Rating of Own Chance and Other People’s Chance of Falling

<table>
<thead>
<tr>
<th>Other people’s chance</th>
<th>Non-response</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n$</td>
<td>%</td>
</tr>
<tr>
<td>Non-response</td>
<td>45</td>
<td>11.6</td>
</tr>
<tr>
<td>Response</td>
<td>13</td>
<td>3.3</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>14.9</td>
</tr>
</tbody>
</table>
Those who responded to the items, rating own chance and other people’s chance of falling were compared to those who did not respond on the following socio-demographic and falls history variables: age (65 to 74, ≥75), sex (male, female), living on own (no, yes), location (rural, metropolitan), education (secondary school, post secondary school), born in English speaking country (Australia/England/Ireland/New Zealand/USA/Canada, other), language at home (English, other) and history of falling (fallen in last 12 months, not fallen; knowing other people who have fallen in last 12 months, not knowing other people).

Chi square tests were used to test whether variables were independent to responders or non-responders for their rating of their own chance of falling (see Table 36). Item response rate for respondents’ rating of their own chance of falling was significantly higher in the younger age group (65 to 74 years), those who were born in an English speaking country, those who spoke English at home, and those who did not know other people who had fallen in the last 12 months.
Table 36. Bivariate Analysis: Non-response and Response to Own Chance of Falling (N=389)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Non-response</th>
<th>Response</th>
<th>$\chi^2$</th>
<th>$p$</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n$</td>
<td>$%$</td>
<td>$n$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65-74</td>
<td>20</td>
<td>10.3</td>
<td>175</td>
<td>89.7</td>
<td>.01</td>
<td>.47 .26 .84</td>
</tr>
<tr>
<td>≥75</td>
<td>38</td>
<td>19.6</td>
<td>156</td>
<td>80.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>31</td>
<td>14.2</td>
<td>187</td>
<td>85.8</td>
<td>.67</td>
<td>.88 .51 1.55</td>
</tr>
<tr>
<td>Male</td>
<td>27</td>
<td>15.8</td>
<td>144</td>
<td>84.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living on own</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lives with ≥ person</td>
<td>35</td>
<td>13.9</td>
<td>217</td>
<td>86.1</td>
<td>.44</td>
<td>.80 .45 1.42</td>
</tr>
<tr>
<td>Lives on own</td>
<td>23</td>
<td>16.8</td>
<td>114</td>
<td>83.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>18</td>
<td>17.6</td>
<td>84</td>
<td>82.4</td>
<td>.37</td>
<td>1.32 .72 2.40</td>
</tr>
<tr>
<td>Metropolitan</td>
<td>40</td>
<td>13.9</td>
<td>247</td>
<td>86.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary school</td>
<td>28</td>
<td>16.3</td>
<td>144</td>
<td>83.7</td>
<td>.52</td>
<td>1.20 .69 2.10</td>
</tr>
<tr>
<td>Post secondary school</td>
<td>30</td>
<td>14.0</td>
<td>185</td>
<td>86.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Country of birth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English speaking</td>
<td>34</td>
<td>10.7</td>
<td>285</td>
<td>89.3</td>
<td>.001</td>
<td>.23 .13 .43</td>
</tr>
<tr>
<td>Non-English speaking</td>
<td>23</td>
<td>33.8</td>
<td>45</td>
<td>66.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language at home</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>45</td>
<td>12.5</td>
<td>315</td>
<td>87.5</td>
<td>.001</td>
<td>5.69 2.57 2.60</td>
</tr>
<tr>
<td>Other</td>
<td>13</td>
<td>44.8</td>
<td>16</td>
<td>55.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variable</td>
<td>Non-response</td>
<td>Response</td>
<td>$\chi^2$</td>
<td>$p$</td>
<td>OR</td>
<td>95% CI</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>--------------</td>
<td>----------</td>
<td>---------</td>
<td>-----</td>
<td>-----</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td>$n$</td>
<td>%</td>
<td>$n$</td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fallen in last 12 months</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>18</td>
<td>12.5</td>
<td>126</td>
<td>87.5</td>
<td>.29</td>
<td>1.37</td>
</tr>
<tr>
<td>No</td>
<td>40</td>
<td>16.4</td>
<td>204</td>
<td>83.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowing others who have fallen in last 12 months</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>21</td>
<td>10.3</td>
<td>183</td>
<td>89.7</td>
<td>.007</td>
<td>2.19</td>
</tr>
<tr>
<td>No</td>
<td>37</td>
<td>20.1</td>
<td>147</td>
<td>79.9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Non-response $n = 57-58$, Response $n = 329-331$. OR = odds ratio, 95% CI = 95% confidence intervals

Chi square was used to test whether variables were independent of responders or non-responders for their rating of other people’s chance of falling (see Table 37). The item response rate for their rating of other people’s chance of falling was significantly higher for those who were born in an English speaking country, those who spoke English at home, and those who did not know other people who had fallen in the last 12 months.
Table 37. Bivariate Analysis: Non-response and Response to Other People’s Chance of Falling

<table>
<thead>
<tr>
<th>Variable</th>
<th>Non-response</th>
<th>Response</th>
<th>$\chi^2$</th>
<th>p</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65-74</td>
<td>51</td>
<td>26.2</td>
<td>144</td>
<td>73.8</td>
<td>.21</td>
<td>.75</td>
</tr>
<tr>
<td>≥75</td>
<td>62</td>
<td>32.0</td>
<td>132</td>
<td>68.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>57</td>
<td>33.5</td>
<td>113</td>
<td>66.5</td>
<td>.09</td>
<td>.68</td>
</tr>
<tr>
<td>Male</td>
<td>56</td>
<td>25.6</td>
<td>163</td>
<td>74.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living on own</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lives with ≥person</td>
<td>73</td>
<td>29.0</td>
<td>179</td>
<td>71</td>
<td>.96</td>
<td>.99</td>
</tr>
<tr>
<td>Lives on own</td>
<td>40</td>
<td>29.2</td>
<td>97</td>
<td>70.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>34</td>
<td>33.3</td>
<td>68</td>
<td>66.7</td>
<td>.27</td>
<td>1.32</td>
</tr>
<tr>
<td>Metropolitan</td>
<td>79</td>
<td>27.5</td>
<td>208</td>
<td>72.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary school</td>
<td>56</td>
<td>32.6</td>
<td>116</td>
<td>67.4</td>
<td>.15</td>
<td>1.38</td>
</tr>
<tr>
<td>Post secondary school</td>
<td>56</td>
<td>25.9</td>
<td>160</td>
<td>74.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Country of birth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English speaking</td>
<td>76</td>
<td>23.8</td>
<td>244</td>
<td>76.3</td>
<td>.001</td>
<td>.28</td>
</tr>
<tr>
<td>Non-English speaking</td>
<td>36</td>
<td>52.9</td>
<td>32</td>
<td>47.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language at home</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>90</td>
<td>25.1</td>
<td>269</td>
<td>74.9</td>
<td>.001</td>
<td>9.82</td>
</tr>
<tr>
<td>Other</td>
<td>23</td>
<td>76.7</td>
<td>7</td>
<td>23.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variable</td>
<td>Non-response</td>
<td>Response</td>
<td>( \chi^2 )</td>
<td>p</td>
<td>OR</td>
<td>95% CI</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>--------------</td>
<td>----------</td>
<td>--------------</td>
<td>----</td>
<td>----------</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fallen in last 12 months</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>35</td>
<td>24.3</td>
<td>109</td>
<td>75.7</td>
<td>.11</td>
<td>1.46</td>
</tr>
<tr>
<td>No</td>
<td>78</td>
<td>32.0</td>
<td>166</td>
<td>68.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowing others who have fallen in last 12 months</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>36</td>
<td>17.6</td>
<td>168</td>
<td>82.4</td>
<td>.001</td>
<td>3.33</td>
</tr>
<tr>
<td>No</td>
<td>77</td>
<td>41.6</td>
<td>108</td>
<td>58.4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note:* Non-response \( n = 112-113 \), Response \( n = 275-276 \). OR = odds ratio, 95% CI = 95% confidence intervals

*Data treatment and screening*

Mindful that order effects might occur by asking respondents about their perceived chance of falling or that of others first (Covey & Davies, 2004), the order of administering these two items was randomly changed. In 53% of the telephone interviews, respondents were asked to rate their chance of falling before rating other people’s chance of falling, and in 47% of the interviews, respondents were asked to rate other people’s chance of falling before rating their own chance. Mann Whitney U Tests were conducted to test for differences in the order of asking these two items. There were no significant differences for the items comparative optimism, ratings of own chance of falling or other people’s chance of falling when presenting these items first or second.

The comparative optimism score was determined by subtracting the person’s own chance of falling from their rating of other people’s chance of falling (Helweg Larsen & Shepperd, 2001). Negative scores indicate comparative optimism (respondents’ rate their chance of falling as lower than other people) and the more
negative score, the greater the comparative optimism. Positive scores indicated
comparative pessimism (respondents rate their chance of falling as higher than other
people) and zero indicated no comparative optimism (respondents rate own chance of
falling as the same for other people).

The variables comparative optimism, own chance and other people’s chance
of falling were not normally distributed (see Table 38). A normal distribution would
have a skewness and kurtosis value of zero (Pallant, 2001). Comparative optimism
had a peaked distribution (at zero) and was negatively skewed. The item, own chance
of falling had a flat distribution (as indicated by kurtosis), and was positively skewed
(as indicated by skewness). The item, other people’s chance of falling, had a flat
distribution, and was positively skewed, although it had a closer resemblance to a
normal distribution than the item, rating own chance of falling. The Kolmogorov-
Smirnov statistic with a Lilliefors significance level for testing normality indicated
that these three variables did not have normal distributions. Histograms with normal
curves clearly indicated that these three variables were not normally distributed.
Therefore non-parametric tests were used for statistical analysis when these were the
outcome variable. All significance levels reported were two-tailed.
Table 38. Skew and Kurtosis Values for Comparative Optimism, Ratings of Own Chance and Other People’s Chance of Falling

<table>
<thead>
<tr>
<th></th>
<th>Comparative optimism</th>
<th>Own chance</th>
<th>Other people’s chance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skewness</td>
<td>-.44</td>
<td>.75</td>
<td>.05</td>
</tr>
<tr>
<td>Skew standard error</td>
<td>.15</td>
<td>.13</td>
<td>.15</td>
</tr>
<tr>
<td>Skew z score</td>
<td>2.91</td>
<td>7.46</td>
<td>.31</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>1.92</td>
<td>-.26</td>
<td>-.51</td>
</tr>
<tr>
<td>Kurtosis standard error</td>
<td>.30</td>
<td>.27</td>
<td>.29</td>
</tr>
<tr>
<td>Kurtosis z score</td>
<td>6.41</td>
<td>.99</td>
<td>1.75</td>
</tr>
</tbody>
</table>

Section 2. Descriptive socio-demographic information, history of falls and comparative optimism, ratings of own chance, and other people’s chance of falling

Socio-demographic data

Respondents’ ages ranged from 65 to 97 years (M = 75, SD = 6.85). Socio-demographic information is presented in Table 39. Fifty-six percent of respondents were female, and 63% were married or de facto.
Table 39. Age, Sex and Marital Status

<table>
<thead>
<tr>
<th>Demographic information</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age group (years)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65-74</td>
<td>195</td>
<td>50.1</td>
</tr>
<tr>
<td>≥75</td>
<td>194</td>
<td>49.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>389</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>170</td>
<td>43.8</td>
</tr>
<tr>
<td>Female</td>
<td>218</td>
<td>56.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>389</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Marital status (^a)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married or de facto</td>
<td>246</td>
<td>63.2</td>
</tr>
<tr>
<td>Separated or divorced</td>
<td>25</td>
<td>6.3</td>
</tr>
<tr>
<td>Widowed</td>
<td>112</td>
<td>28.8</td>
</tr>
<tr>
<td>Never married</td>
<td>6</td>
<td>1.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>388</td>
<td>100.0</td>
</tr>
</tbody>
</table>

\(^a\) Missing \(n=1\).

Note: Rounding off because data weighted.

Sixty-five percent lived with at least one other adult and 98% had no children living with them. Seventy-four percent lived in metropolitan Adelaide. Seventy-five percent owned or were purchasing the home they lived in (see Table 40).
### Table 40. Housing Situation

<table>
<thead>
<tr>
<th>Demographic information</th>
<th>$n$</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Living with other adults</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Live on own</td>
<td>137</td>
<td>35.2</td>
</tr>
<tr>
<td>Live with another adult</td>
<td>225</td>
<td>57.8</td>
</tr>
<tr>
<td>Live with two or more adults</td>
<td>27</td>
<td>7.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>389</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Living with others aged &lt;18 years</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Live with no children</td>
<td>381</td>
<td>98.0</td>
</tr>
<tr>
<td>Live with one or two children</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>389</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metropolitan Adelaide</td>
<td>286</td>
<td>73.7</td>
</tr>
<tr>
<td>Country South Australia</td>
<td>102</td>
<td>26.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>389</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Home owner or tenant $^a$</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Own or purchasing own home</td>
<td>291</td>
<td>75.7</td>
</tr>
<tr>
<td>Lived in retirement village</td>
<td>39</td>
<td>10.1</td>
</tr>
<tr>
<td>Rented from Housing Trust</td>
<td>34</td>
<td>8.8</td>
</tr>
<tr>
<td>Rented privately</td>
<td>12</td>
<td>3.1</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>2.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>385</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Note:* Rounding off because data weighted.

$^a$Missing $n=4$
Ninety percent were retired. Forty-four percent left school at age 15 years or less (see Table 41).

Table 41. Employment and Education Information

<table>
<thead>
<tr>
<th>Demographic information</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment status a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retired</td>
<td>351</td>
<td>90.7</td>
</tr>
<tr>
<td>Employed in part time or casual employment</td>
<td>14</td>
<td>3.5</td>
</tr>
<tr>
<td>Full time employment</td>
<td>10</td>
<td>2.6</td>
</tr>
<tr>
<td>Home duties</td>
<td>12</td>
<td>3.2</td>
</tr>
<tr>
<td>Total</td>
<td>388</td>
<td>100.0</td>
</tr>
<tr>
<td>Education b</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left school at ≤15 years</td>
<td>172</td>
<td>44.4</td>
</tr>
<tr>
<td>Left school &gt;15 years</td>
<td>80</td>
<td>20.8</td>
</tr>
<tr>
<td>Trade, apprenticeship, certificate or diploma</td>
<td>112</td>
<td>28.9</td>
</tr>
<tr>
<td>Bachelor degree or higher</td>
<td>23</td>
<td>5.9</td>
</tr>
<tr>
<td>Total</td>
<td>387</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: Rounding off because data weighted.  
a Missing n=1. b Missing n=2.

The main language spoken at home was English (92%), and 84% of respondents were born in Australia, England, Ireland or New Zealand (see Table 42). One respondent was of Aboriginal or Torres Strait Islander background. Of those who were not born in Australia, 59% of respondents arrived in Australia prior to or in 1960.
Table 42. Main Language Spoken at Home, Country of Birth and Year of Arrival

<table>
<thead>
<tr>
<th>Demographic information</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language spoken at home</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>360</td>
<td>92.4</td>
</tr>
<tr>
<td>Italian</td>
<td>10</td>
<td>2.6</td>
</tr>
<tr>
<td>Greek</td>
<td>5</td>
<td>1.4</td>
</tr>
<tr>
<td>German</td>
<td>2</td>
<td>.6</td>
</tr>
<tr>
<td>Dutch</td>
<td>2</td>
<td>.4</td>
</tr>
<tr>
<td>Polish</td>
<td>2</td>
<td>.4</td>
</tr>
<tr>
<td>Chinese</td>
<td>1</td>
<td>.3</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>1.9</td>
</tr>
<tr>
<td>Total</td>
<td>389</td>
<td>100.0</td>
</tr>
<tr>
<td>Country of birth a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>253</td>
<td>65.3</td>
</tr>
<tr>
<td>England or Ireland</td>
<td>64</td>
<td>16.5</td>
</tr>
<tr>
<td>Italy</td>
<td>17</td>
<td>4.3</td>
</tr>
<tr>
<td>Germany</td>
<td>7</td>
<td>1.9</td>
</tr>
<tr>
<td>Holland/Netherlands</td>
<td>5</td>
<td>1.2</td>
</tr>
<tr>
<td>Greece</td>
<td>4</td>
<td>1.2</td>
</tr>
<tr>
<td>Poland</td>
<td>4</td>
<td>1.1</td>
</tr>
<tr>
<td>Austria</td>
<td>2</td>
<td>.6</td>
</tr>
<tr>
<td>New Zealand</td>
<td>2</td>
<td>.4</td>
</tr>
<tr>
<td>Bosnia-Herzegovina</td>
<td>1</td>
<td>.2</td>
</tr>
<tr>
<td>France</td>
<td>1</td>
<td>.3</td>
</tr>
</tbody>
</table>
### Demographic information

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slovenia</td>
<td>1</td>
<td>.2</td>
</tr>
<tr>
<td>Malaysia</td>
<td>1</td>
<td>.3</td>
</tr>
<tr>
<td>Other country</td>
<td>25</td>
<td>6.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>388</td>
<td>100.0</td>
</tr>
</tbody>
</table>

### Year of arrival in Australia \(^b\)

<table>
<thead>
<tr>
<th>Year of arrival</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-1991</td>
<td>0</td>
<td>.2</td>
</tr>
<tr>
<td>1990-1981</td>
<td>6</td>
<td>4.9</td>
</tr>
<tr>
<td>1980-1971</td>
<td>17</td>
<td>13.2</td>
</tr>
<tr>
<td>1970-1961</td>
<td>32</td>
<td>23.5</td>
</tr>
<tr>
<td>1960-1951</td>
<td>54</td>
<td>40.8</td>
</tr>
<tr>
<td>1950-1941</td>
<td>20</td>
<td>15.2</td>
</tr>
<tr>
<td>1940-1931</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>132</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Note:** Rounding off because data weighted.

\(^a\)Missing n=1. \(^b\)Missing n=3

Sixty-five percent received an annual household gross income of up to $20,000 (see Table 43). The majority (70%) of respondents were receiving aged or widow’s pension.
### Table 43. Receipt of Annual Income and Pension Benefits

<table>
<thead>
<tr>
<th>Demographic Information</th>
<th>r</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Annual income $^a</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$12000 ≤</td>
<td>53</td>
<td>16.3</td>
</tr>
<tr>
<td>$12 001 - 20 000</td>
<td>160</td>
<td>48.8</td>
</tr>
<tr>
<td>$20 001 - 40 000</td>
<td>88</td>
<td>26.7</td>
</tr>
<tr>
<td>$40 001 - 60 000</td>
<td>17</td>
<td>5.3</td>
</tr>
<tr>
<td>$61 001 - 80 000</td>
<td>3</td>
<td>1.0</td>
</tr>
<tr>
<td>$80 000 &gt;</td>
<td>6</td>
<td>1.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>328</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Receipt of pension benefits</strong> $^b,c$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aged/widow’s pension</td>
<td>255</td>
<td>70.0</td>
</tr>
<tr>
<td>Service or defence/War widow’s/Repatriation pension</td>
<td>39</td>
<td>10.8</td>
</tr>
<tr>
<td>Disability support pension</td>
<td>4</td>
<td>1.1</td>
</tr>
<tr>
<td>Sickness benefits</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>Other</td>
<td>26</td>
<td>7.0</td>
</tr>
<tr>
<td>No benefit</td>
<td>43</td>
<td>11.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>365</td>
<td>NA</td>
</tr>
</tbody>
</table>

*Note: $^a$Refused $n = 19$, Do not know $n = 42$. $^b$Refused $n = 24$. $^c$Multiple responses allowed. Received more than one pension $n = 5$. Rounding off because data weighted.*
Comparison to demographics in South Australia

The demographics of the sample were comparable to the demographics in South Australian reported in the 2006 Census for those aged ≥65 years (Australian Bureau of Statistics, 2006). Respectively, similar proportions were aged between 65 to 74 years (50.1% compared with 54%), were female (56% compared with 56%), married (57% compared with 57%) and identified as an Aboriginal person (0.3% compared with 0.4%). For this study, 92% spoke English at home, and Census data indicates that 89% spoke English only or spoke another language as well as English.

Direct and indirect experience of falls

A summary of respondents’ direct and indirect experience of falling is presented in Table 44. Sixty-three percent (n = 245) of respondents did not fall or did not know whether they had fallen in the last 12 months, compared to 16% (n = 61) who reported a fall in the last three months, and 37% (n = 144) who had fallen in the last 12 months, while 14% (n = 55) had a serious fall within the last 12 months. Forty-eight percent (n = 185) of respondents did not know people who had fallen in the last 12 months compared to 29% (n = 111) who knew other people who had fallen in the last three months and 52% (n = 204) who knew other people who had fallen in the last 12 months.
**Table 44. Total Direct and Indirect Experience of Falling (N = 389)**

<table>
<thead>
<tr>
<th></th>
<th>Direct experience</th>
<th>Indirect experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>No falls in last 12 months</td>
<td>245</td>
<td>63.0</td>
</tr>
<tr>
<td>Fallen in last 3 months</td>
<td>61</td>
<td>15.7</td>
</tr>
<tr>
<td>Fallen in last 12 months (including 3 months)</td>
<td>144</td>
<td>37.0</td>
</tr>
<tr>
<td>Serious fall in last 12 months</td>
<td>55</td>
<td>14.1</td>
</tr>
</tbody>
</table>

*Note: NA = not applicable*

A summary of the frequency of falls experienced directly and indirectly in the last three months is presented (Table 45). Eighty-four percent ($n = 328$) of people did not have any fall in the last three months. Of those who had fallen in the last three months, 37% ($n = 23$) had more than one fall. Seventy-one percent ($n = 278$) of respondents did not know other people who had fallen in the last three months. Of those who did know others who had fallen in the last three months, 30% ($n = 32$) knew more than one person.
Table 45. Summary of Direct and Indirect Fall History in Last Three Months

<table>
<thead>
<tr>
<th></th>
<th>Direct experience</th>
<th></th>
<th>Indirect experience</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall in last three months</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>0 fall</td>
<td>326</td>
<td>84.5</td>
<td>269</td>
<td>71.8</td>
</tr>
<tr>
<td>1 fall</td>
<td>38</td>
<td>9.8</td>
<td>73</td>
<td>19.5</td>
</tr>
<tr>
<td>2 falls</td>
<td>14</td>
<td>3.6</td>
<td>18</td>
<td>4.9</td>
</tr>
<tr>
<td>3 falls</td>
<td>4</td>
<td>1.0</td>
<td>6</td>
<td>1.6</td>
</tr>
<tr>
<td>4 falls</td>
<td>1</td>
<td>.2</td>
<td>4</td>
<td>1.0</td>
</tr>
<tr>
<td>5 falls</td>
<td>1</td>
<td>0.2</td>
<td>0</td>
<td>0.1</td>
</tr>
<tr>
<td>&gt;5 falls</td>
<td>3</td>
<td>0.7</td>
<td>4</td>
<td>1.0</td>
</tr>
<tr>
<td>Total</td>
<td>386\textsuperscript{a}</td>
<td>100.0</td>
<td>374\textsuperscript{b}</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Note: Rounding off because data weighted.\textsuperscript{a}*Missing n = 3.\textsuperscript{b}*Missing n = 15.*

A summary of the frequency of falls experienced directly and indirectly in the last 12 months is presented (Table 46). Of the falls directly experienced in the last 12 months, 47% of respondents (n = 66) had more than one fall. Of the serious falls experienced within the last 12 months, 22% (n = 12) of respondents indicated they had more than one serious fall. Of those who knew other people who fell in the last 12 months, 56% (n = 111) knew more than one person.
<table>
<thead>
<tr>
<th></th>
<th>Direct experience</th>
<th>Indirect experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( n )</td>
<td>( % )</td>
</tr>
<tr>
<td><strong>Fall in last 12 months</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 fall</td>
<td>244</td>
<td>63.3</td>
</tr>
<tr>
<td>1 fall</td>
<td>74</td>
<td>19.3</td>
</tr>
<tr>
<td>2 fall</td>
<td>35</td>
<td>9.2</td>
</tr>
<tr>
<td>3 falls</td>
<td>13</td>
<td>3.5</td>
</tr>
<tr>
<td>4 falls</td>
<td>5</td>
<td>1.2</td>
</tr>
<tr>
<td>5 falls</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td>&gt;5 falls</td>
<td>11</td>
<td>2.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>385(^a)</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Serious fall in last 12 months</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 fall</td>
<td>334</td>
<td>85.9</td>
</tr>
<tr>
<td>1 fall</td>
<td>43</td>
<td>11.1</td>
</tr>
<tr>
<td>2 fall</td>
<td>8</td>
<td>2.0</td>
</tr>
<tr>
<td>3 falls</td>
<td>3</td>
<td>0.8</td>
</tr>
<tr>
<td>4 falls</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>389</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Note: Rounding off because data weighted.*

\(^a\)Missing \( n = 3\). \(^b\)Missing \( n = 22\).*
Nineteen percent ($n = 73$) of respondents had fallen in the last 12 months and had known other people who had fallen in the last 12 months. Twenty-nine percent ($n = 113$) of respondents had not fallen in the last 12 months and did not know anyone who had fallen (see Table 47).

**Table 47. Summary of Direct and Indirect Fall History in Last 12 Months**

<table>
<thead>
<tr>
<th>Know others fall in last 12 months</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n$</td>
<td>%</td>
<td>$n$</td>
</tr>
<tr>
<td>Falls in last 12 months</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>73</td>
<td>19</td>
<td>71</td>
</tr>
<tr>
<td>No</td>
<td>131</td>
<td>34</td>
<td>113</td>
</tr>
<tr>
<td>Total</td>
<td>204</td>
<td>53</td>
<td>184</td>
</tr>
</tbody>
</table>

*Note. Rounding off because data weighted.*

Descriptive statistics of comparative optimism, ratings of own chance and other people’s chance of falling

The median, mode, range and percentiles for comparative optimism (rating of own chance minus other people’s chance), ratings of own chance of falling and other people’s chance of falling are presented in Table 48. The median comparative optimism (0) indicates that overall the sample was not comparatively optimistic. Respondents’ ratings of own chance of falling ($Mdn = 3$) were lower by two scale points on an 11-point scale than their ratings for other people’s chance of falling ($Mdn = 5$).
Table 48. Descriptive Statistics for Comparative Optimism, Ratings of Own Chance and Other People’s Chance of Falling

<table>
<thead>
<tr>
<th>Scale</th>
<th>Comparative optimism</th>
<th>Own chance</th>
<th>Other people’s chance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(-10 to 10)</td>
<td>(0 to 10)</td>
<td>(0 to 10)</td>
</tr>
<tr>
<td>Mode</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Range</td>
<td>-10 to 8</td>
<td>0 to 10</td>
<td>0 to 10</td>
</tr>
<tr>
<td>Percentiles 25</td>
<td>-3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Percentiles 50 (Mdn)</td>
<td>0</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Percentiles 75</td>
<td>0</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>IQR</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Note: Comparative optimism n = 263, Own chance n = 331, Other chance n = 276

Section 3. Ratings of own chance compared with other people’s chance of falling

To address Objective 1, the primary hypothesis was that older people would rate their chance of falling lower than other people. The Wilcoxon Signed Ranks Test was used to test for differences between participants rating of own chance and other people’s chance of falling. As seen in Table 49, 48.3% of respondents rated themselves as having a lower chance of falling than other people (comparatively optimistic), 9.4% rated their own chance of falling as higher than other people (comparatively pessimistic), and 42.3% rated their chance of falling as being the same as other people (no comparative optimism). Of those who were biased (optimistic versus pessimistic), respondents were significantly more likely to report comparative optimism ($Z = -8.098, p < .001$). This supports the hypothesis that older people rate their chance of falling as lower than their rating for other older people.
Table 49. Rating of Own Chance Versus Other People’s Chance of Falling

<table>
<thead>
<tr>
<th>Own chance and other people’s chance</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparative pessimism</td>
<td>25</td>
<td>9.4</td>
</tr>
<tr>
<td>Other people’s chance &lt; own chance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comparative optimism</td>
<td>129</td>
<td>48.3</td>
</tr>
<tr>
<td>Other people’s chance &gt; own chance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No comparative optimism</td>
<td>113</td>
<td>42.3</td>
</tr>
<tr>
<td>Other people’s chance = own chance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>267</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Section 4. Direct experience of falling on comparative optimism, rating of own chance and other people’s chance of falling

In this section, to address Objective 2, the direct experience of falling was examined using the Mann-Whitney U Test to test median difference, for the outcome variables - comparative optimism, ratings of own chance, and other people’s chance of falling. An overall summary of these findings is reported in Table 50.

Table 50. Summary of Statistically Significant Differences Between Direct Experience of Falling and Comparative Optimism, Rating of Own Chance, and Other People’s Chance of Falling

<table>
<thead>
<tr>
<th>Direct experience of falling</th>
<th>Comparative optimism</th>
<th>Own chance</th>
<th>Other people’s chance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fallen 12 months cf. no fall</td>
<td>Significant</td>
<td>Significant</td>
<td>ns</td>
</tr>
<tr>
<td>Frequent falls 12 months cf. one fall</td>
<td>Significant</td>
<td>Significant</td>
<td>ns</td>
</tr>
<tr>
<td>Fallen 3 months cf. 4 to 12 months</td>
<td>ns</td>
<td>Significant</td>
<td>Significant</td>
</tr>
<tr>
<td>Frequent falls 3 months cf. one fall</td>
<td>Significant</td>
<td>Significant</td>
<td>ns</td>
</tr>
<tr>
<td>Bad or serious fall 12 months cf. non-serious fall</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
</tbody>
</table>

Note: cf. = compare
**Fallen or not fallen in last 12 months**

There was a statistically significant median difference between those who had fallen in the last 12 months and those who had not fallen, for comparative optimism and ratings of own chance (see Table 51). That is, those who had fallen in the last 12 months had lower comparative optimism, and rated their own chance of falling higher.

*Table 51. Fallen or Not Fallen in Last 12 Months and Comparative Optimism, Rating Of Own Chance and Other People’s Chance of Falling*

<table>
<thead>
<tr>
<th>History of falls</th>
<th>Mdn</th>
<th>Min</th>
<th>Max</th>
<th>Percentile</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25th</td>
<td>75th</td>
<td></td>
<td></td>
<td>25th</td>
<td>75th</td>
</tr>
<tr>
<td>Comparative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fallen</td>
<td>0</td>
<td>-8</td>
<td>5</td>
<td>-2</td>
<td>0</td>
<td>-2.98</td>
</tr>
<tr>
<td>No falls</td>
<td>-1</td>
<td>-10</td>
<td>8</td>
<td>-3</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Own chance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25th</td>
<td>75th</td>
</tr>
<tr>
<td>Fallen</td>
<td>4</td>
<td>0</td>
<td>10</td>
<td>2</td>
<td>6</td>
<td>-4.67</td>
</tr>
<tr>
<td>No falls</td>
<td>2</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Other chance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fallen</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>3</td>
<td>7</td>
<td>-1.78</td>
</tr>
<tr>
<td>No falls</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>3</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>
**Frequent falls or one fall in last 12 months**

There was a statistically significant median difference between those who had frequent falls in the last 12 months and those who had one fall, for comparative optimism and ratings of own chance (see Table 52). That is, those who had more than one fall had lower comparative optimism, and those who fell frequently rated their own chance of falling higher.

**Table 52. Frequent Falls or One Fall in Last 12 Months, and Comparative Optimism, Ratings of Own Chance And Other Chance of Falling**

<table>
<thead>
<tr>
<th>History of falls</th>
<th>Mdn</th>
<th>Min</th>
<th>Max</th>
<th>Percentile</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25^th</td>
<td>75^th</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comparative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optimism</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequent falls</td>
<td>0</td>
<td>-5</td>
<td>3</td>
<td>-1</td>
<td>0</td>
<td>-3.06</td>
</tr>
<tr>
<td>One fall</td>
<td>-1</td>
<td>-8</td>
<td>5</td>
<td>-3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Own chance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequent falls</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>2</td>
<td>7</td>
<td>-2.20</td>
</tr>
<tr>
<td>One fall</td>
<td>3</td>
<td>0</td>
<td>10</td>
<td>1</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Other chance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequent falls</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>3</td>
<td>8</td>
<td>-.75</td>
</tr>
<tr>
<td>One fall</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>4</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>
Fallen in last three or 12 months

There was a statistically significant median difference between those who had fallen in the last three months and who had fallen in the last four to 12 months, for ratings of own chance and other chance’s people chance of falling (see Table 53). That is, those who fell in the last three months had higher ratings of own chance and other people’s chance compared to those who fell in the last four to 12 months.

Table 53. Fallen In Last Three Months Or Four To 12 Months and Comparative Optimism, Ratings of Own Chance And Other Chance of Falling

<table>
<thead>
<tr>
<th>History of falls</th>
<th>Mdn</th>
<th>Min</th>
<th>Max</th>
<th>Percentile</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25th 75th</td>
</tr>
<tr>
<td>Comparative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fallen 3 months</td>
<td>0</td>
<td>-8</td>
<td>4</td>
<td>-2</td>
<td>0</td>
<td>-1.40</td>
</tr>
<tr>
<td>Fallen 4-12 months</td>
<td>0</td>
<td>-10</td>
<td>5</td>
<td>-2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Own chance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fallen 3 months</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>2</td>
<td>8</td>
<td>-2.93</td>
</tr>
<tr>
<td>Fallen 4-12 months</td>
<td>3</td>
<td>0</td>
<td>10</td>
<td>1</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Other chance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fallen 3 months</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>4</td>
<td>8</td>
<td>-2.14</td>
</tr>
<tr>
<td>Fallen 4-12 months</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>3</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

299
Frequent falls or one fall in the last three months

There was a statistically significant median difference between those who had more than one fall in the last three months and those who had one fall, for comparative optimism and ratings of own chance of falling (see Table 54). That is, those who had frequent falls in the last three months had lower comparative optimism and rated their chance of falling higher.

Table 54. Frequent Falls or One Fall in Last Three Months and Comparative Optimism, Ratings of Own Chance And Other Chance of Falling

<table>
<thead>
<tr>
<th>History of falls</th>
<th>Mdn</th>
<th>Min</th>
<th>Max</th>
<th>Percentile</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25th</td>
<td>75th</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comparative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optimism</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequent falls</td>
<td>0</td>
<td>-8</td>
<td>2</td>
<td>-1</td>
<td>1</td>
<td>-2.36</td>
</tr>
<tr>
<td>One fall</td>
<td>0</td>
<td>-5</td>
<td>3</td>
<td>-2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Own chance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequent falls</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>5</td>
<td>9</td>
<td>-2.53</td>
</tr>
<tr>
<td>One fall</td>
<td>4</td>
<td>2</td>
<td>10</td>
<td>2</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Other chance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequent falls</td>
<td>6</td>
<td>0</td>
<td>10</td>
<td>3</td>
<td>10</td>
<td>-.56</td>
</tr>
<tr>
<td>One fall</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>4</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>
Serious fall or non serious fall in last 12 months

There were no statistically significant median differences between those who had a serious fall and those who had a non-serious fall in the last 12 months, for comparative optimism, ratings of own chance or other people’s chance of falling (Table 55).

Table 55. Serious Fall or Non-Serious Fall in Last 12 Months and Comparative Optimism, Ratings of Own Chance And Other Chance of Falling

<table>
<thead>
<tr>
<th>History of falls</th>
<th>Mdn</th>
<th>Min</th>
<th>Max</th>
<th>Percentile</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25th</td>
<td>75th</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comparative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serious fall</td>
<td>0</td>
<td>-8</td>
<td>3</td>
<td>-2</td>
<td>0</td>
<td>.298</td>
</tr>
<tr>
<td>Non serious fall</td>
<td>0</td>
<td>-8</td>
<td>5</td>
<td>-2</td>
<td>0</td>
<td>.77</td>
</tr>
<tr>
<td>Own chance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serious fall</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>2</td>
<td>8</td>
<td>1.57</td>
</tr>
<tr>
<td>Non serious fall</td>
<td>3</td>
<td>0</td>
<td>10</td>
<td>1</td>
<td>5</td>
<td>.12</td>
</tr>
<tr>
<td>Other chance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serious fall</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>3</td>
<td>8</td>
<td>1.48</td>
</tr>
<tr>
<td>Non serious fall</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>3</td>
<td>7</td>
<td>.14</td>
</tr>
</tbody>
</table>
Section 5. Indirect experience of falling on comparative optimism, rating of own chance and other people’s chance of falling

In this section, to address Objective 3, the indirect experience of falling was examined using the Mann-Whitney U Test to test median differences, for the outcome variables comparative optimism, ratings of own chance, and other people’s chance of falling. An overall summary of the findings are reported in Table 56.

Table 56. Summary of Statistically Significant Findings Between Indirect Experience Falling and Comparative Optimism, Rating of Own Chance, and Other People’s Chance of Falling

<table>
<thead>
<tr>
<th>Indirect experience of falling</th>
<th>Comparative optimism</th>
<th>Own chance</th>
<th>Other people’s chance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Know others fall in last 12 months cf</td>
<td>ns</td>
<td>Significant</td>
<td>Significant</td>
</tr>
<tr>
<td>does not know others</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Know more than one person fall in last 12 months cf know one person</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Know others fall in last three months cf four to 12 months</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Know more than one person who fallen in last three months cf one person</td>
<td>ns</td>
<td>Significant</td>
<td>ns</td>
</tr>
</tbody>
</table>

*Note: cf. = compared*
Knowing someone who had fallen compared with not knowing someone who had fallen in last 12 months

There was a statistically significant median difference between those who knew other people who had fallen in the last 12 months and those who knew no-one who had a fall in the last 12 months, for ratings of own chance of falling and other people’s chance of falling (see Table 57). That is, those who knew other people who had fallen in the last 12 months rated higher both their own chance of falling and other people’s chance of falling.

Table 57. Know Someone Or Not Know Someone Fall in Last 12 Months and Comparative Optimism, Ratings of Own Chance And Other Chance of Falling

<table>
<thead>
<tr>
<th>History of falls</th>
<th>25th</th>
<th>75th</th>
<th>Mdn</th>
<th>Min</th>
<th>Max</th>
<th>Percentile</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Know others fall</td>
<td>-1</td>
<td>-10</td>
<td>5</td>
<td>-3</td>
<td>0</td>
<td>-.862</td>
<td>.39</td>
<td></td>
</tr>
<tr>
<td>Not know others</td>
<td>0</td>
<td>-8</td>
<td>8</td>
<td>-3</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optimism</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Know others fall</td>
<td>-3</td>
<td>-3</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>-.483</td>
<td>.64</td>
<td></td>
</tr>
<tr>
<td>Not know others</td>
<td>0</td>
<td>-8</td>
<td>8</td>
<td>-3</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Own chance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Know others fall</td>
<td>3</td>
<td>0</td>
<td>10</td>
<td>1</td>
<td>5</td>
<td>-2.34</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>Not know others</td>
<td>2</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Know others fall</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>3</td>
<td>7</td>
<td>-2.64</td>
<td>.008</td>
<td></td>
</tr>
<tr>
<td>Not know others</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>2</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Knowing more than one person or knowing one person fall in the last 12 months

There were no statistically significant median differences between those who knew more than one person who fell in the last 12 months and those who knew one person, for comparative optimism, ratings of own chance or other people’s chance of falling (see Table 58).

Table 58. Know More Than One Person or Know One Person Fall in Last 12 Months and Comparative Optimism, Ratings of Own Chance and Other Chance of Falling

<table>
<thead>
<tr>
<th>History of falls</th>
<th>Mdn</th>
<th>Min</th>
<th>Max</th>
<th>Percentile</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25th</td>
<td>75th</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comparative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>optimism</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Know &gt; one person</td>
<td>-1.0</td>
<td>-10</td>
<td>4</td>
<td>-3</td>
<td>0</td>
<td>-1.38</td>
</tr>
<tr>
<td>Know one person</td>
<td>0</td>
<td>-8</td>
<td>5</td>
<td>-3</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Own chance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Know &gt; one person</td>
<td>3</td>
<td>0</td>
<td>10</td>
<td>1</td>
<td>5</td>
<td>-1.93</td>
</tr>
<tr>
<td>Know one person</td>
<td>3</td>
<td>0</td>
<td>10</td>
<td>1</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Other chance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Know &gt; one person</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>3</td>
<td>7</td>
<td>-1.93</td>
</tr>
<tr>
<td>Know one person</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>3</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>
Knowing someone who had fallen in the last three months or four to 12 months

There were no statistically significant median differences between those who knew people who had fallen in the last zero to three months or last four to 12 months (see Table 59). Those who knew other people who fell in the last zero to three months rated their own chance of falling higher than those who only knew others who fell in the last four to 12, but this did not reach significance.

Table 59. Know Others Fall In Last Three Months Or Four to 12 Months and Comparative Optimism, Ratings of Own Chance and Other Chance of Falling

<table>
<thead>
<tr>
<th>History of falls</th>
<th>Mdn</th>
<th>Min</th>
<th>Max</th>
<th>Percentile 25th</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparative optimism</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Know others fall 3 months</td>
<td>0</td>
<td>-10</td>
<td>4</td>
<td>-3 0</td>
<td>-.81</td>
<td>.42</td>
</tr>
<tr>
<td>Know others fall 4 to 12 months</td>
<td>-1</td>
<td>-8</td>
<td>5</td>
<td>-3 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Own chance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Know others fall 3 months</td>
<td>4</td>
<td>0</td>
<td>10</td>
<td>1 5</td>
<td>-1.95</td>
<td>.051</td>
</tr>
<tr>
<td>Know others fall 4 to 12 months</td>
<td>3</td>
<td>0</td>
<td>10</td>
<td>0 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other chance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Know others fall 3 months</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>4 7</td>
<td>-1.20</td>
<td>.23</td>
</tr>
<tr>
<td>Know others fall 4 to 12 months</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>3 7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Know more than one person fall or know one person fall in last three months

There was a statistically significant median difference between those who knew more than one person who fell in the last three months and those who knew one person only, for ratings of own chance of falling (see Table 60). That is, those who had known more than one person who fell in the last three months rated their own chance of falling higher.

Table 60. Know More Than One Person Fall or Know One Person Fall in Last Three Months and Comparative Optimism, Ratings of Own Chance and Other Chance of Falling

<table>
<thead>
<tr>
<th>History of falls</th>
<th>Mdn</th>
<th>Min</th>
<th>Max</th>
<th>Percentile</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>25th</td>
<td>75th</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comparative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Know &gt; one person</td>
<td>-1.0</td>
<td>-8</td>
<td>3</td>
<td>-3</td>
<td>0</td>
<td>-.93</td>
</tr>
<tr>
<td>Know one person</td>
<td>0.0</td>
<td>-10</td>
<td>4</td>
<td>-3</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Own chance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Know &gt; one person</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>3</td>
<td>6</td>
<td>-2.40</td>
</tr>
<tr>
<td>Know one person</td>
<td>3</td>
<td>0</td>
<td>10</td>
<td>1</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Other chance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Know &gt; one person</td>
<td>6</td>
<td>1</td>
<td>10</td>
<td>3</td>
<td>8</td>
<td>-1.35</td>
</tr>
<tr>
<td>Know one person</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>4</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>
Section 6. Correlations and multiple regressions analyses

To address Objective 4, Spearman rho correlations were performed between ratings of own chance, other people’s chance and comparative optimism and history of falling. Spearman rho was used instead of Pearson’s r because the outcome variables were not normally distributed and the history of falls variables was ordinal. The correlation matrix is presented in Table 61.

Comparative optimism had a statistically significantly moderate positive correlation with own chance (the lower they rated their own chance, the more comparatively optimistic respondents were). Comparative optimism had a moderate negative correlation with other people’s chance of falling (the higher they rated other people, the more optimistic respondents were). Comparative optimism had weak but statistically significant positive correlations with history of falls variables: the number of falls in the last 12 months and last three months (the less falls they experienced the more comparatively optimistic people were).

Own chance of falling had significantly moderate correlations with other people’s chance, and weak positive correlations with number of falls in last three and 12 months and number of serious falls in the last 12 months (the more falls they had experienced, the higher they rated their own chance). Own chance also had weak positive correlations with number of people known to have fallen in the last three and 12 months.

Other people’s chance of falling had weak but significant positive correlations with number of falls in the last three and 12 months and number of serious falls in the last 12 months (the more they personally experienced falls, the higher they rated other people). Other people’s chance of falling also had weak but significant positive correlations for knowing other people fall in the last three and 12 months.
Table 61. Intercorrelations Between Rating of Own Chance of Falling and Other People’s Chance of Falling and Comparative Optimism, and History of Falls

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Own chance</td>
<td>1.00</td>
<td>.58***</td>
<td>.46***</td>
<td>.30***</td>
<td>.29***</td>
<td>.21***</td>
<td>.21***</td>
<td>.19***</td>
</tr>
<tr>
<td>2. Other people’s chance</td>
<td>1.00</td>
<td>- .35***</td>
<td>.14*</td>
<td>.17**</td>
<td>.12*</td>
<td>.28***</td>
<td>.16**</td>
<td></td>
</tr>
<tr>
<td>3. Comparative optimism</td>
<td>1.00</td>
<td>.21***</td>
<td>.19**</td>
<td>.12</td>
<td>- .08</td>
<td>.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Fall last 12 month</td>
<td>1.00</td>
<td>.59***</td>
<td>.59***</td>
<td>- .03</td>
<td>- .06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Fall last 3 month</td>
<td>1.00</td>
<td>.35***</td>
<td>.02</td>
<td>.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Serious fall last 12 month</td>
<td>1.00</td>
<td>.04</td>
<td>- .03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Know others fall last 12 months</td>
<td>1.00</td>
<td>.66***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Know others fall last 3 months</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: n = 254-396. Because data are weighted, sample size may exceed N.  
*** Correlation is significant at the < .001 level (2-tailed)  
** Correlation is significant at the < .01 level (2-tailed)  
* Correlation is significant at the < .05 level (2-tailed)
Predicting outcome variables: regression model

Outcome variables - comparative optimism, own chance of falling and other people’s chance of falling - were not normally distributed and because of the shape of the distribution, neither square root nor log transformation would be useful. These variables were transformed into an ordinal variable to be used for ordinal regression analyses.

Ordinal logistic regression analyses were conducted to determine whether respondents’ number of falls in the last 12 months and the number of people aged ≥65 years respondents knew to have fallen in the last 12 months were significant predictors of the outcome variables comparative optimism, own chance of falling and other people’s chance of falling. The direction of the relationship between history of falls and the outcomes will be described.

For each prediction, five models were created. The models included controlling for age, sex, age and sex, age and sex and interaction of age and sex, and not controlling for age and sex. The inclusion of age and sex in the model was because theoretically they may be a possible confounder for determining the relationship between the predictor and outcome variables, as age and sex are both associated with history of falls (the older people are the more likely they are to fall, females are more likely to fall) (Campbell, Spears, & Borrie, 1990; Lord, Sherrington, Menz, & Close, 2007). Therefore these tests were conducted separately, controlling for age and sex and interaction, and also without age and sex. This was justified as this was exploratory model building. There was no adjustment for type 1 error.

The required checks were conducted for the ordinal logistic regression, for example, the Score Test for Proportional Odds Assumption was checked to ensure that each predictor is taken as constant across the response variable.
Predicting comparative optimism

There was a significant main effect between respondents’ direct history of falls and comparative optimism in all five models. There was no significant main effect between respondents’ indirect history of falls and comparative optimism in all five models (see Table 62).

Table 62. Main Effects for Predicting Comparative Optimism

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Chi-Square</th>
<th>Pr &gt; ChiSq</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall last 12 months</td>
<td>4</td>
<td>26.09</td>
<td>.0001</td>
</tr>
<tr>
<td>Know others fall last 12 months</td>
<td>6</td>
<td>10.52</td>
<td>.10</td>
</tr>
</tbody>
</table>

Table 63. Main Effects for Predicting Comparative Optimism Controlling For Age

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Chi-Square</th>
<th>Pr &gt; ChiSq</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall last 12 months</td>
<td>4</td>
<td>25.46</td>
<td>.0001</td>
</tr>
<tr>
<td>Know others fall last 12 months</td>
<td>6</td>
<td>10.53</td>
<td>.10</td>
</tr>
<tr>
<td>Age</td>
<td>1</td>
<td>0.04</td>
<td>0.84</td>
</tr>
</tbody>
</table>

Table 64. Main Effects for Predicting Comparative Optimism Controlling For Sex

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Chi-Square</th>
<th>Pr &gt; ChiSq</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall last 12 months</td>
<td>4</td>
<td>26.54</td>
<td>.0001</td>
</tr>
<tr>
<td>Know others fall last 12 months</td>
<td>6</td>
<td>9.35</td>
<td>.15</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>.98</td>
<td>.32</td>
</tr>
</tbody>
</table>
Table 65. Main Effects for Predicting Comparative Optimism Controlling For Age and Sex

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Chi-Square</th>
<th>Pr &gt; ChiSq</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall last 12 months</td>
<td>4</td>
<td>25.93</td>
<td>.0001</td>
</tr>
<tr>
<td>Know others fall last 12 months</td>
<td>6</td>
<td>9.31</td>
<td>.16</td>
</tr>
<tr>
<td>Age</td>
<td>1</td>
<td>0.01</td>
<td>.91</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>0.96</td>
<td>.32</td>
</tr>
</tbody>
</table>

Table 66. Main Effects For Predicting Comparative Optimism Controlling For Age And Sex And Interaction Age/Sex

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Chi-Square</th>
<th>Pr &gt; ChiSq</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall last 12 months</td>
<td>4</td>
<td>25.57</td>
<td>.0001</td>
</tr>
<tr>
<td>Know others fall last 12 months</td>
<td>6</td>
<td>9.02</td>
<td>.17</td>
</tr>
<tr>
<td>Age</td>
<td>1</td>
<td>0.05</td>
<td>.82</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>0.31</td>
<td>.57</td>
</tr>
<tr>
<td>Age/sex</td>
<td>1</td>
<td>0.42</td>
<td>.51</td>
</tr>
</tbody>
</table>

The parameter estimates between direct and indirect history of falls in the last 12 months and comparative optimism (not controlling for age and sex) are presented in Appendix M. The regression coefficient signs indicate the effects of history of falls variables on comparative optimism. Having had two falls, or four or more falls, in the last 12 months was significantly related to comparative optimism (compared to having no falls). As the estimate increases two fold from two falls to four falls, respondents’ comparative optimism decreases, and this was significant for main effects. Having three falls did not significantly predict comparative optimism, but this
could reflect the relatively smaller number of people in this category compared to the other categories. Knowing three people who had fallen in the last 12 months had a significant relationship with comparative optimism. The direction of the coefficient suggests that the more people one knows who have fallen in the last 12 months, the greater the increase in comparative optimism about falling but for main effects, this was not significant.

*Predicting own chance of falling*

There were significant main effects between the respondents’ direct and indirect history of falls and their rating of their chance of falling, for the five models controlling for age and sex, age and sex interaction and not controlling for age and sex. Age is a significant covariate but sex and age/sex interaction was not. Only one model is presented, controlling for age (Table 67).

**Table 67. Main Effects for Predicting Own Chance of Falling (Controlling for Age)**

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Chi-Square</th>
<th>Pr &gt; ChiSq</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall last 12 months</td>
<td>4</td>
<td>34.20</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Know others fall last 12 months</td>
<td>6</td>
<td>2.90</td>
<td>.006</td>
</tr>
<tr>
<td>Age</td>
<td>1</td>
<td>6.59</td>
<td>.01</td>
</tr>
</tbody>
</table>

The parameter estimates, between the direct and indirect history of falls in the last 12 months and ratings of own chance controlling for age are presented in Appendix N. The regression coefficient signs indicate that the more falls respondents experienced, and the more people respondents know who had fallen, the higher they rated their chance of falling in the next 12 months.
**Predicting other people’s chance of falling**

There was a significant relationship between respondents’ indirect history of falls and their rating of other people’s chance of falling, for the five models controlling for age and sex, age and sex interaction and not controlling for age and sex (see Table 68). Age remained a significant covariate but age, sex and age and sex interaction were not.

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Chi-Square</th>
<th>Pr &gt; ChiSq</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall last 12 months</td>
<td>4</td>
<td>6.13</td>
<td>.19</td>
</tr>
<tr>
<td>Know others fall last 12 months</td>
<td>6</td>
<td>24.70</td>
<td><strong>.0004</strong></td>
</tr>
<tr>
<td>Age</td>
<td>1</td>
<td>6.30</td>
<td><strong>.01</strong></td>
</tr>
</tbody>
</table>

The parameter estimates between the direct and indirect history of falls in the last 12 months and ratings of other people’s chance of falling are presented in Appendix O. Where respondents knew five or six people who had fallen in the last 12 months (compared to not knowing anybody who had fallen), the higher respondents rated other older people’s chance of falling. However, knowing between one and four respondents (compared to not knowing anybody who had fallen) was not significantly related to other people’s chance of falling.
Section 7. Reasons for rating chance of falling same or different to other people

To address Objective 5, respondents’ reasons for rating themselves as having the same or different chance of falling to other people are shown in Table 69. The categories are given, with a description and examples of reasons in order to illustrate the category and the number of times respondents gave this reason. Overall, the most common reason nominated was ‘I Am Not The Type Who Falls’ (45%) and the majority of comments included their fitness, activities, health or balance. Nine percent of respondents mentioned their friends or acquaintances (“So far we are all fit and healthy and not on any medications for heart or blood. We are all healthy” (ID=1328).

‘Taking Care’ was the next most common category (31%) which was defined as those who took care, as defined by their moment-by-moment awareness and behaviour to prevent falls. The ‘Physical Decline and Vulnerability’ category (29%) mostly included comments about age and balance. ‘Blaming Self For Falling’ was the next most common category (8%) with the majority of comments being about their behaviour that included rushing, not watching where they were going, not concentrating, being careless and noting that activity increased chances of falling. Eight percent of respondents gave the reason that was coded into the category, ‘Falling Was Beyond Their Control’. The majority of these explanations were about falling, tripping, or slipping over extrinsic hazards or footpaths, or were based on the rationale that falling was the result of accidents. Only 4% of respondents gave a reason coded under ‘Home Safety’. Very few gave the reason that was coded under ‘Direct Experience Of Falling’ (4%) or ‘Indirect Experience of Falling’ (0.4%).
Table 69. Reason Categories and Frequencies for Rating Self Same as or Different to Other People

<table>
<thead>
<tr>
<th>Categories</th>
<th>Description</th>
<th>Majority of comments</th>
<th>Examples (ID)</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am not the type who falls ( (n = 232) )</td>
<td>Portrayed self positively (mobility, physical activity, the way they look after themselves, their health and wellbeing) and portrayed others negatively. Described self as not having fallen before, or when they fell it was a trip, or they usually trip rather than fall, or when they fall they save themselves</td>
<td>Fitness, physical activity, health, balance</td>
<td>I’m fit and healthy and have my father’s genes (867)</td>
<td>104</td>
<td>44.7</td>
</tr>
<tr>
<td>Taking care ( (n = 233) )</td>
<td>Taking care to prevent falls by behaviour (using handrails), thoughts (cautious, awareness of area)</td>
<td>Taking care</td>
<td>I walk carefully and lookout for obstructions especially in the back yard (864)</td>
<td>73</td>
<td>31.3</td>
</tr>
<tr>
<td>Physical decline and vulnerability ( (n = 233) )</td>
<td>Age, balance, falling factors (easier to fall or unable to save self), decline in mobility and health problems</td>
<td>Age, decreased balance</td>
<td>I tend to stumble a lot and I seem to lose my balance frequently (1663)</td>
<td>67</td>
<td>28.9</td>
</tr>
<tr>
<td>Blaming self for falling ( (n = 233) )</td>
<td>Behaviour or situations they perceive as having control over such as risky behaviour (activity, careless or clumsy, rushing) or not being fit</td>
<td>Rushing, not watching where they were going, not concentrating, careless and noting that activity increases chance of falling</td>
<td>I don’t concentrate on my walking and I should be doing this (721)</td>
<td>19</td>
<td>8.2</td>
</tr>
<tr>
<td>Categories</td>
<td>Description</td>
<td>Majority of comments</td>
<td>Examples (ID)</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>--------------------</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>Falling was beyond control ( (n = 233) )</td>
<td>Falling would not be personally controllable (accidents, chance, unlikely, anyone could fall, environmental hazards or surfaces)</td>
<td>Falling or tripping or slipping over extrinsic hazards or footpaths</td>
<td>It was accidents when I fell (1092)</td>
<td>17</td>
<td>7.5</td>
</tr>
<tr>
<td>Direct experience of falling ( (n = 232) )</td>
<td>Increased chance of falling because have fallen before</td>
<td>Have fallen before so take more care</td>
<td>Have had a few falls in the last (894)</td>
<td>10</td>
<td>4.4</td>
</tr>
<tr>
<td>Home safety ( (n = 233) )</td>
<td>Home safety (home modifications, mats removed from house)</td>
<td>Mats removed</td>
<td>Had house fall proof (1664)</td>
<td>9</td>
<td>3.9</td>
</tr>
<tr>
<td>Indirect experience of falling ( (n = 232) )</td>
<td>Increased chance of falling because someone else has fallen</td>
<td>Friend has fallen</td>
<td>Other friends have had bad falls (1903)</td>
<td>1</td>
<td>0.4</td>
</tr>
</tbody>
</table>

*Note: Categories are binary variables. Multiple responses allowed.*
The frequencies for those who were comparatively optimistic, comparatively pessimistic or not comparatively optimistic were cross tabulated with the categories (Table 70). Many of the reasons given by respondents who were comparatively optimistic were coded as the categories, ‘I Am Not The Type Who Falls’ (69%), ‘Taking Care’ (73%), ‘Direct Experience Of Falling’ (70%) and ‘Home Safety’ (89%). Many of the reasons given by respondents who were not comparatively optimistic, were coded as the categories, ‘Physical Decline And Vulnerability’ (63%), ‘Blaming Self For Falling’ (58%) and ‘Falling Was Beyond Their Control’ (78%).

Table 70. Reason Categories For Rating Self Same As Or Different To Other People For Comparative Optimism, No Comparative Optimism and Comparative Pessimism

<table>
<thead>
<tr>
<th>Categories</th>
<th>CO</th>
<th>NO</th>
<th>PB</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am not the type who falls</td>
<td>72</td>
<td>31</td>
<td>1</td>
<td>104</td>
</tr>
<tr>
<td></td>
<td>69.2%</td>
<td>29.8%</td>
<td>1.0%</td>
<td>100</td>
</tr>
<tr>
<td>Taking care</td>
<td>53</td>
<td>17</td>
<td>3</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>72.6%</td>
<td>23.3%</td>
<td>4.1%</td>
<td>100</td>
</tr>
<tr>
<td>Physical decline and vulnerability</td>
<td>12</td>
<td>43</td>
<td>13</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>17.6%</td>
<td>63.2%</td>
<td>19.1%</td>
<td>100</td>
</tr>
<tr>
<td>Blaming self for falling</td>
<td>3</td>
<td>11</td>
<td>5</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>15.8%</td>
<td>57.9%</td>
<td>26.3%</td>
<td>100</td>
</tr>
<tr>
<td>Falling was beyond control</td>
<td>2</td>
<td>14</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>11.1%</td>
<td>77.7%</td>
<td>11.1%</td>
<td>100</td>
</tr>
<tr>
<td>Direct experience of falling</td>
<td>7</td>
<td>3</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>70.0%</td>
<td>30.0%</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Home safety</td>
<td>8</td>
<td>1</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>88.9%</td>
<td>11.1%</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Indirect experience of falling</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
<td>100</td>
</tr>
</tbody>
</table>

Note: CO = comparatively optimistic, NO = not comparatively optimistic, PB = comparatively pessimistic. Categories are binary variables. Multiple responses allowed. For each category, the highest percentage across CO, NO and PB is presented in bold.

Respondents’ reasons for rating themselves as having the same as or different chance of falling to other people were cross tabulated with whether they had fallen in the last 12 months or not (see Table 71). Many of those who gave the reasons ‘I Am
Not The Type Who Falls’ (72%), ‘Taking Care’ (66%), ‘Physical Decline And Vulnerability’ (52%) had not fallen, whereas many of those who gave the reasons ‘Blaming Self For Falling’ (58%), ‘Falling Was Beyond Control’ (67%), and ‘Direct Experience Of Falling’ (80%) had fallen in the last 12 months.

Table 71. Reason Categories for Rating Self Same as or Different to Other People for Fallen in the Last 12 Months or Not

<table>
<thead>
<tr>
<th>Categories</th>
<th>Fallen in last 12 months</th>
<th>Not fallen in last 12 mths</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>I am not the type who falls</td>
<td>29</td>
<td>28.2</td>
<td>74</td>
</tr>
<tr>
<td>Taking care</td>
<td>25</td>
<td>34.2</td>
<td>48</td>
</tr>
<tr>
<td>Physical decline and vulnerability</td>
<td>32</td>
<td>47.8</td>
<td>35</td>
</tr>
<tr>
<td>Blaming self for falling</td>
<td>11</td>
<td>57.9</td>
<td>8</td>
</tr>
<tr>
<td>Falling was beyond control</td>
<td>12</td>
<td>66.7</td>
<td>6</td>
</tr>
<tr>
<td>Direct experience of falling</td>
<td>8</td>
<td>80.0</td>
<td>2</td>
</tr>
<tr>
<td>Home safety</td>
<td>2</td>
<td>22.2</td>
<td>7</td>
</tr>
<tr>
<td>Indirect experience of falling</td>
<td>1</td>
<td>100.0</td>
<td>0</td>
</tr>
</tbody>
</table>

*Note: Categories are binary variables. Multiple responses allowed. For each category, the highest percentage across fallen in the last 12 months or not is presented in bold.*

Respondents’ reasons for rating themselves as having the same or different chance of falling to other people was cross tabulated with whether they knew other people who had fallen in the last 12 months or not (see Table 72). The majority of respondents across all categories knew other people who had fallen in the last 12 months (other than ‘Indirect Experience Of Falling’). These data were not analysed.
further because the question was open ended, and it would be erroneous to suggest that if a respondent did not mention it, then they did not agree.

Table 72. Reason Categories for Rating Self Same as or Different to Other People for Knowing Others Fall in the Last 12 Months or Not

<table>
<thead>
<tr>
<th>Categories</th>
<th>Know others fallen in last 12 months</th>
<th>Not know others fallen in last 12 months</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>I am not the type who falls</td>
<td>71</td>
<td>68.2</td>
<td>33</td>
</tr>
<tr>
<td>Taking care</td>
<td>47</td>
<td>64.4</td>
<td>26</td>
</tr>
<tr>
<td>Physical decline and vulnerability</td>
<td>41</td>
<td>60.3</td>
<td>27</td>
</tr>
<tr>
<td>Blaming self for falling</td>
<td>10</td>
<td>52.6</td>
<td>9</td>
</tr>
<tr>
<td>Falling was beyond control</td>
<td>10</td>
<td>58.8</td>
<td>7</td>
</tr>
<tr>
<td>Direct experience of falling</td>
<td>6</td>
<td>60.0</td>
<td>4</td>
</tr>
<tr>
<td>Home safety</td>
<td>7</td>
<td>77.8</td>
<td>2</td>
</tr>
<tr>
<td>Indirect experience of falling</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: Categories are binary variables. Multiple responses allowed. Bold is highest for that category. For each category, the highest percentage across Knowing others who have fallen or not is presented in bold.
4. Discussion

This study examined whether older people rated their chance of falling lower than their rating of other older people’s chance of falling (using the indirect method of measuring comparative optimism). As expected, older people rated their chance of falling significantly lower than their rating of other older people. This study also determined whether the direct and indirect experience of falling was associated with comparative optimism. Those respondents who had personally experienced falling within the last 12 months and those who had frequent falls in the last three months were less likely to be comparatively optimistic about their chance of falling. When respondents had direct experience of falling, they rated their own chance of falling higher, but did not rate other people’s chance of falling differently. Those respondents who knew other people who had fallen within the last three or 12 months were not more or less likely to be comparatively optimistic about their chance of falling. Using multivariate analysis, the direct experience of falling in the last 12 months predicted comparative optimism about falling in the future, whilst the indirect experience did not. The most common reasons given by respondents to rate their chance of falling lower than other people’s chance of falling was because (a) they portrayed themselves as not being the type of person who falls and (b) they took care not to fall. Respondents were representative of the South Australian population aged ≥65 years, living within a household with a telephone number listed in the South Australian Electronic White Pages.
Comparative optimism

This study found that half of the sample believed they had a lower chance of falling than other people, consistent with previous comparative optimism research, and thus demonstrating the robustness of this phenomenon (literature review, Chapter 1). Older people were comparatively optimistic about their chance of falling in the next 12 months. Comparative optimism is the outcome of a group effect, so at the individual level, this is not to say people were not correct in their estimation. While some people may correctly rate their chance of falling as lower than other people, the majority of people cannot be correct. No other studies have been found that assessed a sample of community-dwelling older people’s comparative optimism (using the indirect method) about falling in the next 12 months.

The findings are consistent with McKee and Harris’s (2007) study which assessed older people’s comparative optimism about falling, in an English sample of older people hospitalised due to a fall. They found that 63% of their sample was comparatively optimistic about their chance of falling, much higher than the 48% of respondents who were comparatively optimistic in the current study. The difference in these findings suggests that something about the experience of falling resulting in hospitalisation inflates the proportion of people who were comparatively optimistic. This indicates the importance of the context of actually experiencing hospitalisation, which may heighten the threat to older people’s identity, strongly motivating them to protect their identity, as identified in the semi-structured interview study (Chapter 4).
Direct experience and its association with comparative optimism, ratings of own chance and other people’s chance of falling

In the current study, 37% of people reported falling in the last 12 months, consistent with other studies with community-dwelling samples (Cwikel, Kaplan, & Barell, 1990; Dolinis, Harrison, & Andrews, 1997; Gill, Taylor, & Pengelly, 2005; Lord, Ward, Williams, & Anstey, 1993, 1994). Of this sample, 19% of people fell once only, consistent with other studies (between 17% and 20%) (Gill, Taylor, & Pengelly, 2005; Lord, Ward, Williams, & Anstey, 1993; Morris, Osborne, Hill, Kendig, Lundgren-Lindquist, Browning, & Reid, 2004; New South Wales Health Department, 2000), while 17% fell multiple times.

In the current study, it was found that those who directly experienced falling at least once in the last 12 months were less likely to be comparatively optimistic than those who had not fallen. Comparative optimism studies have found that direct experience of a negative event has a profound effect on comparative optimism by lowering comparative optimism (Burger & Palmer, 1992; Dolinski, Gromski, & Zawisza, 1987; Higgins, St Amand, & Poole, 1997; Shepperd, Helweg-Larsen, & Ortega, 2003; Weinstein, Lyon, Rothman, & Cuite, 2000), with less support for the direct experience of a negative event to not reduce comparative optimism (Brown, Messman-Moore, Miller, & Stasser, 2005). Experience of a fall in the last three months was as influential on comparative optimism as falling in the last twelve months, but having many falls within the last three months was associated to a greater degree with lowered comparative optimism than having one fall.

Comparative optimism studies have found that when people personally experience a negative event, they tend to rate their own chance of experiencing a negative event higher (Brown, Messman-Moore, Miller, & Stasser, 2005; Burger &
Palmer, 1992; Higgins, St Amand, & Poole, 1997; McKee & Harris, 2007; van der Velde, van der Pligt, & Hooykaas, 1994). Similarly, this study found that, in line with the falls prevention literature, older people rated their chance of falling higher when they had at least one fall in the last 12 months, as also found (Gill, Taylor, & Pengelly, 2005; Hughes, van Beurden, Eakin, Barnett, Patterson, Backhouse, Jones, Hauser, Beard, & Newman, 2008; Lord, Ward, Williams, & Anstey, 1993).

Older people rated their own chance of falling higher when they had fallen in the last three months compared to 12 months, suggesting a more recent experience of falls is more influential than a more distant experience. This trend is consistent with Burger and Palmer’s (1992) study which found that students rated their chance of experiencing an earthquake higher immediately after experiencing an earthquake than three months later.

The direct experience of falls had less consistent association with ratings given for other people’s chance of falling. For respondents who had fallen in the last 12 months, the difference in rating other people’s chance of falling and falling many times in the last 12 months was not significant. Respondents who had fallen in the last three months, compared to those who had fallen in the last four to 12 months, rated other people’s chance of falling higher. Studies report inconsistent findings, where some report direct experience with a negative event results in rating other people’s chance of a negative event higher (Brown, Messman-Moore, Miller, & Stasser, 2005; Harris, 2007; Higgins, St Amand, & Poole, 1997) whilst other studies do not report this (van der Velde, van der Pligt, & Hooykaas, 1994; Weinstein, Lyon, Rothman, & Cuite, 2000).

Based on this study, having a lower comparative optimism because of falling in the last three or 12 months appears to come from rating as higher one’s own chance
of falling in the future. Further, respondents were not more or less comparatively optimistic about falling when they had fallen in the last three months compared to the last four to twelve months. It is speculated that those who have fallen most recently maintain a sense of vulnerability resulting in respondents rating both themselves and other older people’s chance of falling higher.

These findings are interpreted cautiously because a cross sectional study design was used. It is possible that older people who have fallen could have reported their chance of falling as high prior to falling. On the other hand, those who rate their own chance of falling as being higher might engage in risky behaviour that leads to falling. Most studies, including this study use cross sectional study designs to study comparative optimism, and so it is impossible to determine direction of causation or rule out which comes first: the few studies that have used prospective designs have inconsistent findings (Brown, Messman-Moore, Miller, & Stasser, 2005; Shepperd, Helweg-Larsen, & Ortega, 2003).

Indirect experience and its association with comparative optimism, ratings of own chance and other people’s chance of falling

Indirectly experiencing falling is a common experience for older people, with 52% of respondents knowing at least one person who had fallen in the last 12 months. This presents a unique context to study the association of indirect experience with falling with comparative optimism. The only other quantitative study (n = 75, convenience sample) that asked respondents a similar question found that 51% of their Australian sample knew a family or friend who had fallen in the last six months (Snodgrass, Rivett, & Mackenzie, 2005). Given the different time periods, it is difficult to compare findings.
Knowing people who had fallen in the last three or twelve months did not have as powerful an influence on comparative optimism as direct experience. It was found that those who indirectly experienced falling in the last three or 12 months were not more, or less likely, to be comparatively optimistic than those who did not know others who had fallen. This finding is not inconsistent with the other very few studies which found that knowing other people had experienced a negative event was associated with lower comparative optimism. In one study, the indirect experience, if it occurred within the household, was as influential as personal experience (Parry, Miles, Tridente, & Palmer, 2004). In a second study, having first-degree relatives with breast cancer was associated with a lower comparative optimism to knowing other blood relatives, knowing other people with breast cancer, or not knowing others (Absetz, Aro, Rehnberg, & Sutton, 2000). In the current study, perhaps merely knowing people who fall, but who differ on important attributes, might explain this finding.

Knowing other people who fall was associated with respondents’ rating higher their own chance of falling. Respondents who knew other people who had fallen in the last twelve months, and those who knew many older people who had fallen in the last three months rated higher their own chance of falling. This could be explained by people’s belief that, if other people were falling they could fall. It is possible that with refined measurements of indirect experience (social distance or attributes related to identity) older people may rate themselves higher (or lower) when other people they know fall. Absetz, et al., (2000) found that when people knew other people who experienced breast cancer, they did not rate themselves higher, except for when the person they knew was a first degree relative.
The rating that people give for other people’s chance of falling was associated with knowing other people who had fallen. Other older people were rated as having a greater chance of falling if the respondents knew older people who had fallen in the last 12 months. The findings are inconsistent with Absetz’s, et al., (2000) study, who report knowing other people experience a negative event was not associated with their ratings of other people’s chance of a negative event.

Whilst knowing other people who have fallen did not have an association with comparative optimism, respondents rated higher their chance and other people’s chance of falling. This could explain why there was no correlation between comparative optimism and the indirect experience of falling.

*History of falls predicting comparative optimism, own chance or other people’s chance of falling*

The direct experience of falling in the last three and 12 months correlated with comparative optimism (those who had fallen were less comparatively optimistic), as found elsewhere when examining the relationship between falling and comparative optimism (McKee & Harris, 2007), and between other negative events and comparative optimism (Shepperd, Helweg-Larsen, & Ortega, 2003), whilst knowing people fall in the last 12 months did not correlate with comparative optimism. In the regression model, the more direct experience with falls in the last 12 months significantly predicted lower comparative optimism, though knowing other people who have fallen did not. These findings suggest that personally experiencing falling predicts people having a lower comparative optimism.

Respondents’ direct and indirect experience of falling had small but significant correlations with their own chance of falling. Further, in the regression model
respondents’ direct and indirect experience significantly predicted their own chance of falling. The more falls one had, and the more people respondents knew, the higher they rated their own chance of falling in the next 12 months. Therefore, having both direct and indirect experiences influences older people’s perceptions of their chance of falling.

Respondents’ direct and indirect experience of falling had small but significant correlations with other people’s chance of falling. In the regression model, knowing others who have fallen significantly predicted respondents’ rating of other people’s chance of falling. The more people they knew, the higher they rated other people’s chance of falling. However, direct experience did not predict how respondents’ rated other people’s chance of falling.

*Reasons why older people rate themselves same as or different to other people*

People gave various reasons for rating their chance of falling the same as or different to other people, and these reasons were content analysed according to the categories developed in the semi-structured interview study (Chapter 4). The most common reason older people gave for rating their chance of falling the same as or different to other older people was coded as ‘I am not the type who falls’, thereby portraying themselves and, at times, their friends positively. They believed that their fitness, level of activity, health and balance were such that it made them less likely to fall, whilst they considered the reverse was true for other older people. This suggests that they perceived they had control over falling and felt less vulnerable to falls. Of the respondents’ explanations that were coded as ‘I am not the type who falls’, 70% rated their chance of falling as lower than other people. Some respondents who had fallen portrayed themselves as not the type who falls by dismissing the falls they had
experienced (Health Education Board for Scotland, 2003). The majority of respondents who gave this reason had not fallen in the last 12 months.

As this category had the highest frequency, it is unlikely that older people would acknowledge a perceived similarity to other people who might fall. Similarly, Gerend, Aiken, West and Erchull (2004) found that those who rated their perceived similarity to a typical person who develops a disease as low also rated their own chance of developing that disease as low. It is likely that older people are motivated to believe they are not the type who falls, as described in the semi-structured interview study (Chapter 4), and that to admit to a chance of falling for something about them is a threat to their identity.

A small percentage of this group mentioned their friends or acquaintances in this category ‘I am not the type who falls’, as in the semi-structured interview study (Chapter 4). Social identity theory explains this in terms of people identifying with a group and viewing this group positively, thus enhancing their self esteem (Michener, DeLamater, & Myers, 2004).

‘Taking care’ is a strategy encompassing thoughts and behaviours that older people commonly use to prevent falls, as identified in the semi-structured interview study (Chapter 4). By stating they take care, many respondents indicated that they personally can prevent falls, and the action of taking care has been examined (Huang, 2005; Ross, Donovan, Brearley, Victor, Cottee, Crowther, Clark, & Simpson, 2004; Simpson, Darwin, & Marsh, 2003). However, taking care has been linked to the sequelae of fear of falling (Huang, 2005; Simpson, Darwin, & Marsh, 2003) and restricting activity (Tischler & Hobson, 2005), and no studies have claimed the action of taking care to be effective. As one third of this group of respondents had fallen within the previous 12 months, in line with the annual rate of falls (Gill, Taylor, &
Pengelly, 2005) this strategy can be argued to be insufficient to prevent falls, or it could be argued that, after falling they then take care to manage this. However, in this study, taking care to prevent falls was a major and seemingly logical reason for older people to believe they were at lower chance of falling than other people.

‘Home safety’ was suggested as a reason for why respondents believed they were at lower chance of falling than other people. Although only a few respondents suggested this, home safety is a strategy commonly used by older people with a fear of falling (Huang, 2005; Simpson, Darwin, & Marsh, 2003). Home safety modifications have been found to be effective for those who are at a high chance of falling, if the modifications are recommended by a health professional (Gillespie, Gillespie, Robertson, Lamb, Cumming, & Rowe, 2003). Those who cited home safety reasons had not fallen in the last 12 months.

Less than one third (29%) of respondents gave reasons coded as ‘Physical decline and vulnerability to falling’ as to why they rated themselves the same as or different to other people. Age, as a reason, is one factor which older people have less control over and is seen by older people as inevitably linked to falling (Managing Innovation Marketing Consultancy Network Pty Ltd, 2000), although increasing age does not necessarily lead to an increased chance of falls. Poor balance was a factor nominated as one aspect which made them vulnerable to falling, and interventions are known to improve balance (Gillespie, Gillespie, Robertson, Lamb, Cumming, & Rowe, 2003). This demonstrates that people in this group attributed vulnerability to internal factors (age, balance) over which they believed they had low control. Consistent with these findings, Weinberg and Strain (1995) found that those who had fallen and rated their personal health as poor, attributed their fall to their own limitations. One would expect this group of people to believe they had a greater
chance of falling than other people, and 19% of these were comparatively pessimistic. However, 63% of this group rated their chance of falling the same as they rated other people’s chance. They did not admit to being more vulnerable to falling than other people, although their self reported reasons suggest that they would be at a greater chance.

‘Blaming self for falling’ or for the potential for falling was nominated by 8% of respondents. Blaming themselves or other people for falling suggests that these respondents believed that they had control over their behaviour or situation related to falling and that they could prevent further falls. Blaming themselves for falling has been indicated where older people explained why they personally fell (Berg, Alessio, Mills, & Tong, 1997; Horton, 2007), and the behaviours, such as inattention, hurrying and carelessness, are understood to be reasons why other people fall (Zecevic, Salmoni, Speechley, & Vandervoort, 2006). Self blame could be an action that leaves the person believing that they can prevent further falls by changing their behaviour, without exploring why they fell (Horton, 2007) and has been linked to poorer psychological health outcomes for people with diabetes (Karlsen, Idsoe, Hanestad, Murberg, & Bru, 2004).

Only a few respondents believed falling was a random occurrence, attributed to environmental hazards such as footpaths, or fatalistic reasons such as luck, and therefore saw ‘Falling was beyond their control’. It has been reported that some older people consider falling due to external factors to be outside of their or other older people’s control (Health Education Board for Scotland, 2003; Managing Innovation Marketing Consultancy Network Pty Ltd, 2000) and some older people believed falling was attributed to bad luck or freak events (Ballinger & Payne, 2000; Furstenberg, 1988; Hinman, 1998). These beliefs have been expressed by older people
who had fallen and refused to subsequently participate in a falls prevention program (Allen & Simpson, 1999) or to see the need to take care (Simpson, Darwin, & Marsh, 2003). Of this group, two thirds had fallen in the last 12 months, and 78% were not comparatively optimistic about their chance of falling.

Perhaps a way of looking at these findings is to consider the control older people perceive they have over falling: Gouveia and Clarke (2001) and Gerend, Erchull, Aiken and Maner (2006) found that respondents gave explanations as to why they rated their chance of a negative event occurring as lower than other people’s as due to their being in control or to the fact that their behaviour that was known to reduce the chance of a negative event occurring, whilst assuming other people did not have the same control or exhibit the same behaviour. Similarly, older people in this study also talked about their own or other people’s behaviour or situations, for which many of them rated their chance of falling as lower (I am not the type who falls, Taking care, Home safety) or the same as other people (Blaming self for falling), and over which they appeared to believe they had control.

In this study, older people also gave explanations that implied they do not believe they have control over falling and it was more common for these respondents to rate their chance of falling as being the same as that of other people (Physical decline and age; Falling was beyond my control). Rating themselves as having the same chance of falling as other people appears to be more realistic, given that their explanations suggest they have low control. Similarly, McKee and Harris (2007) found that older people, who had been hospitalised because of a fall and who attributed the fall to factors not under their control, had lower comparative optimism.

Given that 37% of respondents in this sample had fallen in the last 12 months, this relatively common experience, coded ‘Direct experience of falling’, was not a
common explanation for respondents’ ratings. In fact, 70% of those who gave this reason were comparatively optimistic, probably because many believed that since they had fallen they reportedly taken more care, as was found in the semi-structured interview study.

As 52% of respondents in this sample knew other people who had fallen in the last 12 months, one might expect that this would become part of their explanation. Despite this common experience, only one person gave a reason coded as ‘Indirect experience of falling’ for why they rated their chance of falling as lower than other older people. This same reason was given for only a few people who rated their chance of developing osteoporosis (Gerend, Erchull, Aiken, & Maner, 2006), so indirect experience appears to play a minimal role. Further, the majority of respondents across the categories knew other people who had fallen in the last 12 months and therefore knowing other people fall does not appear to be an explanation used by older people. This is consistent with the previously reported results in this study, which found that knowing other people fall was not associated with ratings of comparative optimism.

Theoretical and practical implications

Understanding how and when direct and indirect experience influences comparative optimism provides support for a better understanding of comparative optimism better. Theoretically, the direct experience of falling reducing comparative optimism by increasing perceptions of own chance of falling is consistent with Helweg Larsen & Shepperd’s (2001) conclusion from their review of studies. This was the case in this study for those falling within the last 12 months and falling frequently in the last three months.
The indirect experience of falling did not influence comparative optimism, but it may have done so with more sensitive measures. However, the indirect experience of falling in the last 12 months did influence respondents to rate their own chance and other people’s chance of falling as higher, suggesting that people believed that falls happen to other people so they know it can happen to them and other people.

The direct experience of falling in the last 12 months significantly predicted a reduced comparative optimism. Both the direct and indirect experience of falls in the last 12 months significantly predicted respondents’ rating of their own chance of falling. Lastly, knowing other people fall in the last 12 months influenced respondents to believe others could fall.

There are several practical implications. Some have argued that the challenge is to overcome comparative optimism, to raise personal awareness and to convince people that health information is relevant to them (Fiandt, Pullen, & Walker, 1999; Gouveia & Clarke, 2001; Kos & Clarke, 2001; Weinstein, 1987). However, the data presented here support the view that comparative optimism is a robust phenomenon as indicated by the small proportions that were comparatively pessimistic. Most interventions that aim to reduce comparative optimism are unsuccessful, and sometimes have even increased comparative optimism (Weinstein & Klein, 1995).

Current population approaches in falls prevention using risk reduction messages, for example, the use of “avoid a shattering experience” by the Western Australian Department of Health (2005), are unlikely to be successful in engaging older people in falls prevention. As many older people are comparatively optimistic about their chance of falling, they may not believe such messages are relevant to them. A point for consideration may be that people can be comparatively optimistic and still believe they are at a high risk of falling. They therefore might be receptive to
risk reduction messages. However, in this study, the median for respondents to rate their own chance of falling in the next 12 months was three and the 75th percentile was five, so it is unlikely that many of respondents would view risk reduction messages as relevant to them.

Recent recommendations to engage older people in falls prevention suggest to promote to older people interventions that “promote immediate benefits that fit with a positive identity” and which are also relevant to older people (Yardley et al., 2007, p.232). The findings in this study support this approach, as many older people portrayed themselves as having a positive identity (being active, physically fit, healthy and mobile and did not fall) and messages should reinforce this. Further, positive ageing messages promoting enjoyment and function appeared to be more relevant to older people to attend strength and balance training than messages to motivate people to reduce their risk of falling (Yardley, Donovan-Hall, Francis, & Todd, 2007). This gives further support to the argument against using risk reduction messages.

Messages should take into account older people’s explanations. For example, as found in the semi-structured interview study (Chapter 4) and in this study, some older people believe taking care gives them a lower chance of falling than other people. Whilst taking care does not address falls risk factors, it is a strategy that could be built on (Simpson, Darwin, & Marsh, 2003).

The findings from this study add to the knowledge base that the direct experience of a negative event in the last 12 months predicts a lowered comparative optimism, with increases in ratings of own chance of falling consistent with Helweg Larsen & Shepperd’s (2001) review, but inconsistent with Harris’s findings (2007). It is speculated that approaching those who have fallen may be an opportune time - a
teachable moment – to raise falls prevention awareness. This finding suggests that, when older people have fallen, they should be targeted with information on preventing further falls.

Practically, a clinician could ask an older patient if they have fallen in the last 12 months (as recommended by the American Geriatrics Society, the British Geriatrics Society, & the American Academy of Orthopaedic Surgeons Panel of Falls Prevention, 2001), as this study shows people who have fallen may feel more vulnerable to falling.

Some have also argued that it could be possible that people could learn from the experiences of others (McKenna & Albery, 2001). As found in this study, comparative optimism was not predicted by knowing other people who had fallen. These findings add to the knowledge that indirect experience (at least the way it was measured here) is not associated with comparative optimism, in contrast to the small amount of comparative optimism literature reporting this effect (Absetz, Aro, Rehnberg, & Sutton, 2000; Parry, Miles, Tridente, & Palmer, 2004).

**Limitations**

The findings should be interpreted with methodological and measurement limitations in mind. Item non-response to ratings of respondents’ own chance and other people’s chance of falling could be a source of error. Generally, comparative optimism studies, using the indirect method do not report item non-response to chance questions (Parry, Miles, Tridente, & Palmer, 2004; Ruthig, Chipperfield, Perry, Newall, & Swift, 2007; Weinstein, Lyon, Rothman, & Cuite, 2000), although one postal survey gave respondents a ‘cannot tell’ option (Absetz, Aro, Rehnberg, & Sutton, 2000), and 26% of respondents could not report their own personal chance
and 6% could not report other people’s chance. It is not known whether other studies do not have item non-response or do not report this. Further, the studies that have measured older people’s perceived chance of falling did not report item non-response. The one study that gave respondents a ‘don’t know’ response found that 12% agreed with this (Gill, Taylor, & Pengelly, 2005) (see Appendix C for summary). Moreover, as most of these studies used verbal anchors, it is speculated that asking respondents in this study to give a number may have been too difficult for them.

One of the advantages of having collected data via an interview in comparison to a paper survey is that the interviewer can repeat the question or prompt for a response (Bowling, 2002). However, even with prompting, it may be possible that the question or concepts were too difficult for some older people to understand or respond to, at least over the telephone (Wilson, Taylor, & Chittleborough, 2001). It is possible that the item non-response reported in this study might be linked to the telephone interviewing of older people, as McKee and Harris (2007) and Ruthig, Chipperfield, Perry, Newall and Swift (2007) used face-to-face interviews and did not report item non-response.

The item non-response suggests that some older people believe that falls were unpredictable, as found in the semi-structured interview study (Chapter 4) and cognitive interview study (Chapter 5). In this study, 10% of respondents who did not respond to the item about their own chance of falling and 18% of respondents who did not respond to the item about other people’s chance of falling believed falls were unpredictable. Therefore it seems that some older people have fatalistic beliefs about falling. In qualitative research, it has been reported that older people believe that falls are not predictable or preventable (Health Education Board for Scotland, 2003; Horne, 2007; Simpson, Darwin, & Marsh, 2003). In a NSW population study, only
46% of older people believed that falls could be prevented (Hahn, van Beurden, Kempton, Sladden, & Garner, 1996), whereas in another NSW population study, 70% believed that falls in older people could be prevented (Hughes, van Beurden, Eakin, Barnett, Patterson, Backhouse, Jones, Hauser, Beard, & Newman, 2008). If people believe that falls are not preventable, then they might find it difficult or illogical to respond to these questions.

Those who had higher item non-response were less likely to be born in an English speaking country and less likely to speak English at home. Two explanations for this are that they (a) had difficulty in comprehending the two questions or understanding English, particularly as they were telephone interviewed, and/or (b) they were more likely to have fatalistic beliefs about falling. An Australian population study found that adults born in a non-English speaking country were less likely to believe that health conditions were preventable (Smith, Sullivan, Bauman, Powell-Davies, & Mitchell, 1999), so it is possible that cultural explanations may be helpful in understanding how people make sense of a health problem such as falling. Further, fatalism and the belief that falls were not preventable and are an inevitable part of ageing has been reported in qualitative studies with older people from non-English speaking backgrounds, with Chinese older people (Kong, Lee Fk, Mackenzie, & Lee, 2002), Taiwanese people (Huang, 2005) and South Asian (Indian) people living in the United Kingdom (Health Education Board for Scotland, 2003; Horne, 2007). Therefore, it is possible that asking respondents from a non-English speaking background to rate their own and other people’s chance of falling has limited acceptability (Fitzpatrick, Davey, Buxton, & Jones, 1998).

Misclassification (non-differential) is a possible source of measurement bias of respondents’ direct experience of falls, and likely to be an underestimation (Ganz,
Misclassification of respondents is also possible, where people who have fallen 13 months ago would be categorised as non-fallers (Weinstein, 1987). Further, the impact of the experience of falling on their perceived chance may be brief. Asking about their chance of falling some time after falling may give the incorrect finding that falling was not associated with comparative optimism (Weinstein, 1987).

Seriousness of fall experienced, measured subjectively as others have done (Weinberg & Strain, 1995), was not associated with comparative optimism, ratings of own chance or other people’s chance of falling. This was a crude measure used to capture older people’s perception of the personal impact of the fall rather than researcher defined categories, but could have resulted in misclassification.

Similarly, asking older people to recall the number of people they knew who had fallen may have resulted in misclassification. This is likely to be underreported, given that some respondents in the semi-structured interview study (Chapter 4) and the cognitive interview study (Chapter 5) only recalled people they knew falling once they were being interviewed. In a short telephone interview, they might not remember people falling. Further, it is possible that the measurement of indirect experience was crude, again resulting in misclassification.

It is speculated that item order effects may be present. Comparative optimism may have been greater if respondents were asked about their chance of falling before asking respondents about their own falls history. Asking respondents about their own experience of falls and knowledge of other people’s falls may have focused respondents’ attention onto their and other people people’s falls history, thus resulting in their view that their and other people’s chance of falling was more likely.
Finally, no adjustments were made for multiple testing. It is possible that some significant findings might be chance associations, and so there is an elevated risk of making Type 1 error.

**Methodological strengths**

This study has several strengths. One methodological strength is that the items developed for this study have been constructed based on the literature review (Chapter 1) which included recommendations (Lamb, Jorstad-Stein, Hauer, & Becker, 2005) and previous comparative optimism questions and scales (Covey & Davies, 2004). Further, the questions were evaluated using cognitive interviewing to ensure older people understood the questions as intended by the researcher (Chapter 5) and then piloted. Given older people’s perspective of a fall, the researcher’s intended meaning of a ‘fall’ was defined twice during the interview.

The Electronic White Pages provided an excellent sampling frame to draw on a representative sample of community-dwelling older people across South Australia. In any event, the data were weighted according to Australian Bureau of Statistics population data, and this should reduce sample bias (Taylor, Wilson, & Wakefield, 1998). Further, the benefits of using the EWP is that an invitation letter could be sent ahead to the household before telephoning, a process which has been shown to increase response rate (De Leeuw, Callegaro, Hox, Korendijk, & Lensvelt-Mulders, 2007; Link & Mokdad, 2005; Smith, Chey, Jalaludin, Salkeld, & Capon, 1995). Therefore the author has confidence that the findings can be generalised to older South Australians living in the community, particularly to those who speak English as a first language.
This study determined that the experience of falling had different associations with comparative optimism, ratings of own chance and other people’s chance of falling. These findings highlight the importance of measuring comparative optimism via the indirect method, as it was the only way to determine whether experience was associated with older people’s rating of their own chance and/or other people’s chance of falling (Harris, 2007; Helweg Larsen & Shepperd, 2001).

Using mixed methods was a further strength. In determining the frequency of responses for older people’s explanation as to why older people rated themselves the same as or different to other people, the categories generated from the semi-structured interview study (Chapter 4) were used to content analyse the open-ended question in this quantitative study. Using these themes gave an indication of the frequency of explanations that people gave for their ratings, and was a check against the claims made in the semi-structured interview study (Chapter 4) (Silverman, 1985).

In the semi-structured interview study (Chapter 4) and in this study, older people’s positive self portrayal and their explanation that they take care is an important finding as an explanation for why older people rate themselves lower than other people. Whilst in Chapter 4, an important finding was that some respondents talked about their friends belonging to the same positively portrayed group as themselves: in the study reported in this chapter, only nine percent of the respondents indicated this. A caveat is that explanations given in an hour long semi-structured interview are going to be far more complex than a quick telephone survey, where little time is given for exploration. Explanations used in this study therefore are more likely to be spontaneous and perhaps reflect those used in a clinical consultation more than in an interview. In any case, the categories developed in the semi-structured interview study (Chapter 4) provided a starting place to inform content analysis but, as the
sample in Chapter 4 was not representative of the population, it should not expected that each category would be equally filled.

**Directions for future research**

Further research needs to investigate the item non-response to the chance questions about falling because of the belief that falls were unpredictable. Many of the health threats studied in comparative optimism studies may occur unpredictably at the individual level. There may be something qualitatively different about asking older people about their chances of falling compared to asking other age groups or using other negative health events. Future studies should investigate this by comparing age groups (younger versus older) and negative health events (including falls) across cultural groups. This would contribute to an understanding of older people’s comparative optimism about falls. Further, in Australia, by 2026, the proportion of people aged ≥65 years from a culturally and linguistically diverse background will increase and represent 25% of the population aged ≥80 years. In South Australia, the largest language groups after English speaking people are projected to be Italian and Greek (Bradley & Harrison, 2007a). This also has implications for how falls prevention information is transmitted to older people and cultural groups in Australia.

The study design could be improved. Retrospective cross-sectional designs as used in this study cannot establish causality. A prospective design would suggest the direction of influence for the association between comparative optimism and experience of falling, as it cannot be assumed that comparative optimism reduces because of experiencing falls and the question of what comes first has not been answered. A prospective design would control for pre-existing differences in the experience of falls, confirm whether the experience of falling was associated with
comparative optimism by measuring comparative optimism before falling and after falling, and determine if comparative optimism remains lower after the experience (Shepperd, Helweg-Larsen, & Ortega, 2003).

Measurement of falls could be improved. Ideally, future research should use prospective designs with monthly recall of falls (Lamb, Jorstad-Stein, Hauer, & Becker, 2005), which should result in reduced recall bias. This would address the possible underreporting of falls and would limit the possibility of misclassification of respondents being a faller, or knowing other people who have fallen, which may result in larger effect sizes.

Measuring the indirect experience of falling more sensitively might find there to be an association with comparative optimism. Elsewhere, where people identified with a ‘victim’, they rated their perceived risk higher than others who did not did not identify with the victim (Stapel & Velthuijsen, 1996). Therefore, future studies should measure the attributes of other people known to respondents who have fallen – attributes such as living in the same household, their fitness, mobility, health and or physical activity. It is possible that refined measurements of indirect experience might indicate a lower or higher comparative optimism, as other studies have found that identifying with someone who has experienced a negative event increases their ratings of their own chance (Stapel & Velthuijsen, 1996).

Future research should ask older people for the reasons they rate themselves and other people using the categories developed here as close-ended questions, so that it is possible to determine the extent to which these categories exist, and to determine if they predict comparative optimism. Given the findings in the semi-structured interview study (Chapter 4) that for older people to admit to a chance of falling was a threat to their identity, and that, as McKee and Harris (2007) found, the greater
concern for threat to identity (such as embarrassment) was negatively correlated with comparative optimism, it is speculated that those who give explanations that fit with ‘Type of person who does not fall’ would predict higher comparative optimism.

Future studies should compare data collection via telephone or face-to-face interview to ensure that the data collection mode does not impact on item response regarding older people’s comparative optimism about falling. Otherwise, to ensure satisfactory item-response, future studies are advised to collect data via face-to-face interviews (McKee & Harris, 2007; Ruthig, Chipperfield, Perry, Newall, & Swift, 2007).

Comparative optimism has been found to be greater for negative events which are perceived to be preventable (Covey & Davies, 2004), and therefore it is speculated that as many older people believe falls are not preventable, they would have lower comparative optimism. Future research should examine older people’s beliefs about their ability to prevent falling and its relationship to comparative optimism. In this study, there appeared to be a trend whereby respondents who rated themselves lower than other people gave reasons that suggested that they believed they had control over falls (Not the type who falls and taking care). McKee and Harris (2007) found that those who were in this group had lower comparative optimism and attributed their last fall to being uncontrollable, and Ruthig et al., (2007) found that perceived control was a significant mediator for those who were comparatively optimistic about a further hip fracture and physical and psychological well being. Thus older people’s perceived control over falling should also be examined in further studies of comparative optimism about falling.

Future research should determine whether fear of falling uniquely predicts comparative optimism, as McKee and Harris (2007) found that those older people
who were hospitalised because of a fall and had lower comparative optimism, had a greater fear of falling. Any study examining older people’s comparative optimism about falling should measure older people’s fear of falling and control for this. It is possible that fear of falling could be a confounder because in other studies it correlates to both their own perceived chance of falling, history of falling and falling (Lach, 2005; Yardley & Todd, 2005b). Further, anxiety and depressive symptoms have been associated with those people who are less comparatively optimistic (Helweg Larsen & Shepperd, 2001; Strunk, Lopez, & DeRubeis, 2006); psychological distress (Yardley & Smith, 2002), and depression have also been linked to fear of falling (Austin, Devine, Dick, Prince, & Bruce, 2007).

Conclusion

In conclusion, this study has found that this representative sample of South Australian community-dwelling older people were comparatively optimistic about their chance of falling in the next 12 months. That is, they believed other people had a greater chance of falling than they had. However, it appears that having a personal experience of falling, by increasing one’s own perceived chance of falling, is associated with a lowered comparative optimism. The indirect experience of falling does not influence the likelihood of older people being comparatively optimistic. Given that the proportion of older people in the population is increasing, this study has important implications for developing a low falls risk population.
CHAPTER 7. CONCLUSION

1. Aim of this chapter

The aim of this chapter is to integrate findings from the three studies and conclude this thesis. There are five sections to this chapter. First, the significant contributions to knowledge, and second, the integrated findings from the three studies will be presented. Third, the mixed methods approach and research topic will be critically reviewed. Then, based on the integrated findings, future research in this area will be proposed. Last, recommendations are made for engaging older people in falls prevention and for research practice.

2. Significant contributions to knowledge

Three studies were conducted with community-dwelling older people to investigate older people’s comparative optimism about falling. The findings are presented in Chapters 4, 5 and 6. These studies make three significant and original contributions to knowledge.

The majority of a representative sample of community-dwelling older people in South Australia believed they had lower than or the same chance of falling as other older people of the same age and sex (Chapter 6). Personal experience of falling in the last 12 months was significantly associated with a lowered comparative optimism about falling but knowing others who had fallen in the last 12 months was not associated with comparative optimism (Chapter 6). Semi-structured interviews with older people revealed that, for intrinsic reasons, it was a threat to older people’s identity to say they have a chance of falling (Chapter 4).
3. Integration of findings

This mixed methods thesis, utilising a sequential design, was conducted to complement and converge findings from different sources of data (Chapter 3). A mixed methods approach was also used for item development, where findings from the semi-structured interview study (Chapter 4) and cognitive interview study (Chapter 5) informed the development of items used in the telephone interview study (Chapter 6). A further purpose of conducting a mixed methods study according to Green, Caracelli & Graham (1989) was initiation; findings could suggest new ways of interpretation and new ideas for exploration. In this way, the greatest benefit was derived from qualitative and quantitative approaches. The integrated findings from the three studies will be presented with reference to the aims of conducting mixed methods research: complementarity, convergence and initiation.

**Complementarity: Extending the theory by examining the extent of the phenomenon**

The findings from the semi-structured interview study (Chapter 4), which aimed to develop an in-depth understanding that explains the social phenomenon of older people’s comparative optimism about their chance of falling, were complemented by the findings from the telephone interview study (Chapter 6) which examined the extent of this phenomenon across a representative sample of the population of older South Australian people.

The findings from the telephone interview study indicated a significantly higher proportion of the sample of older people were comparatively optimistic about their chance of falling in the next 12 months than comparatively pessimistic (Chapter 6). The core category to emerge in the semi-structured interview study was that it was a threat to respondents’ identity to state they had a chance of falling for intrinsic falls
risk factors (Chapter 4). Respondents typically presented themselves as the type of people who do not fall. They portrayed themselves positively and those likely to fall, negatively. An explanation for this is motivational and the result of self-presentation concerns. Self-presentation is evident in respondents’ strategies to maintain or protect their identity and at times the identity of their friends when discussing their chance of falling or their reasons for having fallen.

Ten sub-categories were developed in the semi-structured interview study which supported the core category (Chapter 4). Seven of these sub-categories were relevant to the reasons respondents gave in response to the open-ended question of the population survey (Chapter 6), for rating themselves as having the same as or different chance of falling compared with other older people. These quantified responses complemented and provided a check on the claims made in the semi-structured interview study. There were three common reasons given by older people for rating themselves as less likely to fall or as having the same chance of falling as other older people (Chapter 6). They were ‘I am (and my friends are) not the type who falls’, ‘taking care to prevent falls’ and ‘inevitable physical decline and vulnerability to falling’.

Three sub-categories emerged from the semi-structured interviews (Chapter 4) that did not emerge in response to the open-ended question in the telephone interviews (Chapter 6). These were: ‘type of people they know who get on with life after falling’, ‘disclosure of falling and physical decline’, and ‘exercise’. This difference most likely reflects the differences in methodology (grounded theory and survey research) and method (interview and questionnaire). In the semi-structured interviews, there was an opportunity for respondents to think and talk more about
their response than respondents in the telephone interviews (Chapter 6) which provided only a brief opportunity for respondents to consider and give their answer.

*Convergence: Determine whether direct experience of falling was associated with older people’s comparative optimism about falling*

One of the reasons for using a mixed methods approach is that a more complete understanding of the phenomenon is possible. On first impressions, the different data sources used in this series of studies do not converge on the issue of whether the direct experience of falling was associated with older people’s comparative optimism about falling. Instead, findings from the semi-structured interview study (Chapter 4) enhance the understanding, which is the purpose of complementarity.

In the telephone interview study (Chapter 6), those who directly experienced falling in the last 12 months had significantly lower comparative optimism than those who had not fallen, and the more falls were experienced, the less comparatively optimistic respondents were. However, responses to the open-ended question (Chapter 6) indicated that having fallen was a reason given by few (4%) respondents for rating their chance of falling the same as or different to other people. In comparison, taking care to prevent falls was nominated by 31% of respondents for rating their chance of falling the same as or different to other people.

Given that some older people believe that falls occur unexpectedly and that they take care to manage this unexpectedness, this belief about taking care may somewhat negate the influence of having fallen. In the semi-structured interview study (Chapter 4) the direct experience of falls was part of respondents’ explanatory framework in rating their own chance of falling. Respondents who had fallen in the
past (not necessarily in the last 12 months) believed, as a result, it was possible they could fall because they had fallen before. Nonetheless, they did not believe they would actually fall because they reportedly took care not to fall.

*Convergence: Determine whether indirect experience of a fall was associated with older people’s comparative optimism about falling*

Fifty-two percent of respondents in the telephone interview study (Chapter 6) knew other older people who had fallen in the last 12 months. All respondents in the semi-structured interviews (Chapter 4) and cognitive interviews (Chapter 5) knew people who had fallen in the last 12 months. Despite this common experience, the different data sources converge, in the finding that the knowledge of other older people falling does not influence comparative optimism.

In the semi-structured interview study (Chapter 4), even though all respondents knew other people who had fallen, some with very serious falls, this fact did not influence their own perceived chance of falling in the future. Even when respondents portrayed friends as being the same type as them, respondents gave the reason that their friend’s fall was unexpected and not related to something intrinsic about that person. Similarly, open-ended responses in the telephone interview study (Chapter 6) indicated that having known other people who had fallen in the past was not a common reason given by respondents’ for rating their chance of falling the same as, or different to, other people.

In the telephone interview study (Chapter 6), the indirect history of falls was not associated with comparative optimism. Respondents may not have remembered other people who had fallen in the short time they had to respond and it is possible that the measurement was not sufficiently sensitive. Perhaps merely knowing people
who have fallen but who differ on important attributes might explain why the indirect experience of falling was not associated with comparative optimism in this study.

*Initiation: Referring to friends as being the type of person who does not fall and disclosure of falling*

Some respondents in the semi-structured interview study (Chapter 4) and nine percent of responses to the open-ended question in the telephone interview study (Chapter 6) portrayed their friends and acquaintances as being the type of people who do not fall. This unanticipated convergence of findings emerges from two data sources.

Another unanticipated finding from two sources of data (Chapter 4, Chapter 5) was that older people tended not to disclose non-serious falls to friends. It is possible that older people do not know how many or how often their friends have fallen, unless their friends had consequential falls. Further, respondents tended to not tell their health professional they had fallen unless they required assistance. From a clinical perspective, falls prevention opportunities to screen and assess older people for falls risk factors may be missed due to this reluctance to disclose the experience of falls.
4. Critical reflections

Critical reflections: Mixed methods approach used

This mixed methods study was planned as a sequential study design to address the research questions. However, the timing of the three studies did not eventuate as planned (see Chapter 3), a problem reported for mixed methods research reported by others (Bryman, 2007; Yardley & Bishop, 2008). The semi-structured interview study took longer than planned, reducing the time to conduct the cognitive interview study (Chapter 5) before starting the quantitative study (Chapter 6). It is possible that, if the sequential design was conducted as planned, the items in the telephone interview study may have been different.

Further, a limitation of this thesis is the overlap of respondents in both samples of the semi-structured interview study and the cognitive interview study. The similar themes emerging in both studies may be because of the overlap in samples. This threatens the validity of findings from both studies.

Critical reflections: Research topic

Some respondents in all three studies found it difficult to respond to items measuring comparative optimism. This has not been evident in the comparative optimism literature reviewed by the researcher. This highlights the fact that seemingly straight forward questions are not answerable in a straightforward fashion by all respondents. As not all respondents were able to respond to these items, it is suggested that construct validity may be somewhat questionable. Therefore, the results of these studies should be interpreted cautiously.
The major reason given by respondents for this difficulty was their belief that falls were unexpected and unpredictable. In the telephone interview study (Chapter 6), 10% of respondents could not rate their own chance of falling in the next 12 months and 18% could not rate other people’s chance of falling because of this belief. These difficulties were not reported in similar comparative optimism studies (McKee & Harris, 2007; Ruthig, Chipperfield, Perry, Newall, & Swift, 2007) or perceived chance of falling studies.

Older people’s belief that falls are unexpected and unpredictable has been reported in the qualitative literature (Kong, Lee Fk, Mackenzie, & Lee, 2002; Managing Innovation Marketing Consultancy Network Pty Ltd, 2000; Yang, Haralambous, Angus, & Hill, 2008). In this way, older people are fatalistic, in that they accept a lack of control over falling or over-estimating uncontrollable forces. In an Australian population study, only 46% of older people believed that falls were preventable (Hahn, van Beurden, Kempton, Sladden, & Garner, 1996). This indicates that older people’s views differ from the science and practice of falls prevention (Ballinger & Payne, 2000; Lord, Sherrington, Menz, & Close, 2007). Falls epidemiology and health research indicate that individuals at risk of falling can be predicted on the basis of their intrinsic risk factors (Lord, Sherrington, Menz, & Close, 2007) and a falls prevention evidence base exists (Gillespie, Gillespie, Robertson, Lamb, Cumming, & Rowe, 2003). Accordingly, researchers view falls as predictable and preventable. However, research should not assume that an evidence based explanatory and rational model can be transplanted into a real world context and be accepted or understood by older people.

Researchers may assume that this research should not produce discomfort in participants. However, an alternative view could be that researchers go into the field
with a research question that inadvertently imposes their views on respondents. For example, investigating older people’s comparative optimism about falling could be akin to an assault on some older people’s self esteem, or leave people feeling irritated or guilty through researchers implying falls are preventable and that they are at fault for falling. Some respondents in the semi-structured interview study (Chapter 4) and cognitive interview study (Chapter 5) reacted at times as if the researcher was categorising them as ‘an older person with a chance of falling’, that is, implying a negative identity. The interviewer implied that falls are predictable by asking questions about the respondents’ perceived chance of falling. Therefore the researcher offered an alternative paradigm to the respondents. Yardley, Donovan-Hall, Francis, & Todd (2006) found that some older people objected to falls prevention advice that suggested that falling was not inevitable and could be prevented. The authors speculated that older people might feel defensive at being implicated in being held responsible for falling.

It was identified early in the research process that there was the possibility of causing participant discomfort by asking them to talk about their risk of falls, as it could have been potentially threatening to the way they saw themselves. The planned approach to minimise potential discomfort was to interview people on a one-to-one basis to ensure that they did not feel discomfort talking about this with other people. However, the likelihood of this happening when talking to a researcher was not anticipated. Researchers should be mindful of the potential for psychological discomfort amongst older persons, and should report so this aspect so that other researchers can anticipate and prepare for this reaction.
5. Future research

The study Chapters 4, 5 and 6 each include recommendations for future research. In this section, recommendations for future research are based on the integrated findings from the three studies.

*Future research: Extending the theory by examining the extent of the phenomenon*

Given that older people’s self-presentation concerns about falling have been implicated in this thesis, future research should examine the extent and role of self-presentation for older people with regard to falls. For example, do older people have less self-presentation concerns if health professionals accept older people’s claims to identity, that is, that ‘they are not the type who fall’? Alternatively, do older people experience negative psychological consequences if health professionals do not accept their claim that they are not the type to fall?

Based on the integrated findings, falls risk reduction messages are unlikely to be effective in engaging older people in falls prevention and this research has gone some way to explaining why this might be so. Further research needs to be conducted on falls prevention messages to which that older people would respond best.

The reasons older people gave for being comparatively optimistic, as developed in categories in the semi-structured interview study (Chapter 4) could be studied further. By developing these categories into a closed-ended question and measuring the extent that older people agree with them, it may be possible to determine how commonly older people use these reasons when rating themselves the same as, or different to, other older people, and comparative optimism could be predicted from these. It is speculated that the categories/reasons of ‘not the type who fall’ and ‘taking care to prevent falls’ would predict comparative optimism.
Future research could determine if older people view comparative optimism about falling differently to other health conditions, other age groups, or to other settings, and to determine the reasons for any such differences. For example, future research could compare older people’s comparative optimism about falling with other topics such as cardiovascular disease, with younger people’s comparative optimism about falling, or with older people hospitalised because of a fall.

*Future research: Determine whether direct experience of falling influenced older people’s comparative optimism about falling*

In Chapter 5, the direct experience of falls predicted comparative optimism. A prospective stratified study design that controlled for pre-existing differences in history of falls could determine whether falling causes a lowered comparative optimism.

As ‘taking care’ was a relatively common explanation for respondents to rate their chance of falling lower than other older people, it is speculated that it could predict comparative optimism. Future research could determine whether taking care to prevent falls would predict comparative optimism better than respondents’ direct history of falling.

*Future research: Determine whether indirect experience of a fall influenced older people’s comparative optimism about falling*

The indirect experience of falling was not associated with older people’s comparative optimism (Chapter 4, Chapter 6). However, given the non-significant trend \(p = .10\) of indirect experience and higher comparative optimism, then a more sensitive measure of indirect experience may be required. This could include
attributes (e.g. physical activity levels) or identifying with other people they know who have fallen.

*Future research: Referring to friends as being the type of person who does not fall and disclosure of falling*

Some respondents portrayed their friends as the type not to fall, even when these friends had actually fallen. This is a new avenue for research and requires further exploration using social identity theory as described by Hogg (2000). If it is common for older people to align themselves to their friends they portray as not the type to fall, then this supports one of the central findings for this thesis, with the role of identity linked to older people’s comparative optimism about falling. This is a fresh avenue for research in falls prevention.

Older people’s disclosure/non-disclosure of falling to health professionals should be examined using qualitative research. For example, what are the processes that lead people to disclose or not disclose to health professionals? How do older people feel when they tell a health professional they have fallen? Are older people concerned about health professional reactions or consequences from disclosure? To what extent does non-disclosure reflect self-presentation concerns?
6. Recommendations

Recommendations: Engaging older people in falls prevention

Understanding older people’s beliefs about their chance of falling is important for the development of interventions to engage older people in falls prevention activities, such as strength and balance training. Approaches to engaging older people need to take these findings into account. These findings can contribute to the design of messages targeting older people about falls prevention, and should contribute towards how health professionals engage older people.

There are three recommendations. First, it was a threat to respondents’ identity to say they had a chance of falling for intrinsic reasons and respondents claimed to be the ‘type’ who does not fall. They presented themselves (and their friends) in positive terms, which included being active, fit, mobile and healthy and taking care not to fall (Chapter 4, Chapter 6). It is recommended that health professionals accept and affirm these identities as presented by older people rather than challenging older people so that older people present themselves in the manner of their choice. Doing otherwise could result in negative consequences for older people such as embarrassment or lowered self-esteem as suggested by Leary (1995).

It follows that the way older people are engaged in falls prevention activities could act as a barrier to their taking up and adhering to falls prevention activities. This research suggests that attempts to engage older people by suggesting how they can reduce their risk of falling are unlikely to succeed. Therefore, messages associated with a negative identity about having a chance of falling and promoting the idea that older people are at risk of falling are likely to be counterproductive to engaging this group. Responding to these messages may carry perceived social risks that outweigh
the benefits for older people. Other researchers speculate that falls prevention information may be rejected because it is associated with a negative social identity (Yardley, Donovan-Hall, Francis, & Todd, 2006).

The findings from this thesis illustrate why health professionals should not expect older people to be motivated to participate in falls prevention activities by the use of risk reduction messages such as ‘if you are at risk of falling’. The majority of older people believed they had the same as or a lower chance of falling in the next 12 months than other older people (Chapter 6), and it was a threat to their identity to say they had a chance of falling for intrinsic reasons (Chapter 4). Based on these findings, encouraging older people to act to reduce their risk of falls is unlikely to be a successful incentive. It follows then that this thesis does not conclude by recommending an approach that persuades older people that they are at risk of falling.

Further support for this comes from Yardley, Donovan-Hall, Francis, & Todd’s (2007) study that examines older people’s beliefs and attitudes so as to predict intentions to undertake strength and balance training (SBT). Significant predictors were older people’s belief that SBT would improve physical functioning, be enjoyable and not harm them, that they were the kind of person (identity) who should do SBT and that their important others (doctor, family and friends) would think they should do SBT. On the other hand, they also found that older people’s perceived chance of falling in the next year, having a history of falls or having falls risk factors, being concerned about falling and older people’s perceived physical and psychosocial consequences of falling did not predict their intention to attend SBT (Yardley, Donovan-Hall, Francis, & Todd, 2007). Therefore the positive messages of promoting enjoyment and function appeared to be more relevant to older people’s intention to attend strength and balance training “than messages that try to convince people that
they need to take part because they are at risk of falling” (Yardley et al, 2007, p.124). Further, two Australian studies report that the majority of older people had no intention of reducing their risk of falling, even when they had fallen (Gill, Taylor, & Pengelly, 2005; Milligan, 2005).

Older people do not readily acknowledge reducing their risk of falling as an important outcome. For example, in a qualitative study of older people’s perspectives on participating in a falls prevention program, the majority did not identify a reduced likelihood of falling as a consequence of participating (Ballinger & Clemson, 2006). Instead, older people identified positive consequences such as improved confidence and mobility (Ballinger & Clemson, 2006). The authors suggested encouraging older people to take up falls prevention activities by promoting “meaningful outcomes [for older people] such as improved confidence” instead of reducing falls risk (Ballinger & Clemson, 2006, p.268). Similarly, other conclusions are that older people “seem more likely to be motivated by anything which enables them to remain independent, free and in control, than they are by overt references to the impact of ageing” (Managing Innovation Marketing Consultancy Network Pty Ltd, 2000, p.11). The recommendations from this thesis and findings from other research concurs with other recommendations that “risk reduction per se cannot be assumed as a basic motive” to participate in health promotion (Denscombe, 1993, p.515).

While it is recommended here to not use risk reduction as an incentive to engage older people in falls prevention activities, this position does not equate to the provocatively titled “Don’t mention the F word” (Yardley & Todd, 2005a). Not talking about falls may stigmatise the topic of falls prevention. Further, older people in principle, do appreciate advice about falls prevention (Yardley, Donovan-Hall, Francis, & Todd, 2006). Further, Yardley and colleagues (2006) found that
respondents were more positive toward messages about how to improve balance and mobility. On the whole, older people do not see falls messages as relevant to them, yet an individual assessment will determine what messages are seen as personally relevant. With individualised tailoring, it is possible that risk reduction messages have a role for some individuals (Kreuter & Skinner, 2000).

Secondly, health professionals’ capacity to sensitively work with older people in falls prevention may be enhanced by a greater understanding of older people’s perspectives of falls, as their perspectives on falling differ to older people (Ballinger & Payne, 2002; Health Education Board for Scotland, 2003). In a recent study, health professionals’ understanding of ageing was examined through presenting a case vignette of a community-dwelling older person at risk of falling (Richards, Donovan, Victor, & Ross, 2007). Health professionals demonstrated little understanding of research or theoretical perspectives of ageing and based their understanding in their practice and personal experience. Few health professionals made reference to the meaning of a fall as a life event and how embarrassing it could be for older people to fall (Richards, Donovan, Victor, & Ross, 2007). Further, as health professionals working with older people with a risk of falling have reported frustration when older people have not followed their advice (Richards, Donovan, Victor, & Ross, 2007; Ross, Donovan, Brearley, Victor, Cottee, Crowther, Clark, & Simpson, 2004), they need to include theoretical perspectives of older people’s understanding of their chance of falling into their approach.

Thirdly, older people may not tell their health professional or friends that they have fallen unless they need assistance and may not disclose their awareness that they lose their balance or trip (Chapter 4, Chapter 5). Therefore, the trigger to disclosure could be too late for the prevention of future falls. As admitting to falling for intrinsic
reasons is a threat to older people’s identity, then the perceived social cost of
disclosure could outweigh the perceived benefits. This could also be older people’s
way of maintaining autonomy (Yardley, Donovan-Hall, Francis, & Todd, 2006).
General practitioners are somewhat aware that older people are reluctant to report
falling, reportedly because of denial, fear of consequences or memory loss (Chou,
Tinetti, King, Irwin, & Fortinsky, 2005). On the other hand, older people believe
general practitioners do not have time to discuss falls (Managing Innovation
Marketing Consultancy Network Pty Ltd, 2000). This is why it is important for health
professionals to follow the recommendation that older people under the care of a
health professional be asked if they have fallen in the last 12 months (American
Geriatrics Society, British Geriatrics Society, & American Academy of Orthopaedic
Surgeons Panel on Falls Prevention, 2001).

**Recommendations: Research practice**

Given the difficulties some older people reported in responding to items
measuring comparative optimism (Chapter 4, Chapter 5, Chapter 6), it is strongly
recommended that similar studies conduct and report cognitive interviewing.

For the semi-structured interview study (Chapter 4) and cognitive interview
study (Chapter 5), respondents were initially recruited via advertising in a volunteer
newsletter. The advert was entitled, ‘Volunteers needed for research about falls’ and
‘Volunteers needed to give feedback on a falls study’. There was only one response.
However, personal invitations and snowballing proved to be more successful. Future
research should not expect recruitment via impersonal means to be successful
(Yardley, Donovan-Hall, Francis, & Todd, 2006) and instead should plan for a
personal approach.
7. Final comments

This thesis used a mixed methods approach to examine older people’s comparative optimism about falling. This chapter integrated the findings from a grounded theory study, a cognitive interview study and a survey research study. The core category to emerge from the semi-structured interview study, which provides in-depth understanding, was that it was a threat to older people’s identity to present as having a chance of falling for intrinsic reasons. Based on a representative sample of older community-dwelling South Australians, the majority of older people rated their chance of falling as being significantly lower than others. The most common reasons given for this was that respondents believed that they were not the type to fall and they took care not to fall. Having a fall was significantly associated with lower comparative optimism. Findings from the semi-structured interview study explain this. Having a fall made respondents aware that they could fall, in particular for reasons that they believed they could not be held responsible for, and thus they took responsibility for not falling in the future. The main implication to emerge from this thesis is that messages such as ‘you can reduce your risk of falls’ may be ignored by older people. Instead messages should promote positive identities for older people, such as being independent, mobile and active, but this will need to be tested in further research. Overall the findings of this thesis have contributed to falls prevention knowledge by showing (a) that the majority of community-dwelling older people believe they have the same as or lower chance of falling than other older people, (b) that personally falling but not knowing others who have fallen in the last 12 months was associated with a lowered comparative optimism about falling, and (c), that it was a threat to older people’s identity to say they had a chance of falling for intrinsic reasons.
APPENDICES
Appendix A. Summary of Studies: Do Older People Believe That Falls Are Preventable?

<table>
<thead>
<tr>
<th>Author/country</th>
<th>Sample and location</th>
<th>Evaluation and evaluation design</th>
<th>Do older people consider that falls are preventable?</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Braun, 1998)</td>
<td>Convenience sample of residents from government subsidized apartment buildings. US</td>
<td>NA</td>
<td>“Can falls among people in your age group be prevented?” (p.1272)</td>
</tr>
<tr>
<td>Peer reviewed</td>
<td>Self-administered at resident council meeting.</td>
<td></td>
<td>Yes 81%</td>
</tr>
<tr>
<td></td>
<td>M age = 78.8</td>
<td>N = 120</td>
<td></td>
</tr>
<tr>
<td></td>
<td>City in Minnesota</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Cumming, Thomas, Szonyi, Frampton, Salkeld, &amp; Clemson, 2001)</td>
<td>Convenience sample, selected as inpatients, outpatients or local day care centres, community-dwelling</td>
<td>NA</td>
<td>“Do you think it is possible to prevent falls as you get older?” (p.643)</td>
</tr>
<tr>
<td>Peer reviewed</td>
<td>Face-to-face interview</td>
<td>M age=77 years</td>
<td>Yes 70%</td>
</tr>
<tr>
<td></td>
<td>N = 178</td>
<td>Sydney, New South Wales</td>
<td></td>
</tr>
<tr>
<td>(Hahn, van Beurden, Kempton, Sladden, &amp; Garner, 1996)</td>
<td>Random selection, telephone interview ≥60 years</td>
<td>Prospective cohort study with cohort group, 18 months follow up</td>
<td>“Falling was preventable” (p.206)</td>
</tr>
<tr>
<td>Peer reviewed</td>
<td>Intervention group</td>
<td>T1 N = 2448</td>
<td>Yes Bivariate T1 46% T2 53%, p&lt; .05</td>
</tr>
<tr>
<td></td>
<td>Control group</td>
<td>T2 N = 1437</td>
<td>Multi strategic including awareness raising</td>
</tr>
<tr>
<td>Aust</td>
<td>T1 N = 2310</td>
<td>T2 N = 1154</td>
<td>Multiple logistic regression OR 1.27</td>
</tr>
<tr>
<td></td>
<td>Regional New South Wales</td>
<td></td>
<td>(95% CI 1.11, 1.44)</td>
</tr>
<tr>
<td>Author /country</td>
<td>Sample and location</td>
<td>Evaluation and evaluation design</td>
<td>Do older people consider that falls are preventable?</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------------</td>
<td>----------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>(Hughes, van Beurden, Eakin, Barnett, Patterson, Backhouse, Jones, Hauser, Beard, &amp; Newman, 2008)</td>
<td>CATI randomly selected from electronic white pages ≥60 years</td>
<td>Prospective cohort with control group Survey conducted five years after a multi-strategy intervention that significantly changed attitudes and behaviour of older people</td>
<td>“Older people fall and there is nothing that can be done about it” (p.352) Agree</td>
</tr>
<tr>
<td></td>
<td>Intervention group $N = 1601$ comparison group $N = 1601$</td>
<td></td>
<td>Comparison group 24% Comparison group 30%, $p &lt; .001$</td>
</tr>
<tr>
<td>Aust</td>
<td>Regional New South Wales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer reviewed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Kempto, van Beurden, Sladden, Garner, &amp; Beard, 2000)</td>
<td>Random selection, telephone interview. ≥60 years</td>
<td>Prospective cohort study, with control group, four years follow up</td>
<td>“Falls preventable” (p.31) Yes, bivariate T1 45.5% T2 66.6%, 6.1% net different, sig increase.</td>
</tr>
<tr>
<td></td>
<td>Intervention group T1 $N =$ not stated T2 $N = 1314$</td>
<td>Multi strategic including awareness raising</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control group T1 $N =$ not stated T2 $N = 1131$</td>
<td></td>
<td>Multiple logistic regression OR 1.34 (95% CI 1.13-1.59)</td>
</tr>
<tr>
<td>Peer reviewed</td>
<td>Regional New South Wales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Author /country</td>
<td>Sample and location</td>
<td>Evaluation and evaluation design</td>
<td>Do older people consider that falls are preventable?</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------------</td>
<td>-----------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>(Mackintosh, Fryer, &amp; Sutherland, 2007)</td>
<td>Cross sectional design Paper survey Members of Carers SA, received survey in quarterly newsletter</td>
<td>NA</td>
<td>“Can falls be prevented?” (p.3) Yes 74%</td>
</tr>
<tr>
<td>Aust</td>
<td>≥60 years Mdn age 75 years</td>
<td>Peer reviewed</td>
<td>N = 121 Adelaide, South Australia</td>
</tr>
<tr>
<td>(Milligan, 2005),</td>
<td>Random selection, telephone interview.</td>
<td>Cross-sectional study, no control Six years multi strategic including awareness raising</td>
<td>“Do you think you personally will be able to avoid falling over as you get older?” (p.46) Yes 61%</td>
</tr>
<tr>
<td>Aust</td>
<td>≥60 years</td>
<td>Not peer reviewed</td>
<td>N = 1100 State of Western Australia</td>
</tr>
<tr>
<td>(Smith &amp; Lewin, 2008)</td>
<td>Cross sectional design Paper survey Home care clients Sampling methods depended on individual agency. One agency distributed to all clients whilst another distributed to a random selection.</td>
<td>NA</td>
<td>“Do you think that older people’s falls can be prevented?” (p.40). Yes Fallers 64% Non fallers 76% p&lt;.001</td>
</tr>
<tr>
<td>Peer reviewed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perth, Western Australia</td>
<td>Patients presented to emergency department with a fall, and were not eligible for a RCT. Interviewed in home on discharge</td>
<td>NA</td>
<td>“Thought falls were preventable” (p.538)</td>
</tr>
<tr>
<td>Aust</td>
<td>M age = 78 years</td>
<td>Peer reviewed</td>
<td>N = 60 Adelaide, South Australia</td>
</tr>
</tbody>
</table>

*Note.* Hahn et al., (1996) and Kempton et al., (2000) are the same longitudinal study reporting at different time periods: 18 months follow up and four years.
Appendix B. Summary of Studies: Older People’s Comparative Optimism Toward Falling (Indirect Method)

<table>
<thead>
<tr>
<th>Author /country</th>
<th>Sample</th>
<th>Comparative optimism questions</th>
<th>Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Braun, 1998) USA</td>
<td>Cross sectional study</td>
<td>“Please describe the importance of each item in causing falls among people your age” (p.1272)</td>
<td>Convenience sample</td>
</tr>
<tr>
<td>Peer reviewed</td>
<td>$M$ age = 78.8 years</td>
<td>“Please rate the importance of each item in making you likely to fall” (p.1275)</td>
<td>Response rate 44%</td>
</tr>
<tr>
<td></td>
<td>Item non-response not reported</td>
<td></td>
<td>Samples not statistically compared</td>
</tr>
<tr>
<td></td>
<td>Convenience sample from government subsidized apartment buildings</td>
<td><strong>M</strong> (0 to 10)</td>
<td>Pre-testing not mentioned</td>
</tr>
<tr>
<td></td>
<td>$n = 68$</td>
<td>Rugs* 8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Completed questions about causing falls among people your age</td>
<td>Pavements 9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$n = 52$</td>
<td>Balance 8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Completed questions about falls in making you likely to fall</td>
<td>Not paying attention 8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Self-administered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Author /country</td>
<td>Sample</td>
<td>Comparative optimism questions</td>
<td>Limitation</td>
</tr>
<tr>
<td>----------------</td>
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<td>------------</td>
</tr>
<tr>
<td>(McKee &amp; Harris, 2007)</td>
<td>Cross-sectional study</td>
<td>Items not reported</td>
<td>Not published, so many details are missing</td>
</tr>
</tbody>
</table>
| England | Age not reported | Comparative optimism 63%  
No comparative optimism 17%  
Comparative pessimism 20% | |
| Conference abstract so not peer reviewed | N = 196 | | Pre-testing not mentioned |
| | Admitted to hospital because of a fall | | |
| | Face-to-face interviews | | |
| (Ruthig, Chipperfield, Perry, Newall, & Swift, 2007) | Subset of participants in a longitudinal study | Own chance: “After imagining that they had suffered a hip fracture, participants estimated their own likelihood of suffering another hip fracture”  
Other chance: “Imagine another person who has had a hip fracture. What do you think would be the chances of him/her suffering another hip fracture?” (p.351) | Imagine hip fracture  
Pre-testing not mentioned |
| Manitoba, Canada | Age 85-88 years, M age = 89 years | Scale 0% (no chance) to 100% (100% chance) | |
| Peer reviewed | N = 89 | Own chance $M = 40\%$ ($SD = 25\%$)  
Other chance $M = 48\%$ ($SD = 20\%$) | |
| | Response rate 100% | Item non-response not reported | |
| | | Comparatively optimistic 38%  
Not comparatively optimistic 46%  
Comparatively pessimistic 16% | |
| | Excluded those who previously fractured hip | | |
| | Face-to-face interviews | | |
### Appendix C. Summary of Studies: Older People’s Personal Chance of Falling

<table>
<thead>
<tr>
<th>Author /country</th>
<th>Sample</th>
<th>Personal risk question and results</th>
<th>Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Cumming, Thomas, Szonyi, Frampton, Salkeld, &amp; Clemson, 2001)</td>
<td>Cross sectional design ≥65 years</td>
<td>“Rate their self-perceived risk of falling on a 4-point scale of high risk, moderate risk, low risk, and no risk” (p.643)</td>
<td>Convenience sample</td>
</tr>
<tr>
<td>Australia</td>
<td>Hospital inpatients, outpatient clinics or local day care centres</td>
<td>High risk 6%</td>
<td>Does not ask about perceived falls risk within a time frame</td>
</tr>
<tr>
<td></td>
<td>N = 178</td>
<td>Moderate risk 35%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Response rate 72%</td>
<td>Low risk 48%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Face-to-face interview</td>
<td>No risk 11%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intervention: identify hazards, recommend and implement home modifications. Adherence assessed 12 months later</td>
<td>No association between perceived risk and adhering to home modification advice 12 months later</td>
<td>Pre-testing not mentioned</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Item non-response not mentioned</td>
<td></td>
</tr>
<tr>
<td>(Gill, Taylor, &amp; Pengelly, 2005; Taylor, Gill, Dal Grande, Pengelly, &amp; Fletcher, 2001)</td>
<td>Cross sectional design 65-69 years 28%, ≤70 years 72%</td>
<td>“Now I would like to ask you about falls you may have had in the past year – including those falls that did not result in injury as well as those that did. [if yes]. Do you think you are at risk of having another fall?” (p.153)</td>
<td>Does not ask about perceived falls risk within a time frame</td>
</tr>
<tr>
<td>Australia</td>
<td>Random selection, telephone survey</td>
<td>(1) Yes 28.0%</td>
<td>Pre-testing not mentioned</td>
</tr>
<tr>
<td></td>
<td>N = 2619</td>
<td>(2) No 60.3%</td>
<td></td>
</tr>
<tr>
<td>Peer reviewed</td>
<td>Response rate 71%</td>
<td>(3) Don’t know 11.5%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Multiple falls significantly associated with risk of falling again OR 3.73 (95% CI 2.6-5.3)</td>
<td>Item non-response not mentioned</td>
</tr>
<tr>
<td>Author /country</td>
<td>Sample</td>
<td>Personal risk question and results</td>
<td>Limitation</td>
</tr>
<tr>
<td>----------------</td>
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</tr>
<tr>
<td>(Hahn, van Beurden, Kempton, Sladden, &amp; Garner, 1996) Australia</td>
<td>Prospective cohort study with control group ≥60 years Random selection, telephone interview</td>
<td>“‘Risk of falling’: high/medium or low/non-existent” (p.205) Intervention group Baseline 18 mths (1) High/medium 25% 27% (2) Low/non 75% 73% Control group Baseline 4 yrs (1) High/medium 19% 22% (2) Low/non 81% 78%</td>
<td>Loss to follow up intervention group 19% Does not ask about perceived falls risk within a time frame Item non-response not mentioned</td>
</tr>
<tr>
<td>Author / country</td>
<td>Sample</td>
<td>Personal risk question and results</td>
<td>Limitation</td>
</tr>
<tr>
<td>-----------------</td>
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<td>------------</td>
</tr>
<tr>
<td>(Howland, Peterson, W.C., Fried, Pordon, &amp; Bak, 1993) USA Peer reviewed</td>
<td>Cross sectional design</td>
<td>“How likely it was that the event [they would fall and hurt themselves] would happen in the coming year” (p.231)</td>
<td>Sample from elderly living in housing development, not sure if representative of population</td>
</tr>
<tr>
<td></td>
<td>Age ≥58 to 96 years, M age 78 years</td>
<td>4-point scale</td>
<td>Very likely/somewhat likely 26%</td>
</tr>
<tr>
<td></td>
<td>Random sample of elderly living in housing development</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N = 196</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hughes, van Beurden, Eakin, Barnett, Patterson, Backhouse, Jones, Hauser, Beard, &amp; Newman, 2008 Aust Peer reviewed</td>
<td>Prospective cohort with control group</td>
<td>“Participants were asked to rate their personal chance of falling as low, medium, or high” (p.352)</td>
<td>Does not ask about perceived falls risk within a time frame</td>
</tr>
<tr>
<td></td>
<td>≥60 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CATI randomly selected from electronic white pages</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intervention group N = 1601</td>
<td></td>
<td>Pre-testing not mentioned</td>
</tr>
<tr>
<td></td>
<td>Control group N = 1601</td>
<td></td>
<td>Item non-response not mentioned</td>
</tr>
<tr>
<td></td>
<td>Response rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intervention group 67%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control group 73%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intervention group received multi-strategic falls prevention program five years ago</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Author / country</td>
<td>Sample</td>
<td>Personal risk question and results</td>
<td>Limitation</td>
</tr>
<tr>
<td>-----------------</td>
<td>--------</td>
<td>-----------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>(Kempton, van Beurden, Sladden, Garner, &amp; Beard, 2000)</td>
<td>Prospective cohort study with control group</td>
<td>“Risk of falling? “ (p.31)</td>
<td>Does not ask about perceived falls risk within a time frame</td>
</tr>
<tr>
<td>Australia</td>
<td>≥60 years</td>
<td>Intervention group</td>
<td>Random selection, telephone interview</td>
</tr>
<tr>
<td>Peer reviewed</td>
<td>Intervention group Control group</td>
<td>Baseline 4 yrs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Time 1 $N =$ not stated</td>
<td>(1) High/medium</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Time 2 $N =$ 1314 $N =$ 1131</td>
<td>23% 36%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Response rate</td>
<td>Intervention group</td>
<td>Control group</td>
</tr>
<tr>
<td></td>
<td>Intervention group 66%</td>
<td>Control group 63%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pretested and piloted items but no details given</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intervention: multi-strategic community based</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Lord, Ward, Williams, &amp; Anstey, 1993)</td>
<td>Cross sectional design</td>
<td>“Subjective risk of falling was rated as low, moderate or high” (p.241)</td>
<td>Does not ask about perceived falls risk within a time frame</td>
</tr>
<tr>
<td>Australia</td>
<td>≥65 years, $M$ age 75 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer reviewed</td>
<td>All women living in 64 randomly selected ABS collectors’ districts in Randwick Local Government Area, Sydney</td>
<td>(1) High/mod 38%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Face to face interviewed</td>
<td>(2) Low 62%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$N =$ 704</td>
<td>Fallen Not fallen</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>High/mod 52% 32%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low 48% 68%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Associated with falling: RR 1.9 (95% CI 1.46-2.37)</td>
<td>Independently associated with falling OR 2.2 (95% CI 1.45,3.27)</td>
<td></td>
</tr>
</tbody>
</table>

Item non-response not mentioned
<table>
<thead>
<tr>
<th>Author /country</th>
<th>Sample</th>
<th>Personal risk question and results</th>
<th>Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Milligan, 2005)</td>
<td>Cross sectional design</td>
<td>“In general, how would you rate your likelihood of falling? Would you say it is” (p.47)</td>
<td>Response rate 50%</td>
</tr>
<tr>
<td>Australia</td>
<td>≥60 years</td>
<td></td>
<td>Does not ask about perceived falls risk within a time frame</td>
</tr>
<tr>
<td></td>
<td>Random selection, CATI telephone interview.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N = 1100</td>
<td>(1) High 3 3 (2) Mod 23 31 (3) Low 56 55 (4) Non 17 11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Piloted items twice (n = 13)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| (McKee, Orbell, Austin, Bettridge, Liddle, Morgan, &amp; Radley, 2002) | Cohort design | “Perceived risk of further falls in the next two months” (p.329), on a 6-point Likert scale (highly unlikely- highly likely) | Small convenience sample |
| UK | ≥65 years, mean age T1 = 80.2 years | | Pre-testing not mentioned |
| | Convenience sample | | |
| | Recruited 5-8 days post surgery for proximal femoral fracture as a result of a fall. Follow up 2 months later | Perceived risk correlated 0.27 (p&lt;.05) with functional limitation 2 months follow up, but this did not independently predict functional limitation, after controlling for pre-fall activity problems, length of stay in hospital and history of falls. | |
| | Time 1 N = 82 | | |
| | Time 2 N = 57 | | |</p>
<table>
<thead>
<tr>
<th>Author /country</th>
<th>Sample</th>
<th>Personal risk question and results</th>
<th>Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(McKee, Orbell, &amp; Radley, 1999)</td>
<td>Cohort design, follow up 2 months &amp; Peer reviewed</td>
<td>≥65 years, mean age = 80 years</td>
<td>T1 “Perceived risk of future falls” (p.558) (7-point scale) M = 3.65 (SD = 1.66) T2 “Likely that they would fall again in the near future” (p.558) 46%</td>
</tr>
<tr>
<td>UK</td>
<td>Convenience sample</td>
<td>Recruited after admitted to hospital as a result of a fall</td>
<td>T1. High perceived risk of future falls correlated with high previous activity problems (r = .33, p&lt;.05) and poor health status (r = -.39, p&lt;.05) T2. Perceived risk of falling correlated with fear of falling (Ω=.41, p&lt;.05) and having fallen since leaving hospital (Ω=.43, p&lt;.05)</td>
</tr>
<tr>
<td></td>
<td>Time 1 N = 40</td>
<td></td>
<td>Likely to fall again in near future did not predict perceived recovered activity</td>
</tr>
<tr>
<td></td>
<td>Time 2 N = 26</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Response rate 87%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Author /country</td>
<td>Sample</td>
<td>Personal risk question and results</td>
<td>Limitation</td>
</tr>
<tr>
<td>----------------</td>
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</tr>
<tr>
<td>(Sadowski, Jones, Gordon, &amp; Feeny, 2007)</td>
<td>Cross sectional design</td>
<td>“Many felt they were personally at risk for falling” (p.338) 68%</td>
<td>Small convenience sample</td>
</tr>
<tr>
<td>Alberta, Canada</td>
<td>Consecutive sample of patients with Parkinson’s disease who attended a Movement Disorders Clinic</td>
<td></td>
<td>Does not ask about perceived falls risk within a time frame</td>
</tr>
<tr>
<td>Peer reviewed</td>
<td>Self administered survey</td>
<td></td>
<td>Wording of item or responses not clear</td>
</tr>
<tr>
<td></td>
<td>$N = 28$</td>
<td></td>
<td>Item non-response not mentioned</td>
</tr>
<tr>
<td></td>
<td>Response rate = 100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sought feedback about survey from all respondents but not reported on</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Schoenfelder &amp; Van Why, 1997)</td>
<td>Pre-test post-test design</td>
<td>“My risk of falling in my home is” (p.388)</td>
<td>Self selected small sample</td>
</tr>
<tr>
<td>USA</td>
<td>$M$ age 75 years</td>
<td>Pre-test</td>
<td>No control</td>
</tr>
<tr>
<td>Peer reviewed</td>
<td>Recruited via promotion in senior centre and local television</td>
<td>1 mth</td>
<td>Does not ask about perceived falls risk within a time frame</td>
</tr>
<tr>
<td></td>
<td>$N = 14$ (pilot intervention)</td>
<td>3 mth</td>
<td>Pre-testing not mentioned</td>
</tr>
<tr>
<td>Author /country</td>
<td>Sample</td>
<td>Personal risk question and results</td>
<td>Limitation</td>
</tr>
<tr>
<td>----------------</td>
<td>--------</td>
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<td>------------</td>
</tr>
<tr>
<td>(Sherrington &amp; Lord, 1997b)</td>
<td>Randomised controlled trial</td>
<td>“Self-reported … fall risk” (p.209)</td>
<td>Small sample size</td>
</tr>
<tr>
<td>Australia</td>
<td>64 – 94 years</td>
<td>Baseline Moderate/high fall risk</td>
<td>Some respondents from residential care</td>
</tr>
<tr>
<td>Peer reviewed</td>
<td>Respondents identified from medical records from four acute hospitals, Sydney</td>
<td>Intervention 71% Control 81% $p&gt;.05$</td>
<td>RCT not double blinded</td>
</tr>
<tr>
<td></td>
<td>Recruited mean 7 months after fall-related hip fracture</td>
<td>Significantly more respondents in intervention group rated their risk of falling as having decreased compared to those in the control group ($\chi^2 = 3.75$, df = 1, $p&lt;.05$)</td>
<td>Does not ask about perceived falls risk within a time frame</td>
</tr>
<tr>
<td></td>
<td>Face-to-face interview</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Community-dwelling $n = 35$, Residential care $n = 7$</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intervention $n = 21$ Control $n = 21$</td>
<td></td>
<td>Pre-testing not mentioned</td>
</tr>
<tr>
<td></td>
<td>RCT exercise intervention over one month</td>
<td></td>
<td>Item non-response not mentioned</td>
</tr>
<tr>
<td>Author /country</td>
<td>Sample</td>
<td>Personal risk question and results</td>
<td>Limitation</td>
</tr>
<tr>
<td>----------------</td>
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<td>-----------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>(Sjosten, Salonoja, Piirtola, Vahlberg, Isoaho, Hyttinen, Aarnio, &amp; Kivela, 2007)</td>
<td>Randomised controlled trial</td>
<td>“What is your self-perceived probability of a falling event at home?” (p.465)</td>
<td>Response rate not reported</td>
</tr>
<tr>
<td>Finland Peer reviewed</td>
<td>≥65 years who had fallen in last 12 months</td>
<td>Quite unlikely or very unlikely 49% Very likely, likely, quite likely 51%</td>
<td>Convenience sample</td>
</tr>
<tr>
<td></td>
<td>Convenience sample</td>
<td>Low perceived risk of falling independently predicted higher attendance at a 12 month physical exercise class cumulative odds ratio 1.6 (95%CI 1.0,2.6)</td>
<td>Perceived risk of falling at home</td>
</tr>
<tr>
<td></td>
<td>Recruited by advert in local newspaper, pharmacy, health centre, hospital, private clinics, written invitation by physician, home aids and nurses, information session at sheltered housing facilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N = 293</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intervention: falls prevention program or counselling</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Item non-response n = 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Smith &amp; Lewin, 2008)</td>
<td>Cross sectional design</td>
<td>“Do you think you are at risk of falling in the future?” (p.40)</td>
<td>Convenience sample</td>
</tr>
<tr>
<td>Australia Peer reviewed</td>
<td>&lt; 60 years 2.6%</td>
<td>Yes Fallers 71.5% Non-fallers 50.5% p&lt;.001</td>
<td>Response rate 47%</td>
</tr>
<tr>
<td></td>
<td>Convenience sample</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Home care clients: sampling depended on individual agency. One agency distributed to all clients whilst another distributed to a random selection.</td>
<td></td>
<td>Does not ask about perceived falls risk within a time frame other than ‘future’</td>
</tr>
<tr>
<td></td>
<td>N = 2,238</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Self administered</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Piloted items small number of clients</td>
<td></td>
<td>Item non-response not mentioned</td>
</tr>
<tr>
<td>Author /country</td>
<td>Sample</td>
<td>Personal risk question and results</td>
<td>Limitation</td>
</tr>
<tr>
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</tr>
<tr>
<td>(Sutherland, 2002)</td>
<td>Cross sectional design</td>
<td>“How likely do you think it is that you will fall in the next month?” (appendix)</td>
<td>Small convenience sample</td>
</tr>
<tr>
<td>Australia</td>
<td>$M$ age 80 years</td>
<td>Scale - very likely, quite likely, slightly likely, not likely.</td>
<td>Not peer reviewed</td>
</tr>
<tr>
<td>Not peer reviewed</td>
<td>Convenience sample</td>
<td>Not independent predictor of falls in last six months: $OR \ 2.54$ ($95% \ CI \ 0.87, \ 7.44$, $p&lt;.09$)</td>
<td>Pre-testing not mentioned</td>
</tr>
<tr>
<td>$N = 50$</td>
<td>Receiving Domiciliary Care services</td>
<td></td>
<td>Item non-response not mentioned</td>
</tr>
<tr>
<td>(Wiens, Koleba, Jones, &amp; Feeny, 2006)</td>
<td>Cross sectional design</td>
<td>“Felt personally at risk of falling” (p.47)</td>
<td>Small convenience sample</td>
</tr>
<tr>
<td>Alberta, Canada</td>
<td>Pilot study to develop questionnaire</td>
<td>Sample 1 $61%$</td>
<td>Wording of item or responses not clear</td>
</tr>
<tr>
<td>Peer reviewed</td>
<td>$\geq 60$ years</td>
<td>Sample 2 $60%$</td>
<td></td>
</tr>
<tr>
<td>Self administered</td>
<td>Self administered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample 1 $N = 102$</td>
<td>Sample 1 $N = 102$</td>
<td>Approached in shopping malls or attending for immunization</td>
<td>Does not ask about perceived falls risk within a time frame</td>
</tr>
<tr>
<td>Response rate $73%$</td>
<td>Response rate $73%$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample 2 $N = 50$</td>
<td>Sample 2 $N = 50$</td>
<td>$\geq 60$ years hospitalised</td>
<td>Item non-response not mentioned</td>
</tr>
<tr>
<td>$\geq 60$ years hospitalised</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response rate $78%$</td>
<td>Response rate $78%$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Author /country</td>
<td>Sample</td>
<td>Personal risk question and results</td>
<td>Limitation</td>
</tr>
<tr>
<td>-----------------</td>
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<td>----------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>(Yardley, Donovan-Hall, Francis, &amp; Todd, 2007; Yardley &amp; Todd, 2005b)</td>
<td>Cross sectional design</td>
<td>Perceived risk of falling: “I think that it is likely that I will fall during the coming year? I think there is a possibility that I will fall during the coming year?” (Yardley &amp; Todd 2005, p.40)</td>
<td>Convenience sample</td>
</tr>
<tr>
<td>UK</td>
<td>Convenience sample</td>
<td>Four point scale: disagree strongly, disagree, agree, agree strongly Possibility of falling in coming year: 58% agreed Likelihood of falling in coming year: 36% agreed</td>
<td>Response rate unknown Pre-testing not mentioned</td>
</tr>
<tr>
<td>Peer reviewed</td>
<td>Recruited via postal survey via advertisements placed in magazines, on Internet sites, through support groups (n = 600). Recruited and interviewed face-to-face supervised accommodation or attending lunch clubs (n = 115)</td>
<td>Perceived risk of falling correlated with: • Fear of falling (r=0.62) • Number of falls in last 12 months (r=0.54) • Number of falls risk factors (r=0.60) • Physical consequences of falling (r=0.47) Psychosocial consequences of falling (r=0.49)</td>
<td>Item non-response not mentioned</td>
</tr>
<tr>
<td>Author /country</td>
<td>Sample</td>
<td>Personal risk question and results</td>
<td>Limitation</td>
</tr>
<tr>
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</tr>
<tr>
<td>(Zecevic, Salmoni, Speechley, &amp; Vandervoort, 2006) Ontario, Canada</td>
<td>Cross sectional design $\geq 55$ years Random sampling from telephone directory Telephone survey</td>
<td>“Rated their risk of falling” (p.370) Low 57%</td>
<td>Response rate 36% Does not ask about perceived falls risk within a time frame Wording of item or responses not clear Pre-testing not mentioned Item non-response not mentioned</td>
</tr>
<tr>
<td>Peer reviewed</td>
<td>$N = 477$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note:* * Included question as reported in study.
Appendix D. Recruitment advert in St Vincent de Paul Society Newsletter July 2006
Please Keep In Your Prayers

FILM MORNING
Adelaide Ladies Sewing Conference
“THE LAKE HOUSE”
(TBC)
FIRST DAY RELEASE

A drama/fantasy/mystery/romance Starring Keanu Reeves and Sandra Bullock
Thursday 27th July 2006 at Glenelg Cinemas Jetty Road Glenelg
Commencing at 10.00 am with morning tea
Trading table and raffle
$7.00 per ticket
Sponsored by

ADELAIDE TECHNICAL RUBBER

Recently Deceased

RESEARCH
Volunteers needed for research about falls (study 1)
Have you fallen? Do you know someone who has fallen? Joanne Dollard, a research student at the University of Adelaide would like to talk to men and women, aged 65 years and over about their understanding of falling. People who have fallen (even if they have not hurt themselves), or know someone who has fallen, are especially encouraged to participate.

All it requires is an interview of no more than one hour, at a place and time of your convenience in the Adelaide metropolitan area. All your personal information will remain confidential. If you would like to find out more, please contact Joanne on 8303 4340.

Volunteers needed to give feedback on a falls study (study 2)
Men and women, aged 65 years and over are needed, for approximately one hour, to give feedback on questions to be used in a survey with older people about their risk of falls. People who know someone who has fallen, or have personally fallen (even if they have not hurt themselves) are especially encouraged to participate.

All your personal information will remain confidential. If you would like to find out more, please contact Joanne Dollard, a research student at the University of Adelaide on 8303 4340.

PORT ROAD CHELTENHAM
Tickets available from
Janet Browne 8356 7672
St Vincent de Paul Administration Office 8212 6311

DATES TO REMEMBER!

JULY
26 ORATION DINNER

AUGUST
8 BL MARY MCKILLOP FEAST DAY
12 INTERNATIONAL YOUTH DAY
27 MIGRANT & REFUGEE SUNDAY

SEPTEMBER
3 FATHER’S DAY
21 INTERNATIONAL DAY FOR PEACE
24 SOCIAL JUSTICE SUNDAY
27 FEAST OF ST VINCENT DE PAUL
June 2006

Information sheet: How people aged 65 years and over understand the risk of falling

You are invited to participate in a study to look at how people aged 65 years and over perceive their risk of falling. This information sheet provides some information about the study.

The purpose of this study is to understand the meaning that older people give to their perceived risk of falls. This is important because falls are a common and serious problem for older people. Although you personally may not benefit from this study, it is hoped that this study will provide a better understanding for how older people view their risk of falling.

If you would like to participate, Joanne Dollard, a research student will interview you for approximately one hour. Some of the questions will be about what the risk of falls means to you, your experience of falling or your knowledge of other people who have fallen, and how you would rate your risk of falling. It is best if Joanne interviews you in a quiet place that suits you. This could be within your home within metropolitan Adelaide or if it suits, in an office at the Discipline of General Practice, on Frome Rd. With your permission, Joanne will tape record the interview. If you wish, you can receive a summary of the study findings.

If you decide to participate, your personal information will be treated confidentially and you will not be personally identified at all in any published results. You are also free to withdraw at any time.

If you have any questions about the research, you can contact Joanne Dollard, on the number below. Ethics approval has been obtained from the University of Adelaide. For any questions concerning the ethics of this study, please contact the Convener of the Subcommittee for Human Research Ethics in the Psychology Department, Dr Paul Delfabbro on 8303 5744.

Thank you

Joanne Dollard (research student) 8303 4340
Professor Deborah Turnbull (Supervisor) 8303 5738
Consent form: How people aged 65 years and over understand the risk of falling

1. I, ………………………………………… (Please print name) consent to take part in the research project entitled: How people aged 65 years and over understand the risk of falling.

2. I acknowledge that I have read the attached Information Sheet entitled: How people aged 65 years and over understand the risk of falling.

3. I have had the project, so far as it affects me, fully explained to my satisfaction by the research worker. My consent is given freely.

4. Although I understand that the purpose of this research is to improve understanding of how older people view their risk of falling, it has also been explained that my involvement may not be of any benefit to me.

5. I have been given the opportunity to have a member of my family or a friend present while the project was explained to me.

6. I understand that I will be audiotaped during the interview, and at the completion of the study the recording will be stored on a CD in a locked store for seven years in the Discipline of General Practice.

7. I have been informed that, while information gained during the study may be published, I will not be identified and my personal results will not be divulged.

8. I understand that I am free to withdraw from the project at any time.

9. I am aware that I should retain a copy of this Consent Form, when completed, and the attached Information Sheet.

………………………………………………………………………

(signature)     (date)

I would like a summary of the study findings (please tick) yes no □

Witness. I have described to ………………………………………… the nature of the interview procedure to be carried out. In my opinion, she/he understood the explanation.

Status in project ………………………………………………………

Name and date ………………………………………………………

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Appendix F. Screening and demographic survey (Chapter 4 and 5)

1. How did you find out about this study? (who saw the newsletter)

The next two questions are about where you live.
2. What is the suburb or town that you live in?
3. Could you tell me if you live in a residential aged care facility (hostel/low care, nursing home/high care) or receive a community aged care package?

yes □ (excluded) no □ (transitional care package) (independent living units)

The next question is about your age
4. I want to confirm how old you are. Are you aged 65 years or over?

yes □ no □ (excluded)

5. Which age group are you in: (sampling frame)
   - 65 to 69 yrs
   - 70 to 74 yrs
   - 75 to 79 yrs
   - 80 to 84 yrs
   - 85 yrs or over

6. (do not ask: sex) (sampling frame)
   - male □
   - female □

Now a question about your mobility
7. In general, do you need help from another person to get out of a chair?
   - yes □ (excluded)
   - sometimes/ no □

   In general, do you use a walking aid, either inside or outside?
   - yes □
   - sometimes/ no □

   If yes, what do you use?

Now a couple of questions about falls
8. Do you personally know someone who, in the past 12 months, has had a fall including a slip or trip in which they lost their balance and landed on the floor or ground or lower level? (sampling frame)

   yes □ no □

9. In the past 12 months, have you had a fall including a slip or trip in which you lost your balance and landed on the floor or ground or lower level (sampling frame)

   yes □ no □

Now to finish with some general questions about yourself
10. Which of the following best describes your current marital status?
    - Married/ living with a partner
    - Widowed
    - Divorced
    - Separated
    - Never married
    - Not stated

11. Do you receive any of the following for income? (multiple responses)
    - Government pension (aged/veteran)
    - Retiree/superannuation
    - Other (specify)
    - None
12. Which best describes the highest educational qualification you have?  
- Left school at 15 years or less  
- If yes, what age? ____________  
- Left school after age 15  
- Trade/apprenticeship  
- Certificate/Diploma – 1 year full time or less  
- Certificate/Diploma – more than 1 year full time  
- Bachelor degree or higher  
- Other

Most questions adapted from Population Research and Outcome Studies Unit (2006)

That’s all for the questions today. Thanks for this. I will need to look at this information to see if you are suitable for the study. If you are still interested in being interviewed and are suitable, I will ring back in a couple of days to make a time.

Are you still interested in being interviewed?  
- Yes  
- No

I would like to tape record the interview. No-one else will have access to the tape other than me. Would this be okay?  
- Yes  
- No

If yes
Could I please have your name and a telephone number to contact you?  
Name ___________________________ Telephone number __________________

Thank you very much for ringing me and considering taking part in this study, and I will speak to you within the next couple of days to make a time. If you need to contact me, you can call me on this number.

If no
For my research purposes, can you please tell me why you are not interested in being interviewed?

Thank you very much for ringing me and considering taking part in this study. If you change your mind, you can call me on this number.
Appendix G. Falls prevention brochures given to respondents (Chapter 4 and 5)
Best Foot Forward is funded by Health Promotion SA, Department of Health. This has been developed through the partnership of Lyell Mc Ewin Health Service, the Northern Metropolitan Community Health Service, both divisions of the Central Northern Adelaide Health Service and the Hills Mallee Southern Regional Health Service. This brochure is adapted from a brochure developed by Stay On Your Feet Adelaide West Falls and Injury Prevention Program, funded by the Australian Government Department of Health and Ageing.

This brochure has been prepared for education and information purposes only and does not constitute medical advice. Best Foot Forward Falls Prevention Project assumes no responsibility for the information contained in this brochure. Readers should not act upon such information without seeking personal professional medical advice.
If you answered ‘yes’ or were ‘unsure’ for more than one of the previous questions, you may be at risk of falling.

To find out more information, please discuss this questionnaire during your next appointment with your doctor, physiotherapist, occupational therapist, podiatrist, or nurse.

These health professionals can advise you about steps you can take to reduce your risk of falls and injury. Remember that if you have osteoporosis your risk of injuring yourself in a fall is even greater. Please see over for other useful contacts.

How safe are you from falling?

Name

My history of falling
- I have had at least one fall in the last 6 months
  □ Yes □ No □ Unsure

About my medications
- I am regularly taking sleeping tablets or tranquilisers or antidepressants
  □ Yes □ No □ Unsure
- I am taking 4 or more medications
  □ Yes □ No □ Unsure

About my levels of exercise
- I do less than 30 minutes of physical activity in a day (such as walking, housework, gardening, or bowls) on most days of the week
  □ Yes □ No □ Unsure

About my eyesight
- I have poor eyesight
  □ Yes □ No □ Unsure
- It has been more than 12 months since my eyes were tested
  □ Yes □ No □ Unsure

About my health conditions
I have, or previously have had the following:
- Problems with my heart, blood circulation
  □ Yes □ No □ Unsure
- A stroke
  □ Yes □ No □ Unsure
- Diabetes
  □ Yes □ No □ Unsure
- Parkinson’s disease
  □ Yes □ No □ Unsure
- Dizziness or funny turns
  □ Yes □ No □ Unsure
- Having to rush to the toilet or incontinence
  □ Yes □ No □ Unsure
- A recent major change in my health
  □ Yes □ No □ Unsure

About my balance and walking
- I have difficulty getting up from a chair
  □ Yes □ No □ Unsure
- I have poor balance when walking
  □ Yes □ No □ Unsure
- I have either foot pain when walking and/or swelling and/or deformity of my feet
  □ Yes □ No □ Unsure

If you answered ‘yes’ or were ‘unsure’ for more than one of the previous questions, you may be at risk of falling.

To find out more information, please discuss this questionnaire during your next appointment with your doctor, physiotherapist, occupational therapist, podiatrist, or nurse.

These health professionals can advise you about steps you can take to reduce your risk of falls and injury. Remember that if you have osteoporosis your risk of injuring yourself in a fall is even greater. Please see over for other useful contacts.
Reduce your risk of falling

Best Foot Forward is funded by Health Promotion SA, Department of Health. This has been developed through the partnership of Lyell McEwin Health Service, the Northern Metropolitan Community Health Service, both divisions of the Central Northern Adelaide Health Service and the Hills Mallee Southern Regional Health Service. This brochure is adapted from a brochure developed by Stay on Your Feet Adelaide West Falls and Injury Prevention Program, funded by the Australian Government Department of Health and Ageing.

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For further information on Falls Prevention activities in your area contact:
Commonwealth Carelink
1800 052 222 (free call)

Local councils have information on services in your local area, including assistance with simple home modifications.

If you are a Department of Veterans’ Affairs (DVA) gold or white card holder contact HomeFront
1800 80 1945

For professional information about aids and equipment contact Independent Living Centre of SA
1800 800 523 (SA Country Callers only) or 8266 5260

For opportunities for fitness at all levels, including HAMP Exercise Program and Easy Moves for Active Ageing contact
Active Ageing SA
8232 9077

Osteoporosis SA
8379 5345
Falls are the most common accidents affecting older people—even healthy, active older people. Falls can cause injuries that disrupt your day-to-day living and independence, and shake your confidence.

Did you know?....
- If you have fallen twice or more during the last six months, especially if you injured yourself, you are more likely to fall again
- If you have osteoporosis, you are more likely to break a bone as a result of a fall

Long-term Health Problems
Conditions such as diabetes, stroke, Parkinson's disease, blood pressure problems and arthritis may put you at a higher risk of having a fall.

What to do....
- All long term conditions need to be well managed by you with your doctor
- Ask your doctor about how to stay as active as possible

Physical factors
If you experience any of these
- Unsteadiness
- Muscle weakness
- Inactivity
- Painful feet or joints affecting walking
- Poor vision
- Dizziness
They may lead to a fall.

What to do....
1. Contact your local physiotherapist for advice
2. Ask a podiatrist about foot care, footwear and walking
3. Have your eyes checked regularly and speak to your doctor if you are having difficulty with your vision
4. Have a check-up with your doctor at least once a year
5. Don’t put off reporting any new health problems
6. Record and report any falls to your doctor or nurse
7. Most causes of dizziness are treatable—see your doctor

Environmental factors
Your home and surroundings may also be putting you at risk of falls, for example:
- Steps, kerbs and stairs
- Poor lighting or glare (day or night)
- Uneven or cluttered paths
- Slippery or wet surfaces

What to do....
- An Occupational Therapist can advise on aids and minor home modifications
- Look carefully for these hazards in your home and garden and arrange to have them fixed
- Consider installing rails or other aids near steps or in bathroom areas

To find out if you may be at risk of falls, we suggest you complete the Questionnaire in "How safe are you from falling?" then show it to your doctor or health professional. For information regarding your local health professionals, e.g. physiotherapist, occupational therapist or podiatrist, contact Commonwealth Carelink.
Best Foot Forward is funded by Health Promotion SA, Department of Health. This has been developed through the partnership of Lyell McEwin Health Service, the Northern Metropolitan Community Health Service, both divisions of the Central Northern Adelaide Health Service and the Hills Mallee Southern Regional Health Service.

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Local councils can also assist with installation of rails, and maintenance; for example cleaning gutters, garden tidy up, changing light globes.

Commonwealth Carelink
1800 052 222 (free call)

If you are a Department of Veterans’ Affairs (DVA) gold or white card holder contact HomeFront
1800 80 1945

For professional information about aids and equipment contact
Independent Living Centre of SA
1800 800 523 (SA Country Callers only)
or
8266 5260

60% of falls happen at home!

Best Foot Forward Falls Prevention Project

Reduce your risk of falls at home
Reduce your risk of falls at home

Inside your home

Take a few moments to look around your home for potential hazards. Falls can be prevented by making simple changes in your home.

- **Grab Rails**
  - Grab rails can assist with balance and safety.
  - They can be helpful in the
  - Toilet
  - Shower
  - On steps
  - At the front and back door

- **Footwear**
  - Wear supportive shoes
  - Avoid loose fitting slippers, high heels or poor grip soles
  - If you have a problem caring for your feet see a podiatrist

Floor surfaces

- Remove loose mats
- Stick down loose edges
- Use rubber mats in wet areas
- Ensure walk ways are clear and uncluttered
- Check all electrical cords are neatly against the wall

Lighting

- Use night lights
- Have a touch lamp near the bed
- Maximise lighting within the home for example use bright globes and open curtains during the day
- Consider sensor lights outside

Outside your home

- Keep outside paths clear of leaves, overgrowth and hoses
- Keep paths and walkways in good repair
- Keep animals under control
- Avoid unsafe climbing
- If you notice hazards in public areas report to your council.

If you have noticed any hazards in your home and would like further advice an Occupational Therapist can assist you to reduce hazards in your home.

To contact your local occupational therapist ring Commonwealth Carelink, or your local council services for older people.
Appendix H. Semi-structured interview guide (Chapter 4)

- Can you tell me a little about yourself?
  
  Probe: Health?
  
  Probe: Family?
  
  Probe: Social support?
  
  Probe: Activities in your life
  
  Probe: Some of the things that are important to you?

This study is about falling. One of the things that can affect health is falls. By a fall, I mean a slip or trip in which you accidentally lose your balance and land on the floor or ground. Falls are a common problem. Most people have fallen. 1/3 of people aged over 65 years fall at least once a year. I am interested in your honest thoughts and opinions about falls.

- Do you know someone who has had a fall?
  
  Probe: How did you find out about the fall
  
  Probe: How well known person/relationship
  
  Probe: In what way would you say your situation is similar or different to them

Can you tell me about the fall?

- What caused it?
  
  Probe: What were you doing at the time?
  
  Probe: Able to get up on own?
  
  Probe: How long on floor?
  
  Probe: In what way did they hurt themselves?
  
  Probe: Attended health services
  
  Probe: In what way did it impact on their life: short term or long term
  
  Probe: Whether have changed anything since that fall to prevent further falling

- Do they think they are likely to fall again?
  
  Probe: What reasons might they have for believing they are/are not likely to fall again?

- Do you think they are likely to fall again?
  
  Probe: What reasons do you have for believing they are/are not likely to fall again?
  
  Probe: Do you know anyone else in this situation? Can you describe the situation?
  
  Probe: How common is this?
  
  Probe: Do you think this is a problem?
  
  Probe: Do you have any ideas about whether people deny their likelihood of falling.
  
  Probe: Might any of this apply to you?

- Is there anyone you know who you think might be likely to fall but haven’t yet fallen?
  
  Probe: What reasons do you have for believing they are/are not likely to fall again?
• Have you had a fall? Can you tell me about that fall?
  Probe: What caused it?
  Probe: What were doing at the time?
  Probe: Able to get up on own?
  Probe: How long on floor?
  Probe: Whether hurt yourself?
  Probe: Attended health services or told health professional?
  Probe: Who did you talk to about it?
  Probe: If it impacted on their life: short term or long term
  Probe: Whether have changed anything since that fall to prevent further falling

• How did falling make you think or feel?
  Probe: Emotion
  Probe: Control
  Probe: Independence
  Probe: Afraid of falling again
  Probe: Is it the way you think or feel now?

• How likely do you think it is that you will fall again
  Probe: What reasons do you have for believing you are/are not likely to fall again?
  • What do you think is your chance of falling in the next 12 months?
    Please give an answer on a scale of 0-10, with 0 being ‘No chance of falling’ and 10 being ‘I think I will certainly fall in the next 12 months’?
    Can you give me the main reasons for this?
  • What do you think is the chance that other [Females / Males] about your age in general will fall in the next 12 months?
    Please give an answer on a scale of 0-10, with 0 being ‘No chance of falling’ and 10 being ‘I think they will certainly fall in the next 12 months’?
    Can you give me the main reasons for this?
  • You have rated your chance of falling in the next 12 months as [different to / the same as] other [Females / Males] about your age in general. Can you give me the main reasons for rating yourself [as different / the same]?
    Can you tell me about anything that you might do that explains this
    Can you tell me about anything that others might do that explains this
  • Earlier in the interview, you mentioned that you knew someone who had a fall. Can you tell me how this experience might have influenced your rating?
  • You have mentioned that you have had a fall. Can you tell me how this experience might have influenced your rating?

Is there anything else you can think of that is important to understanding about the risk of falling?
Well, I have no more questions, just now
Appendix I. Data Summary from Cognitive Interview (Chapter 5)

Overview

Data from the study reported in the cognitive interview study (Chapter 5) are presented here, in 11 sections. Section 1 presents the meaning of ‘falling’, ‘chance of falling’ and ‘perceived risk of falling’. Section 2 presents responses to the item, rating own chance of falling. Section 3 presents responses to the item, rating other people’s chance of falling. Section 4 presents responses to the item, respondents’ reasons for rating their chance of falling the same as or different to others. Section 5, 6 and 7 presents responses to respondents rating their own falls history in the last three and 12 months. Section 8 and 9 presents responses to probing about other people’s falls history in the last three and 12 months. Section 10 presents suggestions of the cognitive burden that cognitive interviewing may pose to older people. Lastly, Section 11 presents data that suggests respondents’ reaction to the topic of their perceived chance of falling.

The first nine sections are presented according to the stages of information processing (comprehension, retrieval, confidence and response). Respondents’ quotes are included to illustrate problems. Most data are presented in tables, which are divided up by versions, so that the reader can track if identified problems were resolved or continued to occur. Responses to Version 1 and 2 were combined when the same question was used. Each section includes the items asked, for the reader’s easy reference. The reader will notice that not every respondent was asked every question. These reasons include termination of interview before completion, items that no longer required probing, or where it was not appropriate to continue.
Section 1. Meaning of ‘falling’, ‘chance of falling’ and ‘perceived risk of falling’

Comprehension: meaning of ‘falling’

Respondents were asked what the word ‘falling’ meant to them. This was asked after the term ‘fall’ had been defined once (for eight respondents) or twice (for two respondents). The definition was:

BY A FALL, I MEAN A SLIP OR TRIP IN WHICH YOU LOSE YOUR BALANCE AND LAND ON THE FLOOR OR GROUND OR LOWER LEVEL

Respondents understood falling as including tripping, losing balance and or falling to the ground (see Table 1). One respondent indicated that falling to her meant the consequence of falling as in hurting herself.

Table 1. Comprehension: Falling

<table>
<thead>
<tr>
<th>What does the term ‘falling’ mean to you?</th>
<th>Version 1, 2 (n = 9)</th>
<th>Total 2 (n = 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tripping</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Losing balance</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Coming in contact with the ground</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Hurting self</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Not asked question</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: not mutually exclusive categories
Comprehension: meaning of ‘chance of falling’

Respondents were asked what the terms, ‘chance of falling’ meant to them (see Table 2). Whilst it was difficult for respondents to use another term other than chance, they all seemed to comprehend what the term ‘chance of falling’ meant. Two respondents responded to the cognitive interviewing question by describing their chance of falling.

Table 2. Comprehension: Chance of Falling

<table>
<thead>
<tr>
<th>What does the term ‘chance of falling’ mean to you?</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 (n = 9)</td>
<td>2 (n = 4)</td>
</tr>
<tr>
<td>Probability, possibility, opportunity, likelihood</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Not asked question</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

*Note:* not mutually exclusive categories

Comprehension: meaning of ‘perceived risk of falling’

The following was initially used to introduce the respondents to the item about their chance of falling.

THE FIRST THREE QUESTIONS ARE ABOUT YOUR PERCEIVED RISK OF FALLS.

In the first nine interviews, respondents were asked what the term ‘perceived risk of falling’ meant to them (see Table 3). Some responses indicated they comprehended the question (n = 6). One respondent incorrectly answered the question and one respondent was unable to answer the question.

Five respondents indicated the phrase ‘perceived risk of falling’ was not a good term to use because it was considered a difficult word to understand, or it might
depend on older people’s level of education (“I think that it is not probably a good word for an adult, depending on how literate or anything they are. … I really don’t, no I don’t like that perceived” [07]). Three respondents thought the phrase was understandable.

Table 3. Comprehension: Perceived Risk of Falling

<table>
<thead>
<tr>
<th>What does the term ‘perceived risk of falling’ mean to you?</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 (n = 9)</td>
<td>2 (n = 4)</td>
</tr>
<tr>
<td>Correctly comprehended question</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Incorrectly comprehended question</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Unable to answer question</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Not asked question</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

*Note: not mutually exclusive categories*
Questions asked: Version 1, 2 and 3

Version 1 and 2. The first nine respondents were asked the following item about rating their chance of falling. This was the first item of the survey.

ON A SCALE OF ZERO TO TEN, WITH ZERO BEING ‘NO CHANCE OF FALLING’ AND TEN BEING ‘CERTAIN CHANCE OF FALLING’, WHAT IS THE CHANCE THAT YOU WILL FALL IN THE NEXT 12 MONTHS?

Version 3. The following four respondents were asked the following item about their chance of falling. This was the second to last item of the survey.

WHAT DO YOU THINK IS YOUR CHANCE OF FALLING IN THE NEXT 12 MONTHS? PLEASE GIVE AN ANSWER ON A SCALE OF ZERO TO TEN, WITH ZERO BEING ‘NO CHANCE OF FALLING’ AND TEN BEING ‘I THINK I WILL CERTAINLY FALL IN THE NEXT 12 MONTHS’.

Comprehension: Repeating question

Most respondents understood the question as intended by the researcher (see Table 4). Two respondents later responded in a way that suggested that they answered the question in terms of how many times they might fall in the next 12 months instead of their chance of falling.
Table 4. Comprehension: Own Chance of Falling

<table>
<thead>
<tr>
<th>Could you please repeat the question in your own words?</th>
<th>Version 1, 2 (n=9)</th>
<th>Total n=4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeated the question in a way that indicated that they comprehended the question as intended</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Chance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chances</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Probability</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Risk</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Likelihood/likely</td>
<td>1</td>
<td>1*</td>
</tr>
<tr>
<td>What it might be</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Target</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Me/I</td>
<td>7</td>
<td>4*</td>
</tr>
<tr>
<td>Not mentioned</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Mentioned 12 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Later responded in a way that suggested they thought the question might also be asking 'how many falls they might have in the future’</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

*Note: not mutually exclusive categories. * did not repeat question but used these words in response*
Of the respondents who repeated the scale, five repeated it as a ‘one to ten’ scale rather than a ‘zero to ten’ scale (see Table 5). Two respondents interpreted the scale the wrong way around, and one of these was only identified later in the interview.

**Table 5. Comprehension: Scale for Rating Own Chance of Falling**

<table>
<thead>
<tr>
<th>Could you please repeat the question in your own words? References to scale</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1, 2 (n=9)</td>
<td>3 (n=4)</td>
</tr>
<tr>
<td>Repeated the scale incorrectly as one to ten</td>
<td>3</td>
<td>2*</td>
</tr>
<tr>
<td>Used scale wrong way around</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Did not mention scale</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

*Note: Not mutually exclusive categories. * Did not repeat question but used these words in response

**Retrieval of information: How answered question**

The overall cognitive strategy was analysed for ‘probed’ explanations for how respondents got to their answer as well as ‘unprobed’ or spontaneous explanations. Many responded in a way that they considered risk factors that increased their chance of falling and balanced this with risk factors that decreased their chance, as seen in the quote below and Table 6.

**HOW DID YOU GET TO THE ANSWER OF 4-5?**

Well I have to be very careful when I am walking. I tend to trip easily. I mainly blame that on the surface I am walking on. But I think I do tend to drag one toe a bit [06]
The main risk factors respondents believed increased their chance of falling were their gait, balance or joints, extrinsic risk factors and falls history, of which in total 21 risk factors were given. The main risk factor respondents believed decreased their chance of falling was taking care, and in total, 21 reasons were given. Two risk factors were given which were non-directional.
Table 6. Retrieval: Rating Own Chance of Falling

<table>
<thead>
<tr>
<th>Risk factors respondents considered that increased their chance of falling</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gait, balance and joints</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Extrinsic risk factors</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Own falls history (including trips)</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Age</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Climb ladders</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Not taking care</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Risk factors respondents considered that decreased their chance of falling</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taking care</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Walking aid</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Own falls history (including trips)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Gait, balance and joints</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Fitness</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Extrinsic risk factors</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Factors without direction mentioned

| Eyesight                                                                | 1       | 1     |
| Falls history (including trips)                                        | 1       | 1     |

Note: Extrinsic risk factors includes uneven footpaths, steps, slippery surfaces. Risk factors not mutually exclusive.
Respondents (n = 10) indicated their verbal likelihood of falling, and sometimes this was said at the same time as when they considered their risk factors and as well as what they did to prevent falls, such as taking care or using a walking aide (see Table 7).

Table 7. Respondents’ Verbal Expression of Their Likelihood of Falling and Their Preventing Falls

<table>
<thead>
<tr>
<th>Verbal expression of likelihood of falling</th>
<th>Falls prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>The odds are against me falling</td>
<td>Pretty agile, do not carry a lot of weight</td>
</tr>
<tr>
<td>I don’t think that I am at the stage that I would fall</td>
<td>I am aware of my surroundings</td>
</tr>
<tr>
<td>I would say not very often</td>
<td>I am very careful</td>
</tr>
<tr>
<td>Aware could fall</td>
<td>Uses walking stick to prevent falling</td>
</tr>
<tr>
<td>I have got about the same chance of falling as any fit person</td>
<td></td>
</tr>
<tr>
<td>I would fall quite often without walking trolley</td>
<td>Walking trolley</td>
</tr>
<tr>
<td>I am likely to fall, aware my balance is bad</td>
<td>Uses a walking frame in the street</td>
</tr>
<tr>
<td>Last five years I have been falling more</td>
<td>Very careful</td>
</tr>
<tr>
<td>Always a chance at my age</td>
<td>Very careful of where I place my feet</td>
</tr>
<tr>
<td>I could quite easily fall in the ordinary tracks that I travel … that would be a good probability that it could happen</td>
<td></td>
</tr>
</tbody>
</table>
One respondent rated himself a fifty-fifty chance of falling and linked this with the unexpected nature of falling. One respondent answered the question by rating herself in the “middle” and the reason given was she “didn’t want to fool myself into thinking I would never have a fall” [01]. This was related to the unexpectedness of falling.

SO HOW DID YOU GET TO THE ANSWER OF FIVE

I took an average, even though I think I am fit, I am not stupid to think that I am not going to trip over my own feet sometime or even walking with the uneven footpaths, if you are not looking on the ground [01].

Respondents (n = 4) also commented that everybody has a chance of falling, despite their age or risk factors, mostly related to the situation or environment. The interviewer was even told by one respondent that she had a chance of falling.

I don’t know, … everybody has got a chance of falling, even you. [08]

Whilst responding to the item rating their own chance of falling or responding to the cognitive interviewing questions, four respondents indicated that they did not want to fall and two indicated that they tried hard not to fall.

**Retrieval of information: Was question hard to answer**

Respondents were asked if the item, rating their own chance of falling was hard to answer. Based on these probed and unprobed responses, six of the respondents believed it was difficult or impossible for them to answer. The most common reason given was that falls were unexpected and unpredictable, as indicated in the two quotes below and in Table 8.
DID YOU FIND IT HARD TO THINK OF THAT?

Yes I did … I am never going to be sure when I am going to fall. Like [wife] said, ‘it is in the lap of the gods’ [03].

I still say there is no possible hope of answering that, on a scale of one to ten, because I had a very bad fall, some years ago. Fractured my pelvis and I wouldn’t have known that I was going to have it until it happened. … So you just don’t know. … I suppose I am more likely to have a fall now because my balance is not very good but I am very careful. … Nobody knows when they are going to have a fall. It is an accident, like a car accident [11].

One respondent believed that the question was ambiguous as it could mean tripping over something or alternatively, lose your balance, as seen in the quote below. He believed people might be able to answer this question better if it was divided into specifically asking if they would trip over something or lose your balance. It is possible this response is a reaction to the question and is addressed in Section 12.

I mean what sort of a fall are you talking about. Tripping up on something. Or just losing your balance and falling. There are different kinds of way. I could walk across the road and trip up on the curb. I would fall. Or are you trying to say, ‘I felt dizzy and fell’. [13].

Three respondents indicated that they had to think about the answer to the item about rating their chance of falling. One respondent believed that because it was
not something that people think about, then they would not put any serious thought into answering the question.

Table 8. Retrieval: Rating Own Chance of Falling

<table>
<thead>
<tr>
<th>Was question hard to answer?</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1, 2 (n=9)</td>
<td>3 (n=4)</td>
</tr>
<tr>
<td>No</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Reason given was that they had fallen</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Had to think about it</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Reasons given were:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Falls were unexpected and unpredictable</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

(examples of quotes below)

- I can’t look into the future
- It is in the lap of the gods
- I am never going to be sure when I am going to fall
- You don’t anticipate you are going to fall
- Falls are unexpected
- How do we know what is ahead of us
- I could not prophesize one way or the other
- Everyday … life is unpredictable
- You don’t expect it but it is unpredictable.
- They come when you least expect them
- Nobody knows when they are going to have a fall. It is an accident like a car accident
Was question hard to answer?

<table>
<thead>
<tr>
<th>Was question about tripping over or losing balance</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Was not sure initially what to base it on</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Had to think about it</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: ‘yes and ‘no’ responses mutually exclusive

Judgement: Confident of their answer

Respondents were asked if they were confident of their answer to rating their chance of falling in the next 12 months. All respondents agreed that they were confident of their answer. However, based on five respondents’ discussion, it appeared they were not confident and was consistent with responses to the difficulty in answering the question. For example, if a respondent believes that falls are “in the lap of the gods” [03], then it is harder for them to give a confident response. One respondent was confident once she reconsidered and lowered her rating.

Table 9. Confidence: Rating Own Chance of Falling

<table>
<thead>
<tr>
<th>Are you confident of your answer?</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1, 2 (n=9)</td>
<td>3 (n= 4)</td>
</tr>
<tr>
<td>Yes</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Yes once reduced rating for self</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: mutually exclusive categories
Response: Was it hard to put a number between 0 and 10?

Comments by respondents indicated it was hard to some extent to rate their chance of falling on a scale of zero to ten (see Table 10). One respondent knew that she was more likely to fall but was unable to report that on a scale because she believed falls were unexpected (“because falls, nobody knows when they are going to have a fall” [11]). One respondent indicated that these questions were more of a guess and were difficult to quantify.

How do you quantify, ‘am I going to fall in the next 12 months’. There is no way you can quantify that. … I don’t think the answers to these questions are really worth very much [12].

Two respondents indicated that they did not like this scale as they believed it was similar to pain rating scales they had experienced while in hospital and it was hard to know an exact rating. Further, two respondents were aware that they did not know for sure that this would be the ‘right’ response, as indicated in the quote below.

Well I don’t know how you are going to answer that truthfully. Because you know it is a sort of a probable, isn’t it? [08]
Table 10. Response: Difficulty in Rating Own Chance of Falling

<table>
<thead>
<tr>
<th>Was it hard to put a number between 0 and 10 to your answer?</th>
<th>Version 1, 2 (n = 9)</th>
<th>Total 3 (n = 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Gave percentage as a response</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Yes</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Could not be sure about an answer, it might be lower or higher</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Similar to pain scale questions</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>More of a guess because did not think about it</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Not something can quantify</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Falls are unexpected</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Not sure how to respond (related to comprehension)</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: ‘yes’ and ‘no’ responses mutually exclusive

Response: Did you feel uncomfortable answering this question?

Respondents were asked if they felt uncomfortable answering questions about their chance of falling and most respondents (n = 9) indicated that they did not feel uncomfortable (see Table 11). One respondent indicated that he felt uncomfortable answering the question because it might make him think he could fall (“I suppose you could do it [fall] any time” [05]).
Table 11. Response: Rating Own Chance of Falling

<table>
<thead>
<tr>
<th>Did you feel uncomfortable answering this question?</th>
<th>Version 1, 2 (n = 9)</th>
<th>Total 3 (n = 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not uncomfortable</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Confused because impossible question to answer</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>(related to understanding falls were unexpected)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncomfortable because could fall</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

*Note: mutually exclusive categories.*
Section 3. Rating other people’s chance of falling: responses to probing

Questions asked: Version 1, 2 and 3

Version 1 and 2. The first nine respondents were asked the following item about rating other people’s chance of falling. This was the second item of the survey.

ON A SCALE OF ZERO TO TEN, WITH ZERO BEING ‘NO CHANCE OF FALLING’ AND TEN BEING ‘CERTAIN CHANCE OF FALLING’, WHAT IS THE CHANCE THAT THE AVERAGE FEMALE [MALE] THE SAME AGE AS YOU WILL FALL IN THE NEXT 12 MONTHS?

Version 3. The last four respondents were asked the following item about rating other people’s chance of falling. This was the last item of the survey.

WHAT DO YOU THINK IS THE CHANCE THAT OTHER FEMALES [MALES] ABOUT YOUR AGE IN GENERAL, WILL FALL IN THE NEXT 12 MONTHS? PLEASE GIVE AN ANSWER ON A SCALE OF ZERO TO TEN, WITH ZERO BEING ‘NO CHANCE OF FALLING’ AND TEN BEING ‘I THINK THEY WILL CERTAINLY FALL IN THE NEXT 12 MONTHS’?

Comprehension: Repeating question

Most respondents repeated the question in way that indicated they comprehended the question as intended (n = 9) (see Table 12). One respondent incorrectly interpreted the question to mean “How many women do I think might fall” [08]. Another respondent repeated the question as “How old people would probably fall over” [02] and it is possible that short term memory may be implicated here.
because this was followed with “That’s all I can remember”. Seven respondents
recalled the target to be ‘people’ instead of a sex specific target, and one respondent
recalled the target as ‘friends’.

Table 12. Comprehension: Rating Other People’s Chance of Falling

<table>
<thead>
<tr>
<th>Could you please repeat the question in your own words?</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeated the question in a way that indicated they comprehended the question as intended</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chance</td>
<td>Chance</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Probability</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Risk</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Likely</td>
<td>0</td>
</tr>
<tr>
<td>Target</td>
<td>People</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Female/male</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Friends</td>
<td>0</td>
</tr>
<tr>
<td>Age</td>
<td>My age</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Old/elderly</td>
<td>1</td>
</tr>
<tr>
<td>Mentioned</td>
<td>Yes</td>
<td>4</td>
</tr>
<tr>
<td>next 12 months</td>
<td>No</td>
<td>4</td>
</tr>
<tr>
<td>Did not repeat question correctly</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Did not repeat question</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: not mutually exclusive categories
Of the respondents who repeated the scale, one repeated it as a ‘one’ to ‘ten’ scale rather than a ‘zero’ to ‘ten’ scale (see Table 13). Two respondents interpreted the scale the wrong way around.

Table 13. Comprehension: Rating Other People's Chance of Falling (Scale)

<table>
<thead>
<tr>
<th>Could you please repeat the question in your own words? References to scale</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeated the scale incorrectly as ‘one’ to ‘ten’</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Responded to scale wrong way around</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Retrieval of information: How answered question

The overall cognitive strategy was analysed for ‘probed’ explanations for how respondents retrieved their answer as well as ‘unprobed’ explanations. In all, 40 risk factors were nominated that respondents believed increased other people’s chance of falling. The most commonly nominated risk factors were falls history, and poor gait, balance and joints. Falls history included those who they knew who had fallen, but one respondent based the number of falls that she had to work out how to answer this question. In all, ten risk factors were nominated by respondents that decreased other older people’s chance of falling. Some respondents also mentioned factors but did not nominate a direction.

Two respondents answered the question based on the “law of averages” [01, 09], and another said it was a “matter of chance” [11]. All three of these respondents rated other people’s chance of falling as ‘five’. Two of these respondents indicated
that “half” of people would be likely to fall [09, 11] while the other indicated that “we all have got the chance of having a fall, no matter what age” [01].

To answer this question, one respondent requested the prevalence of falls but then argued the given statistic was too high, as illustrated in the quote below.

What is the statistics on people who fall ages?

… PEOPLE AGED OVER 65, IT IS ONE IN THREE PEOPLE FALL EACH YEAR.

It seems an awful high number… I think your ratio is much lower than one in three. It could be one in five … Never mind. You have the statistics. [13]

Table 14. Retrieval: Rating Other People’s Chance of Falling

<table>
<thead>
<tr>
<th>Risk factors respondents considered that increased other people’s chance of falling</th>
<th>How did you get to the answer</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falls history</td>
<td>6</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Gait, balance and joints *</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Age</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Not taking care*</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Extrinsic risk factors</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Health or medical conditions</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Being uncertain</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Not using walking aid</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Disabled</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Medication</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
Shoes 1 0 1
Climb ladders 1 0 1
Unlucky 0 1 1
Being active/independent 1 0 1
Being a women 0 1 1

Risk factors respondents considered that decreased other people’s chance of falling

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gait</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Health</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Falls history</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Taking care</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Confined to home</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Lucky</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Factors without direction mentioned

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistics of people falling</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Gait, balance and joints</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Fit *</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Health condition</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Lifestyle *</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Depends upon age. Not about age</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: Extrinsic risk factors include uneven footpaths, steps, slippery surfaces.
* denotes considered own risk factor. Not mutually exclusive categories. Not asked
n=1

Respondents sourced information to rate other people’s chance of falling by thinking about their friends (n=12), although four respondents (who were aged over 75 years) wanted to draw on older people they knew but believed they did not know
enough older people to do this. They also thought about themselves (n=2) and they talked about non-specific people (n=5).

*Table 15. Retrieval: Target Group to Retrieve Information*

<table>
<thead>
<tr>
<th>Target group</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2 (n=9)</td>
<td>3 (n=4)</td>
<td></td>
</tr>
<tr>
<td>Drawing on friends, colleagues, neighbours</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Drawing on self; basing rating on other people being similar to self</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>General discussion about non specific women in their age group</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Requested statistics for older people falling</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

*Note: Not asked n=1*

One respondents (n = 1) commented that everybody has a chance of falling, no matter what age. Respondents (n = 9) indicated the verbal likelihood of others falling (see Table 16). Some of these mentioned that others would have the same chance as them falling (n=4). Other times, respondents mentioned the conditions that might increase (such as having a stroke, walking on the footpath, being clumsy or tottery, having sports injuries) (n=5) or decrease other people’s chance of falling (confined to home) (n=1). Expressions of chance of falling used were risk, chance and likely; whereas some respondents used ‘will’, ‘would’, ‘could’ and ‘would’ in expressing the likelihood of other older people falling.
<table>
<thead>
<tr>
<th>Likelihood of other people falling</th>
<th>Conditions which other people might be likely or not to fall</th>
</tr>
</thead>
<tbody>
<tr>
<td>People I know have same risk as me</td>
<td>Someone who is recovering from a stroke and going for a walk probably has got more risk of falling</td>
</tr>
<tr>
<td>Without any other conditions … it would be similar to myself</td>
<td>If there are other conditions that apply… then I would think there could be a chance</td>
</tr>
<tr>
<td>Great majority of people will fall</td>
<td>If you were talking about women who are confined to home then they are probably not as likely to fall as someone who will take themselves off to the shops … You are very likely to fall</td>
</tr>
<tr>
<td>Most of them would qualify that I know at about the same as myself</td>
<td>Clumsy people could be at a pretty high risk</td>
</tr>
<tr>
<td>Couple of my friends I think could fall</td>
<td>A lot of males my age, because they have got sport when they were young … they have a greater chance of falling because of it</td>
</tr>
<tr>
<td>I could see all of them fall over, tottery and really uncertain</td>
<td>Most of them will be about the same ability as I am … the ones I know, I don’t think would fall</td>
</tr>
</tbody>
</table>
Retrieval of information: Was question hard to answer

Respondents were asked if rating other people’s chance of falling was hard to answer. Seven of the respondents believed the question was hard to answer and one respondent believed it was impossible to answer (see Table 17). Reasons given were that people did not have the information at hand because it was not something they would think about, it depended on people’s lifestyle and behaviour of which they lacked information, some just did not know the answer and some said it depended on different conditions and therefore it was difficult to take an average and know what to base it on (as illustrated in the quote below).

That is a really large question because my friends are all varying states of health … some of them are quite unsteady on their feet .. Most of them would qualify … at about the same as myself … But I have friends that would qualify much less than that. [07]

Another reason given was that people did not have the information at hand because they did not know many people and therefore lacked people to draw information from (as illustrated in the quote below).

There again. I have no chance of answering the question like that. How do I know what [friend] is going to do? I don’t know anybody older than me.

[laughing] So that is a little awkward to answer. [10]

One respondent misunderstood the question (“do not know how many people would fall over” [08]), similar to the error made in comprehension.
<table>
<thead>
<tr>
<th>Was question hard to answer?</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1, 2 (n=9)</td>
<td>3 (n=4)</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Yes:</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Reasons given were:

- You would not even think about something like that or assess these things; do not think about other people; how would we know
- Depends on people’s health and illness, medication, mobility, fitness
- Do not know other people’s lifestyle or behaviour such as taking care
- Do not know many people: my age, older than me; anybody who falls or are prone to falling
- Do not know answer or have definite knowledge about this
- Do not know how many people were going to fall over
- Do not know if people were going to fall

<table>
<thead>
<tr>
<th>Reason</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>You would not even think about something like that or assess these things; do not think about other people; how would we know</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Depends on people’s health and illness, medication, mobility, fitness</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Do not know other people’s lifestyle or behaviour such as taking care</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Do not know many people: my age, older than me; anybody who falls or are prone to falling</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Do not know answer or have definite knowledge about this</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Do not know how many people were going to fall over</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Do not know if people were going to fall</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

*Note:* ‘yes and ‘no’ responses mutually exclusive. Not asked n=1
**Judgement: Confident of their answer**

Respondents were asked if they were confident of their rating of other people’s chance of falling in the next 12 months. The majority of respondents agreed that they were confident of their answer (see Table 18). As several respondents had difficulty in answering the question, then it is unlikely that they would be confident. As illustrated in the quote below, one respondent was clear that he needed more information to make this rating.

You would have to sort of get the information, I think. Even thinking about it from the point of view of well, I just said about the people having problems with joints etcetera. It is really lacking information. I mean how many people do I really know. Have I really sort of asked them? I only sort of, often it is assumed things, and we often voice our opinion on many things, without information. … But it is not worth a pinch. [12]

<table>
<thead>
<tr>
<th>Are you confident of your answer?</th>
<th>Version 1, 2 (n=9)</th>
<th>Version 3 (n=4)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>No: do not have enough information</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

*Note: mutually exclusive responses*
Response: Was it hard to put a number between zero and ten?

Six respondents indicated it was not hard to rate other people’s chance of falling on a scale of zero to ten. Four respondents indicated that they found this difficult, and this was linked to the difficulty in responding which was reported in retrieval (see Table 19).

Table 19. Response: Difficulty in Rating Other People’s Chance of Falling

<table>
<thead>
<tr>
<th>Was it hard to put a number between 0 and 10 to your answer?</th>
<th>Version 1, 2 (n=9)</th>
<th>Total 3 (n=2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Yes: how would we know</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Did not ask</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: mutually exclusive responses
Response: Did you feel uncomfortable answering this question?

Respondents were asked if they felt uncomfortable answering the question to rate other people’s chance of falling and most respondents indicated that they did not feel uncomfortable (see Table 20). One respondent felt uncomfortable because he did not believe he had the information, whereas three other respondents indicated they were not uncomfortable but similarly believed they did not have the information (see quote below).

It is really something that you do not have any definite knowledge about. If you did, you would stop them from falling over. So the question is very difficult to answer.

**DID YOU FEEL UNCOMFORTABLE ANSWERING THIS QUESTION**

No. I just felt that it was impossible to answer properly [11]

**Table 20. Response: Rating Other People’s Chance of Falling**

<table>
<thead>
<tr>
<th>Did you feel uncomfortable answering this question</th>
<th>Version 1, 2 (n=9)</th>
<th>Total 3 (n=4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not uncomfortable</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Not uncomfortable, lack information</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Uncomfortable - lack knowledge</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

*Note: mutually exclusive categories*
Section 4. Respondents’ reasons for rating their chance of falling same as or different to others: responses to probing

Questions asked: Version 1, 2 and 3

Version 1 and 2. The first nine respondents were asked the following item about rating their chance of falling the same as or different to others. This item was asked after respondents rated their own chance of falling and other people’s chance of falling. It was the third item of the survey.

YOU HAVE RATED YOUR CHANCE OF FALLING IN THE NEXT 12 MONTHS LESS THAN [MORE THAN/SAME AS] THE AVERAGE FEMALE [MALE]. CAN YOU GIVE ME THREE MAIN REASONS FOR RATING YOURSELF LOWER [HIGHER][THE SAME]? TAKE YOUR TIME TO THINK OF THREE MAIN REASONS

Version 3. The last four respondents were asked the following item about rating their chance of falling the same as or different to others. This item was asked after respondents rated their own chance of falling and other people’s chance of falling. It was the last item of the survey.

YOU HAVE RATED YOUR CHANCE OF FALLING IN THE NEXT 12 MONTHS DIFFERENT TO [SAME AS] OTHER FEMALES [MALES] ABOUT YOUR AGE IN GENERAL. CAN YOU GIVE ME THREE MAIN REASONS FOR RATING YOURSELF DIFFERENT [THE SAME]? TAKE YOUR TIME.
Comprehension: Repeating question

Comprehension of the item for three reasons why they rated themselves the same as or different to others was assessed by instructing respondents to repeat the question (see Table 21). The major highlight was that two respondents mentioned three reasons or why, but did not compare themselves to others. That is, they answered the question by focusing on themselves. One of these respondents appeared to comprehend the question but modified it to suit herself, as indicated in the quote below.

I don’t know, just the fact, how did you rate yourself as falling, not in relation to anybody else, because it is only yourself that you know about, and you are not really interested in whether somebody else is going to fall over. [08]

Two respondents highlighted that to repeat the question, their short term memory was not as good as it was, while another indicated they had a good memory which assisted in responding to the question.
Table 21. Comprehension: Rating Their Chance of Falling Same as or Different to Others

<table>
<thead>
<tr>
<th></th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Could you please repeat the question in your own words?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three reasons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Why</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No reasons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three reasons/Why</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Could not repeat question, stated short term memory problem</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: mutually exclusive categories

Retrieval of information: how answered question

The overall cognitive strategy was analysed for ‘probed’ explanations for how respondents got to the answer they did as well as ‘unprobed’ explanations. The most common explanation was that respondents thought about their own history of falls or the awareness or possibility of falling (makes you more aware, is in the back of my mind, and afraid of damaging hip replacements) or thought of themselves in terms of what they do (see Table 22). Two respondents thought about other older people to answer the question.
Table 22. Retrieval: Three Reasons Why They Rated Themselves the Same As or Different to Other Older People

<table>
<thead>
<tr>
<th>How did you get to the answer?</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own history of falls, awareness of possibility of falling or concern for consequences of falling</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Thought of self: what precautions they take, how careful they are, their physical activity, what they do in their life, who they are and what they do differently</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Thought about friends and others: what they do in their homes, their health, physical activity, other activities, mobility, pain and gait</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Did not ask</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: Not mutually exclusive categories

Retrieval of information: was question hard to answer

Respondents were asked if giving three reasons for rating themselves the same as or different to others was hard to answer (see Table 23). Three respondents indicated they still had to think about the answer before responding, as indicated in the quote below.

I had to think about why I am not falling or what I am going to do about … stopping the fall …. You know, about the medical, the health, that sort of thing. I had to give it a minutes thought. No I think that was an obvious answer [07].
Two respondents believed that they did not know enough information about other people, for example how careful other people are or how many women would fall. As indicated in the quote below, one respondent indicated that the question did not appear relevant to her.

Yes it was because I don’t know how many other women are going to fall, and what that has in relation to me. [laughing] It sort of, a bit pie in the sky [08].

Further, one respondent thought the question was ambiguous.
Table 23. Retrieval: Giving Three Reasons Why They Rated Themselves the Same or Different

<table>
<thead>
<tr>
<th>Was it hard to answer?</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1, 2 (n=9)</td>
<td>3 (n=4)</td>
</tr>
<tr>
<td>No</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Had to think what you intended to get out of the answer</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Had to think about it</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Ambiguous, be better to be specific about falling: tripping or losing balance</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Yes Reasons given were:</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Had to think about what you do in your life</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Do not know what is going to happen</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Do not know about other people</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>For people that that have a reason for falling, it would be easier to answer</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: ‘Yes’ and ‘no’ categories are mutually exclusive.

Judgement: confidence

Of those respondents who were asked if they were confident of their reasons for rating their chance of falling the same as or different to others, they were all confident (see Table 24).
Table 24. Confidence: Giving Three Reasons Why Respondents’ Rated Themselves the Same or Different

<table>
<thead>
<tr>
<th>Are you confident of your answer?</th>
<th>Version 1, 2 (n=9)</th>
<th>Total 3 (n=4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Based on response did not understand the confidence judgement question</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: mutually exclusive categories

Response: Did you feel uncomfortable answering this question?

Respondents were asked if they felt uncomfortable answering the item regarding the three reasons why they rated themselves the same as or different to others (see Table 25). Two respondents were uncomfortable answering the question. One respondent stated he was uncomfortable because maybe by talking about falling it might stay in his mind. It was not the specific question but talking about falling. One respondent indicated the difficulty in answering the question because they found it hard to give a straight answer (see quote below).

I am finding it very hard to give a straight answer, because I don’t think there is a straight answer. [11]
Table 25. Response: Giving Three Reasons Why Respondents Rated Themselves the Same or Different

<table>
<thead>
<tr>
<th>Did you feel uncomfortable answering this question</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1, 2 (n=9)</td>
<td>3 (n=4)</td>
</tr>
<tr>
<td>Not uncomfortable</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Uncomfortable</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>By thinking about falling might stay in his mind and make him afraid of falling</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Hard to give a straight answer</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

*Note:* mutually exclusive categories
Section 5. Own falls history in last 12 months: responses to probing

Questions asked: Version 1, 2 and 3

There were three versions to the order of asking the history of falls questions.

Version 1 asked the first four respondents the following item about falling in the last 12 months. This item followed asking the item if they had fallen in the last three months.

HAVE YOU HAD ANY OTHER FALLS, IN THE PAST 12 MONTHS? THAT WOULD BE SINCE SEPTEMBER LAST YEAR. INCLUDE FALLS EVEN WHEN YOU WERE NOT HURT? TAKE YOUR TIME TO REMEMBER WHEN YOU HAVE FALLEN IN THE PAST 12 MONTHS.

Version 2 asked the next five respondents the following item about falling in the last 12 months. This item followed the definition of falling.

IN THE PAST 12 MONTHS HAVE YOU HAD ANY FALLS? THIS MIGHT INCLUDE FALLS EVEN WHEN YOU WERE NOT HURT. THIS WOULD BE SINCE SEPTEMBER LAST YEAR SO TAKE YOUR TIME TO REMEMBER.

Version 3 asked the next four respondents the following item about falling in the last 12 months. This item followed the definition of falling.

INCLUDE FALLS EVEN WHEN YOU WERE NOT HURT? IN THE PAST 12 MONTHS, HAVE YOU HAD ANY FALLS? THAT WOULD BE SINCE ABOUT SEPTEMBER LAST YEAR, SO TAKE YOUR TIME TO REMEMBER.

Responding to question: falling in the last 12 months

One of the four respondents in Version 1 responded to the survey question before the interviewer had finishing asking the question; and four out of four respondents in Version 3 responded to the question before the interviewer had finishing asking the question.
**Comprehension: Repeating question falling in the past 12 months**

Those who were asked to repeat the question repeated it in a way that suggested they comprehended the question (see Table 26).

**Table 26. Comprehension: Falling In Last 12 Months**

<table>
<thead>
<tr>
<th>Could you please repeat the question in your own words?</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeated the question in a way that indicated that they comprehended the question as intended</td>
<td>1 (n=4)</td>
<td>2 (n=5)</td>
</tr>
<tr>
<td>Time: Repeated 12 months</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Time: Repeated September last year</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Definition of fall: Repeated fall to the ground</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Incorrect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Definition of fall: Repeated fall that has not incurred any injury</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Did not ask to repeat question</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Answered survey question and repeated 12 months</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Answered survey question</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Not asked survey question</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

*Note: not mutually exclusive categories*
Retrieval of information: how answered question

Respondents were asked how they answered the question. Based on their response, respondents appeared to remember their last fall because of the consequence of the fall, then worked out when it happened (see Table 27).

Five remembered falling in the last 12 months because of the consequence of the fall (embarrassment, requiring medical assistance, painful injury, ripped bedspread). Three remembered not falling in the last 12 months because of the impact on mobility and shock of the last fall. For example, one respondent recalled whether she fell before or after her husband died.

Some respondents seemed sure of the month when they last fell. Other respondents did not mention the date.

Two respondents who had injured themselves from a previous fall believed that if they had not injured themselves, they possibly would not remember falling.
Table 27. Retrieval: Falling In Last 12 Months

<table>
<thead>
<tr>
<th>How did you get to the answer?</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 (n=4)</td>
<td>2 (n=5)</td>
</tr>
</tbody>
</table>

**Fallen in the last 12 months, remembered**

because:

- Fell in public place and felt embarrassed/foolish
  - 2
- Fell on street and cut hand, required assistance from a pedestrian and received sutures
  - 0
- Believed fractured a rib because ribs were painful
  - 0
- Required a leg dressing for 6 weeks; ripped bedspread and careful not to do it again
  - 0

**Not fallen in the last 12 months, remembered last fall**

because:

- It took a while to get up
  - 1
- It impacted on mobility
  - 0
- It was in a supermarket, and husband was alive then
  - 0
- Not asked
  - 1

*Note: mutually exclusive categories*
Retrieval: Was it hard to remember back 12 months to answer this question?

Of those who were asked if it was hard to remember back 12 months to answer this question, one respondent thought it was hard to remember (“going back 12 months, it’s very hard to remember what you did on each day” [05]) (see Table 28). One respondent stated that it required a little working out.

Table 28. Retrieval: Falling In Last 12 Months

<table>
<thead>
<tr>
<th>Was it hard to remember back 12 months</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 (n=4)</td>
<td>2 (n=5)</td>
</tr>
<tr>
<td>Hard</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Not hard</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Not asked</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

*Note: mutually exclusive categories*

Judgement: confidence

All respondents (who were asked) were confident of their response of whether or not they had fallen in the last 12 months (see Table 29).

Table 29. Confidence: Falling In The Last 12 Months

<table>
<thead>
<tr>
<th>Are you confident of your answer</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 (n=4)</td>
<td>2 (n=5)</td>
</tr>
<tr>
<td>Yes</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

*Note: mutually exclusive categories*
Response: Did you feel uncomfortable answering this question?

Of those respondents who were asked if they were uncomfortable answering the question, no respondents reported being uncomfortable (see Table 30).

Table 30. Response: Falling In Last 12 Months

<table>
<thead>
<tr>
<th>Uncomfortable responding to own falls in 12 months</th>
<th>Version 1 (n=4)</th>
<th>Version 2 (n=5)</th>
<th>Version 3 (n=4)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not uncomfortable</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Not asked</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>
Questions asked: Version 1, 2 and 3

There were three versions of the order of asking the history of falls questions in the last three months.

Version 1 asked the first four respondents the following item about falling in the last three months. This item followed the definition of falls.

HAVE YOU HAD ANY FALLS IN THE PAST 3 MONTHS? THAT WOULD BE SINCE ABOUT MAY. INCLUDE ALL FALLS EVEN WHEN YOU WERE NOT HURT? TAKE YOUR TIME TO REMEMBER IF YOU HAVE FALLEN IN THE PAST 3 MONTHS.

Version 2 asked the next five respondents the following item about falling in the last 12 months then three months.

IN THE PAST 3 MONTHS, HAVE YOU HAD ANY FALLS? THIS MIGHT INCLUDE FALLS EVEN WHEN YOU WERE NOT HURT? THAT WOULD BE SINCE MAY, SO TAKE YOUR TIME TO REMEMBER.

Version 3 asked the next four respondents about falling in the last 12 months then three months.

IN THE PAST 3 MONTHS, HAVE YOU HAD ANY FALLS? THAT WOULD BE SINCE ABOUT MAY, SO TAKE YOUR TIME TO REMEMBER.
Responding to question: falling in the last three months

Three of the four respondents in Version 1 responded to the survey question before the interviewer had finishing asking the question. This could indicate their confidence in responding to this question, as indicated below or that this question was asked before asking about falls in 12 months.

SO HAVE YOU HAD ANY FALLS IN THE PAST 3 MONTHS? [interrupted]
08 No [0 second]

THAT WOULD BE SINCE MAY. SO INCLUDE ALL FALLS [interrupted]
08 No. Nothing

EVEN WHEN YOU WERE NOT HURT? [interrupted]
08 No not at all.

Comprehension: Repeating question falling in the past three months

Those who were asked to repeat the question repeated it in a way that suggested they comprehended the question (see Table 31).
Could you please repeat the question in your own words? | Version | Total |
--- | --- | --- |
1 (n=4) | 2 (n=5) | 3 (n=4) |
Repeated the question in a way that indicated that they comprehended the question as intended | 4 | 0 | 0 | 4

Mentioned time

Repeats 3 months | 4 | 0 | 0 | 4

Definition of fall

Repeated slip, fall or trip | 2 | 0 | 0 | 2
Repeated fall to the ground | 1 | 0 | 0 | 1

Did not ask to repeat question

Answered survey question | 0 | 2 | 4 | 6
Did not fall within 12 months so did not ask if fell within 3 months | 0 | 1 | 0 | 1
Did not ask survey question | 0 | 2 | 0 | 2

Note: mutually exclusive categories

Retrieval of information: how answered question

The one respondent who remembered falling in the last three months arrived at their answer because they remembered the consequence of the fall (see Table 32).

Some respondents appeared sure of the month when they last fell while other respondents were not quite sure exactly when they fell. Other respondents did not mention the date.
Table 32. Retrieval: Falling In Last Three Months

<table>
<thead>
<tr>
<th>How did you get to the answer?</th>
<th>Version 1 (n=4)</th>
<th>Version 2 (n=5)</th>
<th>Version 3 (n=4)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not fallen in last 3 months</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Know had not fallen</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Remembered last fall which was not in the last 3 months, embarrassed</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Fallen in last 3 months</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Fell at bowls and remembered the month because it was during winter bowling season</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>9</td>
</tr>
</tbody>
</table>

Note: fallen and not fallen mutually exclusive categories

Response: Was it hard to remember back three months to answer this question?

Of those who were asked if it was hard to think back three months to answer the question, only one respondent said it was hard and that he had a better memory for recalling telephone numbers (see Table 33).

Table 33. Retrieval: Falling In Last Three Months

<table>
<thead>
<tr>
<th>Was it hard to remember back three months?</th>
<th>Version 1 (n=4)</th>
<th>Version 2 (n=5)</th>
<th>Version 3 (n=4)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Not hard</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>8</td>
</tr>
</tbody>
</table>

Note: mutually exclusive categories
Judgement: confidence

Of those who were asked if they were confident of their response of falling or not in the last three months, they all agreed they were confident (see Table 34).

Table 34. Confidence: Falling In Last Three Months

<table>
<thead>
<tr>
<th>Are you confident of your answer?</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 (n=4)</td>
<td>2 (n=5)</td>
</tr>
<tr>
<td>Yes</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

Note: mutually exclusive categories

Section 7. Own falls history: how many falls in last 12 months: responses to probing

Questions asked: Version 1 and 2

The following item was asked for the first two versions.

HOW MANY TIMES HAVE YOU FALLEN IN THE PAST 12 MONTHS? INCLUDE THOSE FALLS EVEN WHEN YOU WERE NOT HURT? TAKE YOUR TIME TO COUNT THE NUMBER OF FALLS YOU HAVE HAD.

Only those respondents who had fallen were asked this question and no problems were identified. A decision was made not to continue to ask this question because it did not provide much more information than by asking respondents if they had fallen in the past three or twelve months.
The following item was asked in the third version.

IN YOUR OPINION, IN THE PAST 12 MONTHS HAVE YOU HAD A BAD OR SERIOUS FALL?

Of the four respondents, three reported to have no bad falls and one reported they had one bad fall.

Comprehension: meaning of ‘bad fall’

Three of the four respondents from Version 3 were asked what the term ‘bad fall’ and ‘serious fall’ meant to them. Two of the three respondents agreed that a ‘bad fall’ included physical injury such as a bad sprain or bruising and the emotional aspect of being shaken up; while the third respondent believed a ‘bad fall’ was to result in a fracture.

All three respondents agreed that a ‘serious fall’ was a really bad fall, more serious than a bad fall. Two respondents believed this entailed going to hospital, while one respondent believed a serious fall was sustaining injuries such as a fractured hip or knocking their heads.
Section 9. Other people’s falls history in last 12 months: responses to probing

Questions asked: Version 1, 2 and 3

There were three versions of the order of asking the indirect history of falls questions.

Version 1 asked the first three respondents the following question which appeared at the end of the survey.

DO YOU KNOW SOMEONE WHO HAS HAD ANY FALLS IN THE PAST 12 MONTHS? INCLUDE FALLS EVEN WHEN THEY WERE NOT HURT? TAKE YOUR TIME TO REMEMBER?

Version 2 asked the next four respondents about knowing others fall in the last 12 months followed by three months and these questions appeared at the end of the survey. Two respondents were not asked this question.

THE NEXT TWO QUESTIONS ARE ABOUT WHETHER YOU KNOW SOMEONE AGED OVER 65 YEARS WHO HAS FALLEN. WHEN YOU ANSWER THIS QUESTION THINK ABOUT THOSE PEOPLE WHO YOU THINK ARE LIKELY TO FALL AND NOT LIKELY TO FALL. DO YOU KNOW SOMEONE WHO HAS HAD ANY FALL(S) IN THE PAST 12 MONTHS? INCLUDE FALLS EVEN WHEN THEY WERE NOT HURT? THAT WOULD BE SINCE SEPTEMBER LAST YEAR SO TAKE YOUR TIME TO REMEMBER?

Version 3 asked the next four respondents about them knowing others fall in the last 12 months followed by three months and these questions appeared at the beginning of the survey so the question includes the definition of a fall.

THE FIRST TWO QUESTIONS ARE ABOUT WHETHER YOU KNOW SOMEONE AGED OVER 65 YEARS WHO HAS FALLEN. BY A FALL, I MEAN A SLIP OR TRIP IN WHICH YOU LOSE YOUR BALANCE AND LAND ON THE FLOOR OR GROUND OR LOWER LEVEL. INCLUDE FALLS EVEN WHEN THE PERSON WAS NOT HURT? CONSIDER THOSE PEOPLE WHO YOU THINK ARE LIKELY TO FALL AND THOSE NOT LIKELY TO FALL. DO YOU KNOW SOMEONE WHO HAS HAD A FALL IN THE PAST 12 MONTHS? THAT WOULD BE SINCE ABOUT SEPTEMBER LAST YEAR, SO TAKE YOUR TIME TO REMEMBER?
**Responding to question: knowing others fall in the past 12 months**

One of the three respondents in Version 1 responded to the survey question before the interviewer had finished asking the question; and two of the four respondents in Version 3 responded to the question before the interviewer finished asking the question.

**Version 3. One respondent talked about their falls history first.**

**Comprehension: repeating question knowing others fall in the last 12 months**

Respondents were not asked to repeat this question.

**Retrieval of information: how answered question**

The most common way respondents recalled other people falling in the last 12 months was by talking about their close friends, neighbour or colleague who they had personal and often frequent contact with, and who had sustained consequential falls (see Table 35).

One respondent believed that women would talk about this “Women tend to chat and pass on – how are you, and they’re quite likely to come up and tell you ‘I’m fine now but I had a fall” [04].
Table 35. Retrieval: Knowing Others Fall in Last 12 Months

<table>
<thead>
<tr>
<th>How did you get to the answer?</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 (n=3)</td>
<td>2 (n=6)</td>
</tr>
<tr>
<td>In contact with friend/neighbour/colleague who was recovering from a fall injury, had pain and/or resulting disability, decrease in confidence or were unable to do the things they would usually do</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Thought about friends known to fall, then about close immediate friends and then other friends</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Stayed with friend until ambulance came; drove neighbour to doctor after she cut herself</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Not asked</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: not mutually exclusive categories

Some respondents seemed sure of the month or approximate time when their friend fell. Other respondents when considering who had fallen were not so sure of the date. Some did not mention the date or how they remembered this.

Retrieval: Was it hard to remember back 12 months to answer this question?

Of those who were asked whether it was hard to remember back 12 months to answer this question, no respondents indicated that it was hard (see Table 36).
Table 36: Retrieval: Knowing Others Fall in Last 12 Months

<table>
<thead>
<tr>
<th>Was it hard to remember back 12 months?</th>
<th>Version 1 (n=3)</th>
<th>Version 2 (n=6)</th>
<th>Version 3 (n=4)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Not hard</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>

*Note: mutually exclusive categories*

Judgement: confidence

Of those respondents who were asked if they were confident of their judgement of knowing or not knowing others fall, they were all confident of their response (see Table 37).

Table 37. Confidence: Knowing Others Fall in Last 12 Months

<table>
<thead>
<tr>
<th>Are you confident of your answer?</th>
<th>Version 1 (n=3)</th>
<th>Version 2 (n=6)</th>
<th>Version 3 (n=4)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Not asked</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>

*Note: mutually exclusive categories*

Response: Did you feel uncomfortable answering this question?

Of those who were asked if they felt uncomfortable answering this question, no respondents indicated they were uncomfortable (see Table 38).
Table 38. Response: Knowing Others Fall in Last 12 Months

<table>
<thead>
<tr>
<th>Uncomfortable responding to own falls in 12 months</th>
<th>Version 1 (n=3)</th>
<th>Version 2 (n=6)</th>
<th>Version 2 (n=4)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not uncomfortable</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Uncomfortable</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>7</td>
</tr>
</tbody>
</table>

*Note: mutually exclusive categories*
Questions asked: Version 1, 2 and 3

There were three versions of the order of asking the history of falls questions.

Version 1. The first three respondents were asked about knowing others fall, first by asking them in the last three months and then last 12 months. These items appeared at the end of the survey.

DO YOU KNOW SOMEONE WHO HAS HAD ANY FALLS, IN THE PAST 3 MONTHS? THAT WOULD BE SINCE MAY. INCLUDE FALLS EVEN WHEN THEY WERE NOT HURT?

Version 2. The next four respondents were asked about them knowing others fall, first asking about knowing others fall in the past 12 months then three months. These questions appeared at the end of the survey. Two respondents were not asked.

DO YOU KNOW SOMEONE WHO HAS HAD A FALL, IN THE PAST 3 MONTHS? THIS MIGHT INCLUDE FALLS EVEN WHEN THEY WERE NOT HURT? THAT WOULD BE SINCE MAY, SO TAKE YOUR TIME TO REMEMBER.

Version 3 asked the next four respondents about them knowing others fall, asking about knowing others fall in the last 12 months then three months. These items were asked at the beginning of the survey.

DO YOU KNOW SOMEONE WHO HAS HAD A FALL, IN THE PAST 3 MONTHS? THAT WOULD BE SINCE ABOUT MAY, SO TAKE YOUR TIME TO REMEMBER.

Responding to question: knowing others fall in the past three months

Version 1. One of the three respondents answered the question before the interviewer finished asking it. Version 3. One of the four respondents interrupted the interviewer before the question was asked.
Comprehension: repeating question knowing others fall in the past three months

Most respondents appeared to comprehend the question correctly. A couple of responses indicated that respondents went to respond as if the question was for 12 months, and another respondent answered about themselves. One respondent referred to ‘anybody’ (see Table 39).

Table 39. Comprehension: Knowing Others Fall In Last Three Months

<table>
<thead>
<tr>
<th>Could you please repeat the question in your own words?</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 (n=3)</td>
<td>2 (n=6)</td>
</tr>
<tr>
<td>Correct</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Target: Anybody, older people or friends; 65s or over</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Time: Repeated three months</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Incorrect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time: Any time/12 months</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Incorrect: did not ask to repeat question</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Target: Talked about their own fall</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Answered survey question</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Did not ask</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: mutually exclusive categories

Retrieval of information: how answered question

In answering how they got the answer, based on the small number of responses in Table 40, respondents thought about their groups of friends. One respondent only recalled someone falling as she answered the question.
Two respondents believed that others might have falls and not tell them. Reasons given were that they did not talk about falls or they might be a bit embarrassed to tell others about falling, particular falls where they have not hurt themselves. On the other hand, a respondent believed her friends would tell her despite the consequences of their fall, and likewise she would tell them.

Table 40. Retrieval: Knowing Others Fall In Last Three Months

<table>
<thead>
<tr>
<th>How did you get to the answer?</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 (n=3)</td>
<td>2 (n=6)</td>
</tr>
<tr>
<td>Thought about different group of friends</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Not asked to repeat question, thought about</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>neighbourhood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not asked to repeat question</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Not asked survey question</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

Some respondents seemed sure of the month or approximate time when their friend fell, and when considering who had fallen were not so sure of the date. Some did not mention the date or state how they remembered this.

Retrieval: Was it hard to remember back three months to answer this question?

One person said it was hard to respond and stated “I’ve got a lot of respect for other people and I’m careful of not interfering” [05]. One respondent said it was not hard because she did not have many friends left (see Table 41).
Table 41. Retrieval: Knowing Others Fall In Last Three Months

<table>
<thead>
<tr>
<th>Was It Hard To Remember Back 3 Months</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 (n=3)</td>
<td>2 (n=5)</td>
</tr>
<tr>
<td>Hard</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Not hard</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

Judgement: confidence

All respondents who were asked agreed they were confident of their response (see Table 42).

Table 42. Confidence: Knowing Others Fall In Last Three Months

<table>
<thead>
<tr>
<th>Are you confident of your answer?</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 (n= 3)</td>
<td>2 (n= 6)</td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Not asked</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

Response: Did you feel uncomfortable answering this question?

Respondents were not asked if they were uncomfortable responding to the item about whether knowing other people fall in three months.
Section 11. Respondent burden to cognitive interviewing

Issues with examining comprehension

To examine comprehension, respondents were asked the survey item which they responded to, then were asked to repeat the question. This was often too hard for some respondents to repeat the question without the survey item repeated. This was so for the cognitive interviewing questions asking them to repeat the questions about their own chance of falling (three interviews), other people’s chance of falling (five interviews), reason why they rated themselves the same as or different to others (five interviews), and for repeating whether they have fallen or know others who have fallen (two interviews).

Respondents’ short term memory may be implicated here. In response to asking respondents to repeat the survey item, the reason why they rated themselves the same as or different to others questions, one respondent said that she did not have as good short term memory as she had 20 years ago, and indicated at the end of the interview that the hardest thing in the interview was to repeat the questions; and two respondents were unable to repeat the question.

Probing, particularly when respondents were asked to repeat the question (examining comprehension) was confusing for some respondents. As can be seen in Table 43, 44, 45 and 46, instructions to repeat the questions often resulted in respondents answering the survey item and repeating the survey item.
**Comprehension: Rating Own Chance of Falling**

Responding to the request to repeat the question (comprehension) regarding their chance of falling caused some confusion. Three respondents answered the question then repeated it, whilst another repeated the question then answered it. One respondent was confused about the request to repeat the question (see Table 43).

**Table 43. Comprehension: Rating Own Chance of Falling**

<table>
<thead>
<tr>
<th>Could you please repeat the question in your own words?</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1, 2 (n=9)</td>
<td>3 (n=4)</td>
</tr>
<tr>
<td>Answered the survey item and then repeated the CI question</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Repeated CI question and then answered the survey item</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Answered the survey item but confused by being asked to</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>repeat question</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: CI = cognitive interviewing*

**Response: Rating Own Chance of Falling**

One respondent got confused with answering the cognitive interviewing question about feeling uncomfortable and initially thought she had to respond to feeling uncomfortable on a scale of zero to then, instead of a yes or no response.

**Comprehension: Rating Other People’s Chance of Falling**

Six respondents got confused with repeating the question about rating other people’s chance of falling (see Table 44).
Table 44. Comprehension: Rating Other People’s Chance of Falling

<table>
<thead>
<tr>
<th>Could you please repeat the question in your own words?</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2 (n=9)</td>
<td>3 (n=4)</td>
<td></td>
</tr>
</tbody>
</table>

Answered the survey item and then repeated the CI question

Repeated CI question and then answered the survey item

Note: CI = cognitive interviewing

Comprehension: Rating Their Chance of Falling Same as or Different to Others

Three respondents were confused with repeating the question about rating other people’s chance of falling (see Table 45).

Table 45. Comprehension: Giving Three Reasons Respondents Rated Themselves Same As or Different to Others

<table>
<thead>
<tr>
<th>Could you please repeat the question in your own words?</th>
<th>Version</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2 (n=9)</td>
<td>3 (n=4)</td>
<td></td>
</tr>
</tbody>
</table>

Answered CI question and then answered the survey item

Repeated answer to survey item instead of answering CI question

Answered survey item but did not answer the CI question

Note: CI = cognitive interviewing
Confidence Judgement: Rating Their Chance of Falling Same as or Different to Others

One respondent was confused with answering this cognitive interviewing question about feeling confident with her response.

Comprehension: Recalling own fall in last three months

Of the four respondents asked to repeat the question, three repeated the cognitive interviewing question and answered the survey question (see Table 46).

Table 46. Comprehension: Own Falls in Last Three Months

<table>
<thead>
<tr>
<th>Could you please repeat the question in your own words?</th>
<th>Version 1 (n=4)</th>
<th>Version 2 (n=5)</th>
<th>Version 3 (n=4)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeated CI question and then answered the survey item</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: CI = cognitive interviewing

Satisfaction with cognitive interviewing

At the end of the interview, two respondents stated they found the cognitive interview repetitive, as illustrated in the quote below.

I felt as if I was saying the same thing over and over again. Probably, in that case you do want to get rid of one of perhaps each type. It might be silly to say that. But really, some of them I felt, “oh god, not that again, I have only just answered that”. If that is any help to you [09].
Two respondents may not have understood the purpose of the study, as they found the aim of the study was not clear. Five respondents stated that they did not think that they were helpful. This suggests that they were not satisfied with their contribution to the interview or with the process.
Section 12. Respondent reaction to the topic

Before the interview commenced, respondents were encouraged to give their honest thoughts and opinions and even if it was critical, and to tell the interviewer if they reacted to anything. One respondent gave critical feedback. Immediately after completing the interview and prior to the cognitive interview questions, a respondent told the interviewer that the interviewer was treating older people (himself) as if they do not know what they were talking about. The respondent stated the specific problem was that the interviewer was explaining things precisely. He believed that the interviewer should treat older people on a one to one basis, depending on who they were talking to, not treating them all like they are old and not capable, as indicated in the following quote below.

“I thinking you are treating people as though they might be senile … You seem to be talking down to us” [13].

The same respondent reacted to the interviewer commenting how quickly he answered the question about rating his own chance of falling. The respondent incorrectly inferred from this that the interviewer was saying that because he was a certain age means he cannot answer questions. The same respondent asked the interviewer what the statistics where for older people falling, and sounded surprised and then argued the ratio would be higher. When the interviewer asked him if he would like to participate in another study about falls, he said it would irrelevant to him, and that it would be a total waste of time.

Another respondent stated that she felt a bit inadequate in responding to the questions because “I’m not quite there yet with having falls” [01], inferring that she was not yet at risk of having falls.
Appendix J. Information sheet and consent from (Chapter 5)

June 2006

Information sheet: Giving feedback about a survey looking at how people aged 65 years and over understand their risk of falling

You are invited to participate into a study about the perceived risk of falls amongst people aged 65 years and over. The purpose of this study is to improve questions that ask older people about their risk of falling. We want to make sure the questions we ask make sense, are easy enough to understand and respond to. The outcome will be a questionnaire that can be used to survey older people about their view of their risk of falling.

Although you personally may not benefit from this study, it is hoped that the process will ensure that the information derived from the surveys will have less mistakes in them.

If you would like to participate, Joanne Dollard, a research student from the University of Adelaide will interview you for approximately one hour. The interview can be face to face or over the telephone. It is best if the face-to-face interview is held in a quiet place that suits you. This could be within your home within metropolitan Adelaide or if it suits, in an office at the Discipline of General Practice, on Frome Rd. With your permission, Joanne will tape record the interview.

If you decide to participate, your personal information will be treated confidentially and you will not be personally identified at all in any published results. You are also free to withdraw at any time.

If you have any questions about the research, you can contact Joanne Dollard, on the number below. Ethics approval has been obtained from the University of Adelaide. For any questions concerning the ethics of this study, please contact the Convenor of the Subcommittee for Human Research Ethics in the Psychology Department, Dr Paul Delfabbro on 8303 5744.

Thank you

Joanne Dollard (research student) 8303 4340
Professor Deborah Turnbull (Supervisor) 8303 5738
Consent form: Giving feedback about a survey looking at how people aged 65 years and over understand the risk of falling

1. I, ………………………………………… (Please print name) consent to take part in the research project entitled: Giving feedback about a survey looking at how people aged 65 years and over understand the risk of falling.

2. I acknowledge that I have read the attached Information Sheet entitled: Giving feedback about a survey looking at how people aged 65 years and over understand the risk of falling.

3. I have had the project, so far as it affects me, fully explained to my satisfaction by the research worker. My consent is given freely.

4. Although I understand that the purpose of this research is to improve questions in a survey looking at how older people view their risk of falling, it has also been explained that my involvement may not be of any benefit to me.

5. I have been given the opportunity to have a member of my family or a friend present while the project was explained to me.

6. I understand that I will be audiotaped during the interview, and at the completion of the study the recording will be stored on a CD in a locked store for seven years in the Discipline of General Practice.

7. I have been informed that, while information gained during the study may be published, I will not be identified and my personal results will not be divulged.

8. I understand that I am free to withdraw from the project at any time.

9. I am aware that I should retain a copy of this Consent Form, when completed, and the attached Information Sheet.

……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………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HEALTH MONITOR QUESTIONNAIRE
2006 – August/September

Introduction

Good ....... My name is ........ I’m calling on behalf of the South Australian Department of Health. We are conducting a survey on a range of health issues. We recently sent you a letter about the survey on behalf of the Department.

Did you receive the letter?

(Single response)
1. Yes [ ]
2. No [ ]
3. Don’t know [ ]

Could I please speak with the person in the household, aged 18 or over, who was the last to have a birthday?
I can assure you that all information given will remain confidential. The answers from all people interviewed will be gathered together and presented in a report. No individual answers will be passed on.

1. Respondent [ ]
2. Foreign language interviewer [ ]
3. Required Enter language [ ]
4. Refusal Enter reasons [ ]

A. DEMOGRAPHICS

As some of the next questions relate to certain groups of people only, could you please tell me...

A.1 How old are you?

(Single response)
1. Enter age [ ]
2. Not Stated [999]
3. Don’t know [ ]

Sequence guide: If A.1 < 999, go to A.3

A.2 Which age group are you in? Would it be...

(Read options. Single response)
1. 18 to 24 years [ ]
2. 25 to 34 years [ ]
3. 35 to 44 years [ ]
4. 45 to 54 years [ ]
5. 55 to 64 years [ ]
6. 65 to 74 years [ ]
7. 75 years or over [ ]
8. Refused End Interview

A.3 Sex (ask if unsure)

1. Male [ ]
2. Female [ ]

A.4 Including yourself how many people aged 18 or over live in this household?

(Single response. Enter number of people 18 years or over)
1. Enter number ______
2. Not stated [999]
A.5 How many children under 18 years live in your household?

(Single response. Enter number of people 18 years or over)
1. Enter number
2. Not stated [999]

A.6 What is your postcode?

(Single response, enter 5999 if postcode is not known)
1. Enter postcode Go to NS
2. Not stated [5999]

A.7 What is your suburb, town or community?

(Single response. Enter town/suburb)
1. Enter town/suburb
2.

D. FALLS

(Discipline of General Practice, Discipline of Rural Health & School of Psychology The University of Adelaide)

Sequence guide: if A.1[Age] < 65 go to NS OR if [Age range] < 6 go to NS (That is, if age is less than 65, do not answer questions in Section B on Falls).

Now to change the subject ...

The next question is about whether you have fallen. By a fall, I mean a slip or trip in which you lose your balance and land on the floor or ground, including falls even when you were not hurt.

D.1 How many falls have you had in the last 12 months? This would include falls since August last year.

(Single response. Interviewer note: September 2005 to end August 2006)
1. Enter number [limited number field]
2. None
3. Don’t know
4. Refused

Sequence Guide: If D.1 > 1 (i.e. no falls), go to D.4

D.2 How many of these falls were in the last 3 months? This would include falls since May this year.

(Single response. Interviewer note: includes June, July and August 2006)
1. Enter number [limited number field]
2. None
3. Don’t know
4. Refused
D.3 Thinking about the fall[s] you had in the last 12 months, in your opinion, how many of these would you consider were bad or serious falls?

(Single response. Interviewer note: If respondent unsure, prompt that it is what the person thinks is a bad or serious fall)

1. Enter number [limited number field]
2. None
3. Don’t know
4. Refused

D.6 Thinking about yourself again ...

What do you think is your chance of falling in the next 12 months? Please give an answer on a scale of 0-10, with 0 being 'No chance of falling' and 10 being 'I think I will certainly fall in the next 12 months'.

(Single response. Prompt for number between 0-10.)

Interviewer note: If respondent’s rating is greater than 5, prompt with "Does this mean that you consider your chance of falling is CLOSER TO TEN, that is certain to fall in the next 12 months?" If respondent’s rating is less than 5, prompt with "Does this mean that you consider your chance of falling in the next 12 months is closer to zero, that is 'No chance of falling'?"

1. 0 No chance of falling
2. 1
3. 2
4. 3
5. 4
6. 5
7. 6
8. 7
9. 8
10. 9
11. 10 Certain of a fall in next 12 months
12. Don’t know/refused - SPECIFICALLY mentions "Falls are unpredictable"
13. Don’t know (specify – prompt with "Can you please tell me more?")
14. Refused

D.4 The next two questions are about people you know aged 65 years and over who have had a fall. By a fall, I mean a slip or trip in which the person loses their balance and lands on the floor or ground, including falls even when the person was not hurt. In your response, please also consider people who you think are fit and well.

How many people do you know who are aged 65 years and over who have had a fall in the last 12 months? This would include falls since August last year.

(Single response. Interviewer note: September 2005 to end August 2006)

1. Enter number [limited number field]
2. None
3. Don’t know
4. Refused

Sequence guide: If D.4 > 1 (ie no falls), go to D.6

D.5 How many of these falls were in the last 3 months? This would include falls since May this year.

(Single response. Interviewer note: includes June, July and August 2006)

1. Enter number [limited number field]
2. None
3. Don’t know
4. Refused
Programming note: Question to be asked of same sex as respondent, i.e., if FEMALE respondent, "What do you think is the chance that other FEMALES about your age...?", and question to be framed that MALES are asked about other MALES.

D.7 What do you think is the chance that other [Females / Males] about your age in general will fall in the next 12 months? Please give an answer on a scale of 0-10, with 0 being 'No chance of falling' and 10 being 'I think they will certainly fall in the next 12 months'?

(Single response. Prompt for number between 0-10).

Interviewer note: If respondent's rating is greater than 5, prompt with "Does this mean that you consider that the chance of falling for other [females / males] about your age is CLOSER TO TEN, that is "certain to fall in the next 12 months"?"

If respondent's rating is less than 5, prompt with "Does this mean you consider that the chance of falling for other [females / males] about your age is closer to zero, that is 'no chance'?"

1. 0 No chance of falling
2. 1
3. 2
4. 3
5. 4
6. 5
7. 6
8. 7
9. 8
10. 9
11. 10 Certain of a fall in next 12 months
12. Don't know/refused - SPECIFICALLY mentions "Falls are unpredictable"
13. Don't know (specify – prompt with "Can you please tell me more?")
14. Don't know/refused - SPECIFICALLY mentions that they have INSUFFICIENT INFORMATION to select rating
15. Refused
Programming note: Same as D.7, ie if FEMALE respondent, "You have rated your chance of falling in the next 12 months as [different/same] as other FEMALES about your age ....?", and question to be framed that MALES are asked about other MALES.

D.8 You have rated your chance of falling in the next 12 months as [different to / the same as] other [Females / Males] about your age in general. Can you give me the main reason for rating yourself [as different / the same]?

(Single response. Interviewer note: If respondent answers "I take care" or "I take precautions" prompt with "Can you tell me more?")

1. Enter main reason (text field)
2. Don't know/refused – and SPECIFICALLY mentions "Falls are unpredictable"
3. Don't know
4. Refused
Z. DEMOGRAPHICS

Now to finish with some general questions

Z.1 Which of the following best describes your current marital status?

(Read options. Single response. Interviewer note: ‘De facto’ equals ‘Living with partner’)

1. Married [ ]
2. Living with a partner [ ]
3. Widowed [ ]
4. Divorced [ ]
5. Separated [ ]
6. Never married [ ]
7. Not stated/inadequately described [ ]

Z.2 What is your work status?

(Read options if necessary. Single response. Interviewer note: self-employed is either full or part time)

1. Full time employed [ ]
2. Part time/casual employment [ ]
3. Unemployed [ ]
4. Home duties [ ]
5. Retired [ ]
6. Student [ ]
7. Unable to work because of disability / Workcover / invalid [ ]
8. Other (specify) [ ]

Sequence guide: If Z.2 = 1 or 2, go to Z.4

Z.3 Do you receive any of the following pension benefits

(Read options. Multiple response)

1. Disability Support Pension [ ]
2. Unemployment Benefits [ ]
3. Sickness Benefits [ ]
4. Aged /widow’s pension [ ]
5. Service or defence/ War widow’s/ Repatriation Pension [ ]
6. Supporting parents benefit [ ]
7. AUSTUDY/student allowance [ ]
8. Other (specify) [ ]
9. None [ ]
10. Refused [ ]
Z.4  In which country were you born?

(Single response)
1. Australia
2. Austria
3. Bosnia-Herzegovina
4. Canada
5. China
6. Croatia
7. France
8. Germany
9. Greece
10. Holland/Netherlands
11. Hong Kong
12. Iran
13. Italy
14. Japan
15. Malaysia
16. New Zealand
17. Philippines
18. Poland
19. Slovenia
20. Spain
21. U.K. and Ireland
22. USA
23. Vietnam
24. Former Yugoslav Republic of Macedonia
25. Former Yugoslav Republics of Serbia & Montenegro
26. Other country (specify)
27. Refused

Sequence guide: If Z.4 = 1, go to Z.6

Z.5 What year did you arrive in Australia?

(Single response)
1. Enter year
2. Don’t know

Sequence guide: go to Z.7

Z.6 Are you of Aboriginal or Torres Strait Islander origin?

(Single response)
1. Yes
2. No
3. Refused

Z.7 What is the main language you speak at home?

(Single response)
1. English
2. Cambodian
3. Cantonese
4. Chinese
5. Croatian
6. Dutch
7. Filipino
8. German
9. Greek
10. Italian
11. Polish
12. Serbian
13. Spanish
14. Vietnamese
15. Other (specify)

Z.8 Which best describes the highest educational qualification you have obtained?

(Read options. Single response)
1. Still at school
2. Left school at 15 years or less
3. Left school after age 15
4. Left school after age 15 but still studying
5. Trade / Apprenticeship
6. Certificate / Diploma
7. Bachelor degree or higher
8. Refused

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Z.9 The next question is about housing. Is this dwelling ....

(Read options. Single response)
1. Owned or being purchased by the occupants [ ]
2. Rented from the Housing Trust [ ]
3. Rented privately [ ]
4. Retirement village [ ]
5. Other (specify) [ ]
6. Refused [ ]

Z.10 I would now like to ask you about your household's income. We are interested in how income relates to lifestyle and access to health services. Before tax is taken out, which of the following ranges best describes your household's income, from all sources, over the last 12 months?

(Read options. Single response)
1. Up to $12,000 [ ]
2. $12,001 - $20,000 [ ]
3. $20,001 - $40,000 [ ]
4. $40,001 - $60,000 [ ]
5. $60,001 - $80,000 [ ]
6. $80,001 - $100,000 [ ]
7. More than $100,000 [ ]
8. Refused [ ]
9. Don't know / not sure [ ]

Z.11 How many residential telephone numbers, including mobile phones, can be used to speak to someone in this household?

(Single response. Interviewer note: do not include Internet or fax numbers. If Z.11 > 3 check response with participant)
1. Enter number ______
2. Don't know [ ]

Z.12 How many times [do these / does this] number(s) appear in the White Pages?

(Single response. Interviewer note: do not include Internet or fax numbers. Total number of entries includes numbers that are listed more than once. If Z.12 > 3 check response with participant)
1. Enter number ______
2. Don't know [ ]

Z.13 All responses in this survey are strictly confidential. Sometimes we need to gather extra information about you [or about the children in your household] when there is a serious public health problem. If we require further information from you regarding health issues, could we phone you at a later date for help?

(Single response)
1. Yes (Specify – record first name only) ______
2. No [ ]

That concludes the survey. On behalf of the Department of Health, thank you very much for taking part in this survey.

Please record what language this interview was conducted in.

(Single response)
1. English [ ]
2. Italian [ ]
3. Greek [ ]
4. Vietnamese [ ]
5. Other (specify) [ ]

Date of interview ______
Day of week interview undertaken ______
Time of day interview undertaken ______
August 2006

Dear Householder

Your household is invited to take part in an important health and wellbeing survey being conducted by the South Australian Department of Health. Your responses to this survey will be used in improving the health of South Australians and the planning of services in South Australia.

One of our interviewers will be contacting your household in the next few weeks to interview the adult in the household aged 18 years and over in the household who had the last birthday. The interview will be conducted over the telephone and will take around 15 minutes. Your phone number has been selected randomly from all telephone listings in the state. All information collected will be confidential.

Your participation in the survey is very important. The results of the survey will help authorities in planning and developing health services that meet the needs and concerns of your community.

If you have any queries about the survey, please call the South Australian Population Health Study Hotline on 1800 635 352.

Yours sincerely

A/Prof Anne Taylor
Manager
Population Research & Outcome Studies
Appendix M. Parameter Estimates for Predicting Comparative Optimism
(Not Controlling for Age and Sex)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Estimate</th>
<th>SE</th>
<th>Chi-Square</th>
<th>Pr &gt; ChiSq</th>
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<td>4+</td>
<td>2.66</td>
<td>0.59</td>
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Note: DF = 1. Reference category was zero falls or zero people. SE = standard error
Appendix N. Parameter Estimates for Predicting Own Chance of Falling
(Not Controlling for Age and Sex)

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_Note: DF = 1. Reference category was zero falls or zero people. SE = standard error_
Appendix O. Parameter Estimates for Predicting Other People’s Chance of Falling
(Controlling for Age)

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Note. SE = Standard error
REFERENCES


Skelton, D. A., & Todd, C. (2004). What are the main risk factors for falls amongst older people and what are the most effective interventions to prevent these falls? How should interventions to prevent falls be implemented? Denmark: World Health Organization.


