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**PSYCHOLOGICAL OUTCOMES AMONG OLDER  
ADULTS ATTENDING FALLS PROGRAMMES**

**RESEARCH THESIS**

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## **DECLARATION**

**This work has not been submitted to any other institution or for any other qualification.**

## **ABSTRACT**

This thesis comprises a literature review, a research report, and a critical appraisal.

**Section one:** A review of the literature on the psychological consequences of falling among older people. This includes a consideration of the psychological consequences of falling, detailing prevalence and correlates. Evidence was found for the development of fear of falls, depression, anxiety, post-fall syndrome and post-traumatic stress disorder (PTSD) after falls, and these difficulties have been correlated with increasing age of the individual, personality, health and fall-related factors. Little research has investigated the incidence of PTSD in this population, and no research to date has examined the role of shame with regard to falling.

**Section two:** A prospective, repeated measures design (n=49) was employed, in which older people attending falls programmes completed questionnaires examining the attributions, anxiety, depression, post-traumatic symptomology and shame, before, and at the end of the falls group. Clinically significant levels of PTSD and other psychological symptoms are present after falls, which change over time, and are related to external shame, affective disorders and the presence of negative internal, global attributions for their fall.

**Section three:** The critical appraisal considers the research process for this study, based upon information from the research diary. The origins of the project, supervision, data collection, facilitators and barriers to the process are considered. Learning outcomes, methodological limitations and clinical implications are discussed.

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# STRUCTURE AND WORD COUNTS

	<b>Excluding References</b>	<b>Including References</b>
<b>Literature Review:</b>	7, 892	9, 482
<b>Research Report:</b>	11, 842	13, 785
<b>Critical Appraisal:</b>	3, 607	3, 922
<b>Total:</b>	23, 341	27, 189

	<b>Target Journal</b>
<b>Literature Review:</b>	<b>Clinical Psychology Review</b>
<b>Research Report:</b>	<b>Psychology and Health</b>

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## **Section 1: Literature Review**

### **Psychological Outcomes In Older People Following Falls**

# PSYCHOLOGICAL OUTCOMES IN OLDER PEOPLE FOLLOWING FALLS

## ABSTRACT

**Purpose:** To provide an outline of the available literature which examines the psychological consequences of falling, detailing prevalence and correlates. This review will also detail some of the methodological limitations of the studies presented, in addition to the implications for clinical practice and future research.

**Methods:** Peer reviewed journals up to the present day were searched for using the Ovid, PsychInfo and Web of Knowledge databases. Further papers were identified through examination of reference lists, contacting relevant authors and using other electronic means.

**Results:** Evidence is provided to show that there are significant consequences for older people who experience a fall. Fear of falling is most commonly addressed in the literature, and is estimated as affecting 37-65% of those who fall. The development of fear of falls has been correlated with increasing age of the individual, personality, health and fall-related factors. Other psychological difficulties faced by those who have fallen include depression, anxiety, post-fall syndrome and post-traumatic stress disorder.

**Conclusions:** Psychological disturbance is a relatively common consequence of falling, with fear of falls being the most widespread. Factors important in the early identification of those vulnerable to developing such difficulties after falling are outlined.



## **INTRODUCTION**

The population of the UK is ageing, and as a consequence of the 'baby boom' in the 1960s, this trend is set to continue. Between 1971 and 2005 there was an increase of 3% in the numbers of those over 65 years old, representing 16% of the overall population, and a 7% rise in those over 85 years old was also seen over the same period. This means that at present there are approximately 9.6 million individuals in Britain facing the challenges associated with reaching old age (Office of National Statistics, 2007). This is an international issue, with the US population of those in the over 65-age category reaching 70 million people by 2020 (Thompson, McCormick & Kagan, 2006) and the World Health Organisation (1996) estimating that between 1990 and 2020 there will be an increase of 140% in the numbers of those over 75 years world wide.

With increasing age comes an overall increased vulnerability to physical, functional and mental health problems, resulting in an increase in the utilization of health care services (Pinquart, 2001). Among the over 65s, falls affect 30% of the population every year, rising by a further 10% in the over 75 years old category (Tinetti & Williams, 1998). Falls constitute the sixth leading cause of death in older adults and is the leading reason for hospitalisation in the elderly (Cryer, Davidson & Styles, 1993). In Finland it is estimated that as a result of increases in the population of the older old (i.e., over 80 years old), there will be an increase by a factor of 3.4, in the numbers referred for fall induced severe head injury alone (Kannus, Niemi, Parkkari, Palvanen & Sievanen, 2007).

King and Tinetti (1995) cite evidence that of those people aged over 65 years, 30-55% of falls will result in minor injuries, with fractures occurring as a result 4-6% of falls, a

quarter of these breaks will be hip fractures. Of those falls that do not result in physical injury, the trauma associated with potentially lying on the floor for long periods of time, and unable to get up, can be significant (McKee, Orbell, Austin, Bettridge, Liddle, Morgan & Radley, 2002). Studies estimate that up to 50% of those who fall will have a period of lying, unable to get up, the physical consequences of which can be an increased risk of dehydration, pneumonia and pressures sores (Tinetti, Liu & Claus, 1993), and psychological consequences such as depression (Biderman, Cwikel, Fried & Galinsky, 2002), fear of falls and post falls syndrome (McKee, Chung & Pais, 2004).

As the body of evidence demonstrating the significant impact of falls on both the person and the economy grows, falls are increasingly seen by the National Health Service as a significant area for attention. Initially, the National Service Framework for Older People (Department of Health, 2004) identified the need to address falls in older people. Later the same year, the National Institute of Clinical Excellence (NICE, 2004) developed specific guidance around falls. This resulted in the creation of local falls care pathways and falls prevention groups, employing a comprehensive, multidisciplinary assessment and intervention for all those over 65 referred to health services as a result of a fall, with the goal of preventing further falls.

The aim of this paper is to examine some of the psychological outcomes for older people who have fallen, the possible risk factors and mechanisms for development of psychological problems after a fall, and finally some of the treatment implications for those working in falls rehabilitation services. The studies presented will also be critiqued in terms of the methodological weaknesses of their design or implementation.

## *Search Strategy*

All papers up until the present day were searched for, with no lower limit in place due to the paucity of literature in this area. Databases employed in this search were: Ovid, PsychInfo and Web of Knowledge.

The following search terms were used:

- Fall\*, accident\*; AND
- older, elder\*, ag\*; AND
- anxiety, depress\*, affect\*, worry, mood, fear of falling, falls efficacy, psych\*, PTSD, posttraumatic stress disorder, post-traumatic stress disorder, post traumatic stress disorder, post-fall syndrome, mental health

Further papers were located through an examination of the reference lists of included articles, related book reference lists, Google Scholar, the Prevention of Falls Network Europe (PROFANE) website resources and contacting authors involved in related research. The search excluded those results citing books, unpublished dissertation abstracts and those in languages other than English.

Table 1 summarises the papers included in the review.



### *Definition of fall*

In the literature there is a wide variability in the way that a fall is defined. Some studies require that it be an unexplained fall, that there be two or more such falls, while others encompass all of those who have had the experience of falling. In many cases there was no definition of what constitutes a fall, or a very specific, narrow example of what would be considered appropriate for the study (Hauer, Lamb, Jorstad, Todd & Becker, 2006). This clearly can cause difficulties with the generalisability of the research to wider populations. However the most frequently used definition is that of a nonsyncopal fall, and has been described as one which “results in a person coming to rest inadvertently on the ground or other lower level and other than as a consequence of ... sustaining a violent blow, loss of consciousness, sudden onset of paralysis, as in stroke, (or) an epileptic seizure” (Kellogg International Work Group on the prevention of falls in the elderly, 1987, p.2).

### *Financial and physical costs of falls*

Help the Aged estimated the annual cost to the NHS of providing care for those over 65 who have fallen in 2007 to be £981 million, and that one person dies as a result of a fall every five hours (Carvel, 2007, 26<sup>th</sup> June). Other studies in the UK (Scuffham, Chaplin & Legood, 2003; Newton, Kyle, Liversidge, Robinson, Wilton & Reeve, 2006) and USA (Stevens, Corso, Finkelstein & Miller, 2006; Alexander, Rivara & Wolf, 1992) have also outlined the significant financial and personal costs associated with falls in older people.

Thompson, McCormick and Kagan (2006) describe the prevalence rates and implications of falls in the USA, particularly focusing on the serious outcome of Traumatic Brain Injury (TBI). The paper cites 51% of TBI cases in older people over 75



years old, as being as a result of falling, with increasing age providing a negative influence on the individual's overall health outcome. A similar review in Finland was conducted, investigating the trends and the incidences of hospital admissions of those over 80, as a result of falls head injuries in the period 1970-2004 (Kannus, Niemi, Parkkari, Palvanen & Sievanen, 2007). The incidence of falls, (and the negative outcomes with associated with TBI), rose with increasing age of the individual. However, there also seemed to be an increase in the overall incidence of falls in this population, which the study was unable to explain. This increase is particularly significant as falls and their consequences have been reported as a significant indicator of overall general health and wider functioning (Prudham & Grimley Evans, 1981).

In recognition of the significant economic and individual losses associated with falls, in 2001 the National Service Framework (NSF) for older people was published with standard seven specifically addressing falls. The aim of this was to reduce the numbers of falls occurring in the population, but also to aid the recovery and rehabilitation of those who have experienced a fall. This led to the instructions to NHS Trusts to develop an integrated falls service by 2005, providing a clear care pathway for patients. As a consequence of the NSF for older people, the National Institute of Clinical Excellence (NICE, 2004) identified the importance of falls on the health of older people, providing guidelines in assessing and preventing falls. This involved the development of multifactoral falls risk assessments (including consideration of falls history, medication review, impairments and fear of falling), multifactoral interventions (including strength and balance training and home hazard assessment) and education about falls. Further research has continued into the causes, outcomes and prevention of falls, largely from medically focused studies (Hauer, Lamb, Jorstad, Todd & Becker, 2006).

### *Fear of falling*

Fear of falling has been one of the most widely reported and investigated psychological consequences of falling (Jorstad, Hauer, Becker, & Lamb, 2005), and has been defined in the literature as, “a specific anxiety directed towards a particular provoking factor (i.e., falling), and hence can be considered as a special case of anxiety, which is the generic term commonly employed to describe fearful reactions in the psychological and psychiatric literature” (Yardley, 1998, p.24). Yardley goes on to describe the three components of anxiety, namely the cognitive (i.e., hypervigilance, exaggerated focus on anxiety provoking thoughts), psychophysiological (i.e., increased heart rate, shakiness) and behavioural (i.e., avoidance of activity or freezing) elements, and how these reactions impact on the individual’s functioning as a result of the increased affective state.

Fear of falling has been associated with activity restriction (Suzuki, Ohyama, Yamada & Kanamori, 2002), social withdrawal (Wilson et al., 2005), poor engagement in rehabilitation (Yardley & Smith, 2002) and overall negative impact on quality of life (Salkeld et al., 2000). It has been noted in cross-cultural studies (Huang, 2005) and across age groups, although may be represented in different ways (Wilson et al., 2005).

Fear of falling has been reported as the most common fear for older adults living in the community (Howland, Peterson, Levin & Freid, 1993), with prior experience of falling not necessary to develop a fear of falls (Liddle & Gilleard, 1995). Studies estimate that between 37-65% of those who fall experience a fear of falling (Jamieson, Neuberger, & Miller, 2003; Liddle & Gilleard, 1995), with up to 66% of carers of those who have fallen rating the individual as afraid of further falls (Liddle & Gilleard, 1995). Fear of falling in general community samples of older people has been estimated between

10.1% and 42.4% (Finbar, Hart, Spector, Doyle & Harari, 2005; Dowton & Andrews, 1990).

The concept of falls efficacy has been described as a “more sophisticated operationalisation of fear of falling” (McKee et al., 2002, p.329), attempting to understand fear of falling in terms of the individual’s “impoverished self-efficacy” (p.329) or their perceived ability to engage in various functional tasks (Tinetti et al., 1994; Tinetti, Richman & Powell, 1990). As a consequence, many studies refer to falls efficacy interchangeably with fear of falling, although this is incorrect as the former is felt to be a component multidimensional structure of the latter. The Falls Efficacy Scale (FES) (Tinetti, Richman & Powell, 1990) is the most widely used measure to understand falls efficacy, and provides an indication of the level of falls anxiety felt while completing various tasks of daily living. Other studies have employed single item questions to assess fear of falls (e.g., “are you afraid of falling?”), while further standardised measures have been developed to assess the other components of fear of falls, such as the Survey of Activities and Fear of Falling in the Elderly (SAFE) (Lachman et al, 1998) and the Consequences of Falling (CoF) Scale (Yardley & Smith, 2002), the latter of which identifies two factors relating to the consequences of falling. The first is ‘damage to identity’, which reflects the immediate social consequences of falls, the pain, shame and damage to confidence. The second is the ‘loss of functional independence’, which reflects more enduring consequences, such as the development of injury, disability and dependency.



### *Predictors of Fear of Falling*

Lach (2005) conducted a longitudinal, prospective, cohort study addressing the prevalence and predictors of fear of falling in community dwelling, older people in the USA. Interviews were used to examine fear of falling, depression, demographic and health status, current medications, cognitive functioning and activity levels, in addition to participants returning a monthly postcard outlining falls in the previous period. Prevalence rates for fear of falling increased in the sample over two years, with nearly 56% of the over 80s category experiencing fear of falls. Women were more likely to be fearful, with 56.2% experiencing fear of falling at some point. Moreover, 18% of those who had not fallen still had a fear of falling. The author also identified three risk factors for developing fear of falling; namely, poor health status, feeling unsteady and having experienced two or more falls. This model classified 81.7% of participants accurately, although specificity was poor.

In a further prospective, longitudinal study of female community dwelling elders, Murphy, Dubin and Gill (2003) found that 27% developed fear of falling over the course of a year. Increasing age, a sedentary lifestyle and poor emotional support was associated with the development of fear of falling. Liddle and Gilleard (1995) also provided evidence that fear of falling on discharge from hospital was also a good predictor of continued and enhanced fear of falling one month later, while a carer's perception of the individual's anxiety around falling was also significantly associated with this.

Using the same design, Vellas, Wayne, Romero, Baumgartner and Garry (1997) investigated fear of falling in community-dwelling older (mean age = 74, SD = 6.7) Americans. They found that the experience of having one or more falls occurred in 45%



of their sample, with 32% of these participants expressing a fear of falling as a result. There was an association between being older and female with developing a fear of falling, also having greater mobility restriction and increased frailty. However, other studies (Downton & Andrews, 1990) have not located any differences in gender with regard to prevalence rates of fear of falling.

### *Consequences of Fear of Falling*

As has already been briefly mentioned, fear of falling is implicated in reduction of engagement in activities. In a prospective community study of Australian women over 70 years old, Bruce, Devine and Prince (2002) investigated the extent to which fear of falls impacted on wider functioning. Although the sample was felt to have fewer cognitive difficulties and have a higher functional ability than the wider population of this age, still 33.9% reported a fear of falling. This was higher in the group who had limited physical activity (45.2%), and a significant association was noted between fear of falls and activity restriction. The authors suggest that this could be potentially be explained in two ways, that fear of falling and subsequent activity restriction explain the increase in sedentary lifestyles in older age, or that those who are sedentary are more likely to develop a fear of falling. Causality with regard to this relationship is difficult to ascertain on the limited factors investigated and information presented.

Conversely, in their large, cross sectional study of American, community dwelling elders over 72 years old, Tinetti, Mendes de Leon, Douchette and Baker (1994) examined the relationship between fear of falls, falls efficacy and functioning. Thirty-nine percent reported one or more falls in the previous year, while 19% acknowledged that their fear of falling was impacting upon functional activity and 24% felt that they had a fear of falling, but that it didn't get in the way of engaging in activities. Fear of

falling was not significantly correlated with activity restriction, as a proportion of those who expressed worry did not believe it had a behavioural impact. Falls efficacy however was correlated with self reported functioning, and was identified as a useful predictor of activity restriction of older people who experience falls.

Furthermore, Yardley and Smith (2002) explored the impact of fear of falling and the feared consequences of falling, upon participant avoidance of activities. A cross sectional, randomly selected sample of 224 people over 75 yrs-old, were assessed using a postal questionnaire to investigate the relationship between the above variables. The study identified a significant relationship between being female, increasing age and number of falls, as being related to increased avoidance of activity and higher scores on both factors of the CoF scale (i.e., damage to identity and loss of functional independence). Controlling for these variables (i.e., sex, age and falls history) a correlation was evident between the two factors of the CoF scale, and avoidance of activities. The consequences of avoiding activity as a result of the feared outcomes of falling may result in individuals being less likely to engage in exercise and group rehabilitation programmes for falls prevention. The fear of falls, conceptualised as the fear of the social and physical outcomes of falling by the CoF scale, may result in a withdrawal from beneficial rehabilitation and wider social contacts. This increases the likelihood of further falls and psychological difficulties, but it has been suggested that the individual nevertheless withdraws, to limit the damage to the individual's identity.

Bruce, Devine and Prince (2002), reported no significant associations between fear of falling and reduction of activity, in a more recent, prospective study. However the population under investigation was exclusively female, and therefore the generalisability of the findings are limited to older women. Yardley and Smith's (2002)

work challenged this however, showing similarities to Tinetti, Mendes de Leon, Douchette and Baker (1994) employing a cross sectional design to assess fear of falls, using a large mixed sample. Both of them did find a significant association between fearing falling and subsequent avoidance of activity in a broader population.

In a UK study McKee et al. (2002) examined the experience of fear of falling and falls efficacy in 57 individuals over 65, who had been admitted to hospital as a result of a falls related hip fracture, although excluding those with significant cognitive and physical health difficulties. They discovered that at two-month follow-up, rumination or worry over falls and poor levels of falls efficacy, predicted further falls and wider health outcomes. However this study did not assess the impact upon activity engagement and also assessed individuals in the acute phase following a significant trauma, having sustained a severe injury as a result of their fall.

#### *Fear of falling in other populations*

Jamieson, Neuberger and Miller (2003) examined falls history, fear of falling and overall emotional and health status of younger people (mean age = 54.2 years, S.D. = 9.1) attending an outpatient clinic for arthritis. Both the experience of falling (35.2%) and the incidence of fear of falling (37%) were higher than rates reported in other community samples of older people. Thirty five (27.3%) of those questioned stated they had avoided activity as a result of their fear of falling, while increased fear of falling was also associated with increased levels of emotional distress, in addition to other indicators of poor physical health and functioning.

In a similar, but more methodologically rigorous longitudinal, prospective study of the health of 713 community dwelling, middle-aged women (mean age = 64.2 years, SD =



6 yrs) in a city in the UK, Finbarr, Hart, Spector, Doyle and Harari (2005) investigated the impact of increased physical disability and psychological distress on fear of falls related activity avoidance. A postal questionnaire was sent to participants using standardised measures to assess mental health, fear of falling, activities of daily living, disability in a number of domains, in addition to falls, medication and pain history. Results provided evidence that 10.1% of those questioned had experienced activity restriction as a result of their fear of falling; however, only 30% of this group had actually fallen. Avoidance of activity was not associated with the psychological factors under investigation. However the extent of the individual's deterioration in functional ability, did predict fear of falling and consequent poor participation in activity.

Non-western populations also seem to experience the restriction of activity as a result of fear of falling. Suzuki, Ohyama, Yamada and Kanamori (2002) in their investigation of Japanese community dwelling elder's fear of falling, and its impact on functioning and quality of life, reported that 31.1% had fallen in past year, while 63.7% expressed some fear of falling. In those who expressed a fear of falling, the experience of falling was not necessary, but fear of falling was related to avoidance of activity and depression, with ratings of quality of life also being significantly reduced. Huang (2005) provides further evidence of the cross-cultural nature of fear of falling and its significant impact on Taiwanese elders.

However, Wilson et al. (2005) in their prospective, population-based study of middle-aged, African Americans, found that the experience of falling in a two-year period was 35.8%, with 25.8% of the overall sample experiencing a fear of falling; this is surprisingly high given the age of the participants. Furthermore, living in an inner city area increased the likelihood of developing a fear of falling and greater activity



restriction. The authors acknowledged that this was a specific exploration of a narrow, but previously under-investigated population. They justified this by stating that the results of this study suggest that fear of falling is expressed differently in different cultural groups; however, it fails to identify a particular age where fear of falling develops.

Chou, Yeung and Wong (2005) examined the incidence of fear of falling in Chinese elders living in nursing accommodation, rather than in the community. This sample of 100 people over 60 year old completed an interview examining self reported mood, fear of falls, falls efficacy and activity levels, using a battery of standardised measures. Unfortunately the incidence of those who had fallen was not published, although those reporting increased fear of falls had a significantly higher level of depression, independent of other health and socio-economic variables. A mechanism was suggested to explain the results, stating that as the fear of falling increases, so does the level of activity restriction, resulting in poorer falls efficacy. As a consequence of the individual's reduced involvement in activities and reduced self-efficacy, an increase in feelings of depression in these Chinese elders is increasingly likely.

Older people living in residential accommodation may face increased challenges with regard to their physical, functional, cognitive and mental health status, than their peers living in a community setting. Furthermore, they may have additional issues which they have faced with regard to reduced independence, in addition to an increased likelihood of falling (Tinetti et al., 1994), meaning the results may demonstrate increased rates, as compared to other studies.

### *Management and function of fear of falling*

Huang (2005) provided a valuable insight into how older Taiwanese people living in the community cope with their fear of falling. A grounded theory approach was chosen to explore the issues for 25 individuals, 24 of whom had experienced a fall in the previous year, and all expressed fear of falling. Four coping themes emerged from the data. The first was the development of psychosomatic symptoms, i.e., physical symptoms such as those which typify a threat response e.g., increased breathing, or stress headaches, or displaying emotional reactions for instance worrying about falling. The second coping theme was the adoption of an attitude of risk prevention, for example, increased levels of vigilance for potential danger and readiness for emergencies (e.g., asking somebody to wait while in shower). Thirdly, paying attention to environmental safety by making modifications to their environment and use of safety devices enabled individuals to deal with their fear of falling. Finally, modifying performance, such as adjusting behaviour (e.g., taking a walking stick) and limiting social activities was also employed.

In this study people also described the consequences of using the different coping strategies along the continuum of 'dealing with fear' of falling vs. 'suffering as a result of' fear of falling. This range of coping strategies and the consequences of each demonstrate the common themes, but unique choices made by those trying to manage this specific, but highly powerful fear. Although this study has limited generalisability given the population interviewed and the style of analysis chosen, it does provide a valuable inquiry into the experience of Taiwanese elders who have fallen. Furthermore, it provides a valuable insight into thinking about the coping strategies which allow people to continue functioning with a disabling concern such as fear of falling. Previous literature has only explored prevention strategies of those suffering from a fear of falling (Chang, et al, 2004), whereas this study provides an indication of the meaning

and motivation behind why people may choose helpful and unhelpful approaches to dealing with their fear.

From an evolutionary perspective, Friedman, Munoz, West, Rubin, and Fried (2002) discuss the potential benefits of possessing a fear of falling. They suggest that the resulting activity restriction or care taken when engaging in risky tasks, may serve the function of reducing the overall chance of falling. However, conversely, Chamberlin, Fulwider, Sanders and Medeiros (2005) in their study of the impact of fear of falling on spatial and temporal gait, discovered that an association was present between an increased fear of falling and increased difficulties in walking. A causal relationship was not identified, and as a result the mechanism behind this association could not be examined further.

### Summary

Fear of falling is thought to affect 37-65% (Jamieson, Neuberger, & Miller, 2003; Liddle & Gilleard, 1995) of those who have fallen. However, significant difficulties remain with regard to its operationalisation and measurement (Tinetti, Richman & Powell, 1990).

A number of personality, fall related, clinical and demographic factors have been implicated in the development of fear of falling. Furthermore, fear of falling is correlated with reduction of engagement in activities (Bruce, Devine & Prince, 2002), overall quality of life (Salkeld, et al, 2000) and further falls (McKee, et al, 2002). The presence of fear of falling was noted also cross-culturally (Suzuki, et al, 2002) and across age groups (Jamieson, Neuberger & Miller, 2003).



The coping strategies individuals employ to manage fear of falling include the development of psychosomatic symptoms, emotional reactions, risk prevention approaches and behavioural change (Huang, 2005). The development of a fear of falling itself, has also been considered in terms of an evolutionary perspective, conceptualised as a strategy of minimising risk through activity avoidance (Friedman, Munoz, West, Rubin & Fried, 2002).

#### *Other psychological outcomes: Prevalence and correlates*

The majority of the literature surrounding the psychological consequences of falls has focused upon fear of falling. However, there is a growing body of work which takes into account other psychiatric diagnoses after falls, such as generalised anxiety (Vetter & Ford, 1989), depression (Biderman, Cwikel, Fried & Galinsky, 2002) and post-traumatic stress reactions (McKee, Orbell & Radley, 1999).

#### *Mood disorders*

An investigation into the affective consequences of falls (Vetter & Ford, 1989) identified that in a rural, community sample of 634 people over 70 years in the UK 28% had fallen in the previous year. Participants were interviewed about a number of different factors around their falls, mental health status, and current prescribed medication. A higher prevalence of neurosis was identified in fallers, with 20% meeting 'caseness' for anxiety problems and 8% depressed, which is approximately double of that witnessed in non-fallers. Those who fell outdoors were found to be most anxious overall, however, those who fell indoors had higher rates of co-morbid depression and anxiety than in the wider population.



Downton and Andrews (1990) examined the relationship between psychological symptoms, dizziness and activity avoidance in their prospective UK study of 203 community dwelling adults aged over 75 years old. Participants were interviewed using a structured questionnaire in their home about their cognitive functioning and self reported anxiety, depression, medical history, current medication, falls history, fear of falls, social and demographic information, mobility, dependency, and activities of daily living. Forty-two percent had experienced a fall in the past year, with 32% of this group identified as suffering from anxiety, depression or both. Anxiety and depression scores were most predictive of dizziness, which the authors interpreted as suggestive of a possible psychological mechanism for these feelings of dizziness, (i.e., the dizziness reflecting a psychological, anxiety related cause). This shows evidence between the impact of affective state on an individual's physiological functioning and the importance of treating any psychological distress in order to increase quality of life and engagement in physical activity.

In an Israeli cohort study, Biderman, Cwikel, Fried and Galinsky (2002) investigated the incidence and correlates of depression and falls in 283 participants aged over 59 years old, at baseline and one year follow-up. Twelve percent reported frequent falls while 25.5% had experienced depression, as measured by the Geriatric Depression Scale (Yesavage, et al, 1983). The results suggested that the relationship between experiencing falls and the development of depression in a community sample may be linked by a group of five factors, which can be used to predict the development of depression in this group; namely, poor rated self health, poor cognitive status, impaired activities of daily living, slow walking speed and more than one clinic visit in the preceding month.

Bosma, Sanderman, Scaf-Klomp, Van Eijk, Ormel, and Kempen (2004) in a similar longitudinal, cross-sectional Dutch study of middle aged and older persons, explored the demographic, health related and psychosocial predictors of changes in mental health following a fall. Following completion of baseline measures addressing personality, mastery, self-efficacy, depression, anxiety, social support, falls and medical history, participants completed follow-up assessments at two, six and twelve months after falling. Surprisingly, only a small number of those who experienced falls encountered an increase in depression and anxiety. Allowing for pre-fall scores, personality factors were found to have the greatest impact on mental health changes after falls over time, particularly neuroticism, but with self-efficacy also contributing significantly. The identification of a range of health and psychosocial predictors of mental health after a fall supports the need for a multifaceted assessment, as also highlighted by Biderman, Cwikel, Fried and Galinsky (2002).

Lach (2005) also looked at the associations between experiencing a fear of falls and development of depression, in her prospective community sample of older people. The findings indicated that there was a significant association between these two variables, and consequent functioning. Younger people suffering from arthritis have also been shown to demonstrate significant correlations between increased fear of falling and increased levels of emotional distress (Jamieson, Neuberger & Miller, 2003).

Clusters of mood difficulties and fear of falling have also been noted in non-western samples, with Suzuki, Ohyama, Yamada and Kanamori (2002) reporting that a fear of falling was related to avoidance of activity, depression, and reduced quality of life. Similarly in Chou, Yeung and Wong's (2005) investigation into the experience of Chinese elders living in nursing accommodation, they found that fear of falling

correlated with higher levels of depression. These studies provide evidence that frail, older people in other cultures make similar associations to those living in the West for their falls, demonstrating similar rates of fear of falling, and relationship with the experience of low mood.

### *Post-fall syndrome*

Post-fall syndrome is defined as “a common syndrome that develops after a fall where an elderly patient develops a lack of confidence and anxiety about further falls, therefore leading to immobility with risks of urinary incontinence, pressure sores, pneumonia, loss of independence and eventually death” (University of California, San Diego School of Medicine, 2001, p.3). This term is used to summarise the frequent cluster of physical and psychological difficulties seen after a fall, which interact with rehabilitation and recovery, resulting in poorer outcomes for the individual. Of this cluster, fear of falling typically has a significant position with other aspects of a trauma response such as avoidance of activity associated with the fall, while also featuring aspects of generalised anxiety and decreased self confidence.

Alarcon, Gonzalez-Montalvo, Barcena and Gotor (2006) describe their Spanish, longitudinal, cohort study assessing the impact of post-fall syndrome on patients who had been referred admittance to an orthopaedic ward after a hip fracture. Patients were interviewed while in hospital and then at three and six-month follow up after discharge for functional ability. No specific measure for assessing the presence of post-fall syndrome exists, so this was assessed by the patient’s clinician, using the syndromes characteristics of fear of falling and decreased self-confidence. The results showed that, contrary to some beliefs about post-fall syndrome, only a small number met the subjective criteria for the condition (5.1%), and those who did receive the diagnosis



tended to be older and had more health problems. Significant differences were observed in those who could not walk immediately after surgery. Those with a post-fall syndrome diagnosis made no further improvement, while those without the condition continued to progress in their physical rehabilitation.

### *Post-Traumatic Stress Disorder*

Post-Traumatic Stress Disorder (PTSD) is defined as an anxiety disorder characterised by a reaction to a traumatic event in which a person perceives significant danger (i.e., involving actual or threatened death, serious injury or threat to the physical integrity of the person or another), and results in a significant emotional reaction (e.g., intense fear, helplessness or horror). The subsequent post-traumatic symptomology are a consequence of an overestimation of threat, resulting in intrusions (e.g., flashbacks and nightmares), hypervigilance, avoidance and decreased self-efficacy (American Psychological Association, 1994).

Kevin McKee and colleagues (McKee, Chung & Pais, 2004) reported the preliminary analysis of a study examining the outcomes for a convenience sample of 40 people aged over 65 years who had been admitted to hospital after a fall. They suggested presentations of older adults who have experienced falls, at times mirrors that of those displaying PTSD symptomology (such as the avoidance of situations which limits their involvement in activity, and an altered view of themselves as able to cope in the world). An initial questionnaire was administered in hospital, shortly after the fall addressing issues relating to problems and activities of daily living, attributions for the fall and about recovery, falls history, physical and mental health, worry about falls and fall efficacy. A second, shorter questionnaire was sent by post two months after initial completion. Sixty-two percent of participants had fallen previously, with 52.5%



suffering a fracture as a result of this fall and 60% attributed an internal cause for their fall. Surprisingly, this attributional style was significantly correlated with less serious physical injury, falling inside, needing support to get up and higher estimate of likelihood of falling prior to the event and PTSD symptomology, but not with poor self-rated health. McKee found 32.3% of their sample meeting the diagnostic criteria for full acute PTSD, with further participants (16.1%) meeting a partial diagnosis. This is the only study to address PTSD after falls, and as yet only preliminary data has been published. However this suggests that post-traumatic symptomology may be present in a significant minority of older people who have fallen.

Ehlers and Clark (2000) suggest a possible mechanism for understanding the development of PTSD, which can be applied to those who fall. They propose that it is the appraisals made by the individual that are significant in the development of later psychological problems. This suggests that individuals who develop PTSD appraise the situation in an excessively negative manner, perceiving the world and their future as unpredictable and dangerous and evaluating themselves as unable to cope with any hazards they may encounter. This occurs while simultaneously experiencing disturbances of autobiographical memory and overestimating threat. The attributions individuals make to explain their fall have a significant impact upon mood and recovery. Abraham, Matalsky and Alloy (1989) describe how attributional style can also influence mood negatively, and particularly how global and stable attributions made in response to negative life events increase the likelihood of depressive symptomology though expression of 'hopelessness'. This particular attributional style has also been observed in those recovering from a fall (McKee, Orbell, & Morgan, 2001), with 20.7% expressing hopelessness.

## Summary

Recent research has provided evidence of a number of psychological correlates of falls, with depression (Biderman, et al, 2002), anxiety (Vetter & Ford, 1989), post-fall syndrome (Alarcon, et al, 2006) and post-traumatic symptomology (McKee, Chung & Pais, 2004) being featured in populations who have fallen. Higher rates of psychological distress have been noted in older and female samples (Chou, Yeung & Wong, 2005), and those who make negative, stable and internal attributions for their fall (McKee, Orbell, & Morgan, 2001). These difficulties have also been investigated in combination with fear of falling (Lach, 2005), and are again seen cross-culturally (Chou, Yeung & Wong, 2005) and across age groups (Bosma, et al, 2004) in those who have fallen.

### *Methodological limitations of falls studies*

There are a number of methodological limitations which are important to note, and suggest caution when interpreting the results of many of the falls studies. First, difficulties have already been mentioned with regard to the definition of falls, with some studies providing a poor explanation of the type of fall experienced by participants, or whether a fall caused the injuries described (Alarcon, et al, 2006).

Second, there are further shortcomings associated with measurement of the variables under investigation. Some studies used validated questionnaires, but others used non-standardised measures (Lach, 2005) or single item questions (Yardley & Smith, 2002), which may lack reliability and /or validity. This is particularly significant given the multifaceted nature of a concept such as fear of falling. Downton and Andrews (1990) in their study admit that the choice of measures meant that comparisons with other studies were limited. Furthermore, some studies sought to validate new measures of fear of falling (Yardley & Smith, 2002; Tinetti, Richman & Powell, 1990). Later

investigations (McKee et al., 2002) have identified that some measures of fear of falls (i.e. Fall Efficacy Scale (FES), Tinetti, Richman & Powell, 1990) are tapping into performance in activities of daily living, rather than falls efficacy and subsequent functional rehabilitation. This means that it is often difficult to compare the outcomes of studies, even across a single domain such as fear of falling.

A third limitation of some studies is the poor reporting of procedures involved or how samples were selected. Yardley and Smith (2002) reported that the sample pool was drawn from a previous study, but provided no information as to how participants were recruited. Other papers provided a poor description of the procedure (Downton & Andrews, 1990; Lach, 2005) or the exclusion criteria applied (Vetter & Ford, 1989), which may result in difficulties replicating and comparing the design.

Fourth, the selection of participants and sampling procedures used were often self selecting in nature (Biderman, et al, 2002; Jamieson, Neuberger & Miller, 2003; Vellas, et al, 1997), or convenience sampling was used (McKee et al., 2002; McKee, Orbell & Radley, 1999; Suzuki, et al, 2002). This introduces a level of bias and may therefore not be representative of the population they were drawn from, which may cause problems with generalisation. Other problems with generalisability based upon sample selection were noted in Vetter and Ford (1989) as the cohort was drawn from a small rural community, with relatively high socio-economic status.

Fifth, as a result of the relative paucity of literature regarding psychological consequences of falls, some of the papers are rather old (Vetter & Ford, 1989; Downton & Andrews, 1990), and therefore have not integrated the results from more recent studies which have developed our understanding of what happens after a fall.



Sixth, the retrospective nature of many of the studies, with the majority of studies of this kind also employing self report measures (Biderman, et al, 2002; Downton & Andrews, 1990; Lach, 2005), introduces possible bias as a result of the pressures put upon the memory of the participant. There has however been an increase in the number of prospective, longitudinal designs, which also allow causal inferences to be made (Bruce, Devine & Prince, 2002; Murphy, Dubin & Gill, 2003) and reporting of falls using monthly reminder cards to minimise the reliance on longer-term memory (Vellas, et al, 1997).

Seventh, the limited nature of the follow-up period (Liddle & Gilleard, 1995) identified in some studies means that longer term inferences cannot be made. Similarly, loss of the frail and older old (i.e., over 85 years) to follow-up, means that studies may reflect a higher functioning group than may actually be representative of the wider population (Bosma, et al, 2004; Downton & Andrews, 1990).

Finally, older men appear to be under-represented (Suzuki, et al, 2002), or even excluded from some studies of falls (Finbarr, et al, 2005). Indeed, when men are included in studies, important differences in psychological consequences of falls are noted between the genders (Vetter & Ford, 1989).

### *Future research*

The psychological consequences of falls is a relatively under-researched field, given the widespread common experience of falling and the detrimental impact it can have on the individual. Many studies exclude participants on the basis of cognitive or significant



health difficulties or lost the most vulnerable participants to follow up (Downton & Andrews, 1990). Although the former is necessary from a position of informed consent and to minimise the distress caused, it means we have gaps in our knowledge.

Almost all studies are quantitative in nature, with only a few qualitative studies reported in the literature (Huang, 2005). As studies have identified continued difficulties in the conceptualisation, measurement and individual meaning of a fall, and particular difficulties in exploring this for minority groups (e.g. older old, men and those within institutions), this suggests further phenomenological research in these areas would be beneficial. This would allow greater investigation of the meaning of a fall to the person and the constructs affected by this event, providing a wider exploration of the theoretical work addressing predictors of psychological consequences.

There is a significant gap in the literature with regard to the experiences of men who fall, and whether this is different to that of women. As a result, the focus of assessment and intervention may need to be tailored to meet their needs. Furthermore, there is a need for a larger number of prospective, longitudinal studies to allow more confident causal inferences to be made.

### *Clinical Implications*

Fear of falling and changes in mental health as a result of falls is observable across cultures with the meaning attached to the fall suggested as a fundamental human experience associated with the ageing process (Kingston, 2000). The identification of significant predictors of psychological distress and wider functioning after a fall should be considered and falls patients screened for these factors at the earliest opportunity. There is also a need for a wider consideration of the impact of falls, thinking about the impact on informal carers of those who fall, and their need for support (Liddle & Gilleard, 1995).

There is a suggestion that in women presenting to services after a fall, age should be taken into account when considering the important risk factors for activity avoidance and taken into account when planning rehabilitation. The woman's stage in life (i.e., older age) has a significant relationship between the experience of fear of falling and the subsequent reduction in functional capabilities, over and above other psychological factors (Finbarr, Hart, Spector, Doyle, & Harari, 2005).

Initial recovery rates after surgery have been found to be indicative of later problems in some of the published research (Alarcon, Gonzalez-Montalvo, Barcena & Gotor, 2006). Other studies indicated that personality factors have a significant impact on mental health changes after falls over time, suggesting that these issues should be taken into account within the assessment process (Bosma, Sanderman, Scaf-Klomp, Van Eijk, Ormel & Kempen, 2004). The majority of studies focus on the multidimensional nature of the impact of falls, and the subsequent need for multidisciplinary assessment (Biderman, Cwikel, Fried and Galinsky, 2002).

Some medications, particularly psychotropic medication prescribed for anxiety and depressive symptoms, have been associated with increased likelihood of further falls (Avorn, 1998). Vetter and Ford (1989) reported that 39% of those who had taken sedatives, tranquillisers or hypnotics had fallen. This has implications for the treatment of mood disorders, as prescribing in response to worry or depression following falls, could increase the likelihood of further falls. This has implications for early intervention, to minimise impact of the mood disturbance, and also the need for psychological input for those who do experience more significant difficulties.

Furthermore, many falls prevention programmes focus on increasing strength and confidence through gentle exercise programmes that focus on balance and posture, such as Tai Chi. Studies investigating these interventions have provided further support for the mediating role of falls efficacy, noting that those participants who reported an increased falls efficacy as a result of participation in the exercise group, experienced a decrease in their fear of falling (Li, et al, 2005). Building upon falls efficacy reduces fear of falls and consequentially increases participation in activity, social inclusion and quality of life.

### *Conclusion*

The experience of falling is a familiar event for many older people, associated with significant personal and economic costs. In addition, secondary psychological difficulties are also observed in many of those who fall. Fear of falling has been widely investigated and is suggested as present in both those who have fallen, and those who have not, in addition to being seen cross culturally. Attempts to understand this specific anxiety problem have looked at the concept of falls efficacy and the person's perceived ability to complete activities of daily living. The effects of fear of falling can be a



decreased involvement in activity, which has implication for further falls, and is associated with decreases in mental health, overall quality of life, and poor engagement in rehabilitation. A range of predictors have been implicated in the development of fear of falling: Gender and age differences, falls history, poor health status, functional ability and levels of emotional support. Evolutionary and functional explanations for fear of falling and how an individual manages this fear have also been considered.

Other psychological consequences of falls have also been examined, with anxiety and depression featuring in the falls literature. Studies have outlined a number of predictors of psychological distress after falls, including psychosocial, cognitive, functional and health difficulties. Preliminary investigations into the incidence of post-fall syndrome and PTSD have also been made, which have been associated with making negative, internal attributions for the fall.

Falls studies display a number of methodological limitations; namely difficulties in conceptualisation and measurement of the variables of interest, sampling and design issues, age of some of the studies and poor representation of certain groups. This suggests a number of implications for future research. However, despite the limitations mentioned, there are important implications for the falls services who are clearly seeing a significant minority of people in psychological distress after their fall. Reductions in the extent of psychological difficulties can potentially be done by adopting an early intervention approach, to minimise the secondary harm done as a result of falls, by assessing and targeting interventions towards those most vulnerable, and avoid the growth of longer term, chronic problems. It is of note that falls services do seem to be having an effect on some of these factors, and are ultimately helping to minimise the distress felt by older people who experience falls.



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**Table 1:**

**Summary of studies of the psychological outcomes of falls**

Table 1: Summary of studies of the psychological outcomes of falls

Study	Design	Population	Variables of Interest
Alarcon, Gonzalez-Montalvo, Barcena & Gotor (2006)	Quantitative - longitudinal, cohort study	<ul style="list-style-type: none"> <li>• 196 ( female),</li> <li>• mean age 84 years</li> <li>• All those referred to geriatrician after admission to orthopaedics after hip fracture</li> </ul>	Functional ability, mental health Depression, cognitive functioning, medications, falls history, functional status, demographic, social, hospital/health contacts, falls risk
Biderman et al. (2002)	Quantitative- longitudinal, cohort based, explorative study	<ul style="list-style-type: none"> <li>• 283 (58% female), over 60 years mean 71.52 years</li> <li>• Those in a mixed socio-economic catchment area in Israel</li> </ul>	Depression, cognitive functioning, personality, general self efficacy, mastery scale, social support, demographic info, falls info, general medical status
Bosma et al. (2004)	Quantitative - prospective, longitudinal study	<ul style="list-style-type: none"> <li>• 181 (83% female)</li> <li>• mean age 69.88 years</li> <li>• Drawn from Primary care in the Netherlands</li> <li>• 1,500 women aged over 70</li> <li>• mean age 75.2 years</li> </ul>	Fear of falling, falls efficacy, activity levels, functional status,
Bruce, Devine & Prince (2002)	Quantitative - Cross sectional, longitudinal	<ul style="list-style-type: none"> <li>• Drawn from the Australian electoral role</li> <li>• 100 (58% female) aged over 60</li> <li>• mean age 79 years</li> <li>• Drawn from Chinese nursing homes</li> </ul>	Depression, fear of falling, falls efficacy, functional status, activity levels, physical health status, demographic and falls info

<p><u>Downton &amp; Andrews (1990)</u></p>	<p>Quantitative - structured interview from questionnaire</p>	<ul style="list-style-type: none"> <li>• 203 (70.4% female)</li> <li>• median age: 83 yrs, range 75-97</li> <li>• Drawn from US community sample</li> </ul>	<p>Cognitive function, anxiety, depression, medical history, medications, falls history, fear of falls, social, demographic, mobility, dependency, activities of daily living</p>
<p><u>Finbarr, Hart, Spector, Doyle &amp; Harari (2005)</u></p>	<p>Quantitative - longitudinal, prospective, employing postal questionnaire</p>	<ul style="list-style-type: none"> <li>• 713 women</li> <li>• mean age = 64.2 yrs</li> <li>• Drawn from wider UK study</li> </ul>	<p>Falls efficacy, fear of falling, activity restriction, mobility, disability, activities of daily living, health status, mental health, memory, physical activity, falls history, pain, hearing, vision</p>
<p><u>Huang (2005)</u></p>	<p>Qualitative - theoretical sampling (grounded theory)</p>	<ul style="list-style-type: none"> <li>• 25 (72% female)</li> <li>• mean age 71 years</li> <li>• Drawn from community programme for Taiwanese elders</li> </ul>	<p>Fear of falling, strategies to manage fear of falling</p>
<p><u>Jamieson, Neuberger &amp; Miller (2003)</u></p>	<p>Quantitative – interview based</p>	<ul style="list-style-type: none"> <li>• 128 (82.8% female)</li> <li>• mean age 54.2 years</li> <li>• Drawn from a US community sample</li> </ul>	<p>Falls history, fear of falling, activities of daily living, pain, health status, emotional status</p>
<p><u>Lach (2005)</u></p>	<p>Quantitative – prospective, cohort study</p>	<ul style="list-style-type: none"> <li>• 890 (2:1 female to male)</li> <li>• mean age 74.7 years</li> <li>• Drawn from US community enrichment programme</li> </ul>	<p>Depression, demographic, health status, medications, cognitive functioning, activity levels, Fear of falling, falls efficacy, falls info</p>
<p><u>Li et al. (2002)</u></p>	<p>Quantitative – cross-sectional, interview based</p>	<ul style="list-style-type: none"> <li>• 256 (70% female)</li> <li>• Mean age 77.5 years</li> <li>• Drawn from primary care clinics in USA</li> </ul>	<p>Fear of falling, falls efficacy, functional ability, health status, demographic and falls info</p>



<p><u>Liddle &amp; Gillear (1995)</u></p> <p>Quantitative - semi structured interview</p>	<ul style="list-style-type: none"> <li>• 69 (90% female)</li> <li>• mean age 83 years</li> <li>• Drawn from hospital admissions after a fall - UK study</li> </ul>	<p>Fear of falling, health status, mental health, functional status, mobility, expectations at discharge. Carers asked about their view of patient's and their fear of the person falling</p>
<p><u>Martin, Hart, Spector, Doyle &amp; Harari (2005)</u></p> <p>Quantitative - prospective, cross sectional, questionnaire based</p>	<ul style="list-style-type: none"> <li>• 70 women</li> <li>• mean age 64.2 years</li> <li>• Drawn from large primary care practice in UK</li> </ul>	<p>Activity restriction, fear of falling, psychological functioning, functional status, cognitive status, handicap,</p> <p>Falls efficacy, fear of falling, demographic and falls info, activity level pre-fall, depression, mood and positive affect, perceived risk of falls, functional limitation profile, recovery from injury</p>
<p><u>McKee et al. (2002)</u></p> <p>Quantitative – within subjects, cross sectional, structured interview &amp; postal questionnaire</p>	<ul style="list-style-type: none"> <li>• 82 participants (90% female)</li> <li>• mean age 80.2</li> <li>• Drawn from those admitted to hospital in UK for fall</li> </ul>	<p>Falls efficacy, fear of falling, demographic and falls info, activity level pre-fall, depression, mood and positive affect, perceived risk of falls, functional limitation profile, recovery from injury</p>
<p><u>McKee, Chung &amp; Pais (2004)</u></p> <p>Quantitative – cross sectional, within subjects, structured interview &amp; postal questionnaire</p>	<ul style="list-style-type: none"> <li>• 40 people (82.5% female)</li> <li>• mean age 80.1 years</li> <li>• Drawn from those admitted to hospital in UK for fall</li> </ul>	<p>Mood, PTSD, attributions, demographic info, falls history, falls efficacy, physical health</p>
<p><u>Murphy, Dubin &amp; Gill (2003)</u></p> <p>Quantitative – longitudinal, prospective, cohort study, interview based</p>	<ul style="list-style-type: none"> <li>• 313 women</li> <li>• mean age 77.4</li> <li>• Drawn from representative community sample US</li> </ul>	<p>Fear of falling, falls efficacy, falls events</p>
<p><u>Salkeld et al. (2000)</u></p> <p>Qualitative - employing a time trade off design</p>	<ul style="list-style-type: none"> <li>• 194 women over 75 years</li> <li>• mean age 83 years</li> <li>• Australian sample drawn RCT</li> </ul>	<p>Health status, then employed a time trade off to rate preferred outcomes</p>

Suzuki et al. (2002)	<ul style="list-style-type: none"> <li>• 135 (68% female)</li> <li>• mean age = 79.2</li> <li>• Drawn from a Japanese community sample</li> </ul>	Quantitative - structured interview with questionnaire	Activities of daily living, functional impairments, level of independence, health status, falls history
Tinetti, Mendes de Leon, Douchette & Baker (1994)	<ul style="list-style-type: none"> <li>• 1,103 (73% female)</li> <li>• mean age 79.6 years</li> <li>• Drawn from community programme in US</li> </ul>	Quantitative – cohort study	Falls efficacy, fear of falling, falls history, activities of daily living, social and physical activity status
Tinetti & Williams (1998)	<ul style="list-style-type: none"> <li>• 957 participants</li> <li>• Drawn from probability sample from US census</li> </ul>	Quantitative	Falls history, functional ability
Vellas, Wayne, Romero, Baumgartner & Garry (1997)	<ul style="list-style-type: none"> <li>• 487 (59% female)</li> <li>• mean age = 74</li> <li>• Drawn from wider study of primary care in US</li> </ul>	Quantitative - prospective, longitudinal	Fear of falls, falls history, circumstances of fall, cognitive status, mobility, social support, health status, psychological problems
Vetter & Ford (1989)	<ul style="list-style-type: none"> <li>• 674 (59% female)</li> <li>• age range 70-100</li> <li>• Drawn from UK primary care</li> </ul>	Quantitative – cohort, interview based	Depression, functional ability, health status
Wilson, Miller, Andreson, Malmstron, Miller & Wolinsky (2005)	<ul style="list-style-type: none"> <li>• 998 (63% female)</li> <li>• mean age 56.8 years</li> <li>• Drawn from wider study of African Americans</li> <li>• 224 (53% female)</li> <li>• mean age 80.7 years</li> <li>• Drawn from UK community sample</li> </ul>	Quantitative – prospective	Fear of falling, falls info, activity restriction, falls history, falls efficacy, social support, depression, activities of daily living, functional status
Yardley and Smith (2002)	<ul style="list-style-type: none"> <li>• mean age 80.7 years</li> <li>• Drawn from UK community sample</li> </ul>	Quantitative – cross sectional, within groups, postal questionnaire	Demographic info, falls history, multiple measures of fear of falling, functional status

## **Section 2: Research Report**

### **Psychological Outcomes Among Older Adults Attending Falls Programmes**



# PSYCHOLOGICAL OUTCOMES AMONG OLDER PEOPLE ATTENDING FALLS PROGRAMMES

## ABSTRACT

**Objectives:** This study assessed what proportion of older people who move through therapeutic falls programmes post-fall, present with psychological distress (i.e., post-traumatic stress disorder (PTSD), anxiety, depression, falls efficacy); whether this changes over time; and what factors (i.e., shame, attributional style) may predict changes in psychological outcomes.

**Method:** A prospective, repeated measures design (n=49) was employed, in which older people attending falls programmes completed questionnaires examining attributions for the fall, anxiety, depression, post-traumatic symptomology and shame, before, and at the end of the falls group.

**Results:** Clinically significant levels of PTSD were observed in 24.5% of the sample, 30.6% experienced depression and 49% anxiety, at the end of the falls programmes, with all measures of psychological distress showing significant decreases over time. Significant correlations were found between the majority of predictor and outcome variables at time one. Regression analyses revealed that at time one, internal experiences of shame, global attributions, fear of falling, hospital attendance and self-esteem, were predictive of psychological outcomes. When controlling for baseline scores of outcome variables at time two, internal and external experiences of shame, and global and internal attributions, and lower self-esteem, were predictive of psychological outcomes.

**Conclusions:** PTSD and other psychological symptoms are present after falls, change over time, and are related to external shame, affective disorders and the presence of negative internal, global attributions for their fall. This has implications for falls programmes, and the support of individuals post-fall.



## **INTRODUCTION**

### *Falls*

A fall has been defined as an event which “results in a person coming to rest inadvertently on the ground or other lower level and other than as a consequence of ... sustaining a violent blow, loss of consciousness, sudden onset of paralysis, as in stroke, (or) an epileptic seizure” (Kellogg International Work Group on the prevention of falls in the elderly, 1987, p.2). Among the over 65s, falls affect 30% of the population every year, rising by a further 10% in the over 75 years old category (Tinetti & Williams, 1998), with falls constituting the sixth leading cause of death in older adults and the leading reason for hospitalisation in the elderly (Cryer, Davidson & Styles, 1993).

### *Consequences of falls*

Falls and the consequences of falling are reported as a significant indicator of overall general health and wider functioning (Prudham & Grimley Evans, 1981). In those over 65 years, 30-55% of falls will result in minor injuries, with fractures occurring as a result in 4-6% of falls, a quarter of which will be hip fractures (King & Tinetti, 1995). Furthermore those who are not injured may still face significant trauma associated with having to remain on the floor, unable to get up (McKee et al., 2002), in addition to other longer term physical health implications including increased risk of dehydration, pneumonia and pressures sores (Tinetti, Liu & Claus, 1993). A number of social and psychological consequences of falls for the individual have also been documented, including increased anxiety and depression (Bosma et al., 2004), decreases in self-efficacy (Tinetti, Mendes de Leon & Douchette, 1994), an increased fear of further falls and increasingly negative views of self (King & Tinetti, 1995), and posttraumatic stress disorder (PTSD) (McKee, Chung & Pais, 2004), all of which significantly impact on recovery.

### *Mechanisms for the development of psychological difficulties after falls*

The 'body drop' phenomenon has been suggested as a process which can be initiated by a fall, in which the fall event sparks off a transition that is fundamentally a transformation of self-identity (McKee, 1998). The person changes their perception of themselves, thinking of the self "not as an endless 'middle-youth', but as someone who is old" (McKee, Chung & Pais, 2004, p.21). Kingston (2000) also explores the meaning attached to having a fall in later life, suggesting that two processes operate when an individual falls. The first is what is described as status passage where, as the body changes as a result of ageing, a decline in health and an increased disability and dependency are inferred. Societal ageist beliefs also interplay with this, influencing many older people's perception of themselves towards a lower status, preferred identity. The fall itself provides a sharp reminder of both these processes, influencing how the individual perceives themselves in the world.

### *Predictors of psychological consequences of falls*

It has been shown that up to 70% of those who experience significant health events make attributions for their illness (Turnquist, Harvey & Anderson, 1988). Typically internal attributions in the rehabilitation literature provide a positive indication of potential for recovery. However, in the case of falls, making internal attributions, such as 'I am getting older', have greater negative associations than external attributions, such as 'that loose pavement is to blame' (Weinberg & Strain, 1995).

Abramson, Matalsky and Alloy (1989) describe the increasing likelihood of development and maintenance of depressive symptoms as a result of an attributional style characterised by 'hopelessness', seen in response to negative life events. These attributions have greater impact when considered as stable (i.e., unchangeable over

time) and global (i.e., impact on all areas of the individuals life). An attributional style of hopelessness has been observed in older people who have broken their hip as a result of falls (McKee et al., 2002), and was significantly correlated to feelings of depression, as well as poorer physical recovery and rehabilitation. In a further study by McKee and colleagues, an internal attributional style was also significantly correlated with PTSD symptomology, less serious physical injury, falling inside, needing support to get up and higher estimate of likelihood of falling prior to the event, but not with poor self-rated health in older adults who had fallen (McKee, Chung & Pais, 2004).

### *Posttraumatic Stress Disorder (PTSD)*

Attributional style is also implicated in the development of post-traumatic stress reactions. The DSM-IV (American Psychological Association, 1994) defines PTSD by the exposure to the trauma itself and the appearance of three symptoms: i) the re-experiencing of the event itself, ii) avoidance or numbing, and iii) increased arousal. The individual must have “experienced, witnessed, or [been] confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others”, while their response must involve “intense fear, helplessness or horror” (American Psychological Association, 1994, p. 424). Both the ‘intense fear and helplessness’ and ‘threat to the individual’s physical integrity’, are considered to be components of many people’s response to falls in later life (McKee, Chung & Pais, 2004).

Ehlers and Clark (2000) suggest a possible mechanism for understanding the development of PTSD, proposing that it is the appraisals made by the individual that are significant in the development of later psychological problems. This suggests that individuals who develop PTSD appraise the situation in an excessively negative



manner, perceiving the world and their future as unpredictable and dangerous and evaluating themselves as unable to cope with any hazards they may encounter. This occurs while simultaneously experiencing disturbances of autobiographical memory. Consequently, an overestimation of threat is made, resulting in hypervigilance, avoidance, decreased self-efficacy and other characteristic posttraumatic symptomology.

PTSD has been observed in older adults experiencing significant and unpredictable physical health problems, such as stroke (Sembi, Tarrier, O'Neill, Burns, & Faragher, 1998), myocardial infarction (Bennett & Brooke, 1999), and cancer (Kangas et al., 2002). Presentations of older adults who have experienced falls, at times mirrors that of those displaying PTSD symptomology (such as the avoidance of situations which limits their involvement in activity, and an altered view of themselves as able to cope in the world), with some authors proposing that the apparent similarities with disorder are worthy of further enquiry (McKee, Chung & Pais, 2004). Preliminary data from recent studies suggests that a proportion of older adults do experience posttraumatic symptomology following falls, with McKee, Chung and Pais (2004) reporting that 32.3% of their sample met the diagnostic criteria for full acute PTSD, with further participants (16.1%) meeting a partial diagnosis. An internal attributional style was significantly correlated with PTSD symptomology (McKee, Chung & Pais, 2004).

Weintraub and Ruskin (1999) concluded that older adults have similar reactions to trauma as younger people in the population. Averill and Beck (2000) have also made a similar conclusion. However, Falk, Hersen and van Hasselt (1994) suggested that other factors affecting older people may result in their presenting PTSD in a slightly different manner, with depression, generalised anxiety disorder and cognitive decline appearing



as confounding variables. In addition, older people are more likely than younger people to have experienced prior traumas, resulting in an increased likelihood that these prior traumas will be reactivated. This suggests that research into younger adults and the treatments offered to them, may not be generalisable to their older counterparts.

A number of single case studies describing the treatment of PTSD in older people have been published. These have focussed on a variety of approaches, including Life Review Technique (LRT; Maercker, 2002), Eye Movement Desensitisation and Reprocessing (EMDR; Thomas & Gafner, 1993; Burgmer & Heuft, 2004), imaginal exposure treatment (Russo, Hersen & van Hasselt, 2001), and cognitive behavioural therapy (CBT; Scott, 2004). However there is a paucity of papers evaluating interventions for the alleviation of PTSD symptomology in older adults, and no available research into the implications for treatment of PTSD in this group after falls.

### *Falls prevention programmes*

As a result of the increased awareness of the impact of falls on the person, the National Service Framework (Dept of Health, 2001) set out standard six to specifically address falls. The subsequent NICE guidance (November 2004) for the creation of falls programmes advised that they be multi-factoral in nature, combining strength and balance training, home hazard intervention, medication review, education and information. As a result of the need to address the significant physical, social and psychological consequences of falls in older adults, multidisciplinary falls programmes are now widespread in the UK. Although it is acknowledged that more complex psychological disorders can develop as a result of a fall, there is currently no specific guidance around the inclusion of Psychologists in the multidisciplinary skills mix.

Typically this consists of representation from Nursing, Occupational Therapy, Physiotherapy and the Medical professions.

In a published Cochrane review (Gillespie et al., 2003), and a more recent review and meta-analysis of the efficacy of falls prevention groups (Chang, et al., 2004), it was found that overall these groups were useful in reducing the incidence of falls when multi-disciplinary assessments and interventions were implemented. A further Cochrane review (McClure, et al., 2005) identified that community based approaches were successful in reducing falls, while also building upon the self-efficacy of those attending. In addition, other studies directly cite evidence of positive reductions in fear of falling as a result of group attendance (Zhang, Ishikawa-Takata, Yamazaki, Morita & Ohta, 2005).

Hinman (1998) looked at the attributions made by older people attending falls programmes. It was found that the therapeutic exercise component of the falls programme significantly changed the extent to which internal attributions were made for the falls. This was found to be a greater benefit to participants than the environmental modifications element, which focused on manipulating extrinsic factors. Furthermore, the normalisation of the group's experience of falling, means that catastrophization around a particular event is less likely (Peterson et al., 1998).

However, if there are a number of people passing through falls programmes who are experiencing significant psychological distress and feelings of shame as a result of the attributions made, then there are implications for treatment. Yardley, Donovan-Hall, Francis and Todd (2006) provide evidence from their study of the opinions of older people attending falls programmes with regard to the advice they are given. It is

suggested that preventative falls advice was often dismissed as only for those more frail or as common sense, as a means of defending against a threat to their identity and autonomy, e.g., being perceived as old or lacking in common sense, resulting in poor use of rehabilitation strategies. Similarly in Yardley and Smith's (2002) research, participants would rather restrict their activity, in the belief that this will reduce the risk of falling, than suffer the psychological damage they associated with a fall. Here, feelings of shame and the negative attributions around falls can influence an individual's motivation and ability to engage in rehabilitation, and may therefore require specific psychological input.

#### *Shame and the ageing process*

Shame has been described as "an intense negative emotion having to do with the self in relation to standards, responsibility, and such attributions as global, self-failure. Shame is elicited when one experiences failure relative to a standard (one's own or other people's), feels responsible for the failure, and believes failure reflects a damaged self" (Lewis, 1998, p.126). Given the experiences described with regard to the body drop phenomenon, preferred identities and status passage, being considered 'old', or attributing events such as a fall to ageing, has the potential to produce feelings of shame in individuals.

Shame associations with the ageing process have been conceptualised as those which mix with negative societal perceptions of ageing, including themes of dependency, frailty, unattractiveness and poor health (McKee & Gott, 2002). However, unlike the wider population, older people's body satisfaction is related to function, rather than appearance, and function is associated with increased well-being (Reboussin et al., 2000).

Shame can have significant disabling effects, by influencing the manner in which the self and others are perceived. This can impact upon help-seeking behaviours and social interactions, increase the development of further psychological difficulties, and may influence behaviour in rehabilitation (Lee, Scragg & Turner, 2001). Shame has a significant impact on the manner in which traumatic events, such as falls, are emotionally processed. This is especially relevant in respect of the development of later PTSD symptomology, as shame is experienced as a result of the internal attributions made for the traumatic event.

Much of the research which has looked at shame and its relationship to PTSD, has involved participants who have been exposed to sexual and physical assault (Andrews, Brewin, Rose & Kirk, 2000). Accidental trauma, such as a fall, has not previously received very much research attention. In addition to this, studies have looked at younger adults; no previous research has examined these processes in an older population.



### *The current study*

The current study aims to:

1. Address what proportion of older people who move through therapeutic programmes post-fall, present with posttraumatic symptomology, or other types of psychological distress,
2. Assess whether psychological symptoms change over time (e.g., a reduction or increase in anxiety, depression, fall efficacy or PTSD symptomology from the beginning to the end of the group).
3. Identify factors (i.e., internal and external experiences of shame and attributions for the fall) which may predict these various psychological outcomes (i.e., anxiety, depression, falls efficacy and post-traumatic symptomology) over time.

In particular it was predicted that:

1. Levels of psychological distress (i.e., anxiety, depression, falls efficacy and PTSD symptomology) will change significantly over time, and
2. The social cognitive variables (i.e., fall attributions, internal and external experiences of shame) will be predictive of levels of psychological distress (i.e., anxiety, depression, falls efficacy and PTSD symptomology) at the beginning of the falls clinic and of changes in levels of psychological distress over time.

## **DESIGN**

The study comprised a prospective, repeated measures design collecting data over two time points (pre-group and post-group).

## **METHOD**

### *Participants and procedures*

Participants were recruited from all those individuals (both male and female) over 65-years of age who were referred to the falls programme at two major hospitals in Sheffield between January 2007-May 2007 (with time two data collection completed in June 2007).

The falls programme professional team is comprised of a Consultant Physician and Geriatrician, Nurses, Physiotherapists and Occupational Therapists. It is a six-week, rolling programme, which takes place on a designated day every week. In addition to receiving a comprehensive medical and functional assessment by members of the team, those attending the group also attend a weekly exercise group to build up strength, flexibility and balance. Group work which focuses on the practical and emotional consequences of falling is also included, with consideration of home hazards and wider prevention strategies. Although there were some minor differences in the design and execution of the programmes between the two hospitals, the key elements of the falls programmes remained consistent.

Inclusion criteria were as follows: (1) patients who had sustained a fall requiring medical attention, and (2) entered the falls care pathway and received a referral to the

falls programme. The falls care pathway directed all those identified through primary and secondary care as having had a fall, through to a single falls clinic, at which time they were assessed for their suitability to attend a falls programme or whether they required one-to-one support. At this point they would then be referred to either one of the hospital programmes based upon their GP location, and their rehabilitation needs. The Kellogg International Work Group on the prevention of falls in the elderly (1987) definition for a fall was used for this study.

Participants were excluded from the study on the basis of evidence of cognitive decline (as determined by the Multi-Disciplinary Team), English not being the individual's first language, being unable to read, and those the Multi-Disciplinary Team deemed unable to participate for health or other reasons.

Participants were recruited to the study following identification by the Multi-Disciplinary Teams for inclusion at their assessment, at which time the study was initially discussed with patients and an information sheet given if required. Those who declined to be involved in the study, did not have their details passed to the researcher. The details of those patients who had consented, were given to the lead investigator, and details of the study, including the introductory letters from the clinical team and the researcher, and the information sheet (Appendix C) were sent to the participants a week prior to their first day of attendance at the falls programme.

### Time one

Participants were then approached by the lead researcher at time 1, given the opportunity to discuss the study and ask any questions they may have in a private room. Those who had provided informed consent were asked to complete the consent form

(Appendix C). The lead researcher then spent 20-30 mins with each participant completing the questionnaire (Appendix D) using an interview-style format. Clinical notes were then consulted and the Hospital Anxiety and Depression (HADS) scores, as well as clinical, falls and demographic information, were obtained from the notes.

### Time two

Participants were approached at their final session (week 6) of the falls programme. It was discussed with the participants at this time that following completion of the second questionnaire, all responses would be anonymised and therefore withdrawal from the study would not be possible after this point. If they wished to proceed, participants were assisted in completing a second, shorter questionnaire. A copy of the signed consent form was placed in the clinical notes and a copy was also provided to the participant. Further time 2 data was again gathered from the clinical notes.

### *Sample Characteristics*

In total, 57 patients were identified as suitable for inclusion in the study by the Multi-Disciplinary Team. Of these, one female patient declined to take part and did not participate in the study. Seven participants did not complete the second questionnaire of whom four voluntarily withdrew from the group, and three did not complete as a result of being admitted to hospital. All participants requested help in completing the questionnaire. The overall response rate was 98% (n=56), with a drop-out rate of 12.5% (n=7). An attrition analysis was not conducted due to the small numbers involved.

A total of 49 participants therefore completed questionnaires at time one and two. Of these individuals, 79.6% (n=39) were female and 20.4% (n=10) male. All but one of the



participants were of 'white British' origin, the exception was Irish. The participant age range was from 67-93 (mean age=79.71, S.D.=6.63). Of those who took part 21.4% (n=12) were married, with 10.7% (n=6) single, 7.1% (n=4) divorced and 60.7% (n=34) were widowed.

Participants recruited from the two hospitals falls programmes were compared on the basis of social, demographic and questionnaire measures. It found that there were no significant differences on any of the variables under investigation and as a consequence the data from the two groups was pooled for analysis.

## **Measures**

### *Predictor variables*

#### **The Internalised Shame Scale (ISS; Cook, 1990)**

This is a 38-item questionnaire which comprises a 28-item measure that looks at the frequency with which people experience feelings of internal trait-shame, and a 10-item scale assessing self-esteem (items 65-101, Appendix D). Participants respond to questions about how they feel in relation to the shame they experience, on five-point Likert scales, with a total score being obtained through summing all items. The measure of self-esteem is recommended as a clinical indicator, while scores of 50 or more of the shame measure suggest "painful, probably problematic" levels of shame. It is suggested that those individuals who score above 60, have extreme levels of shame which is frequently associated with severe mental health problems. Both the shame scale and self-esteem scale have excellent internal reliability ( $\alpha$ s= 0.96, 0.90) and test-retest

reliability ( $\alpha$ s= 0.84, 0.69). In addition, the scales have been found to have good convergent and divergent validity. The ISS was only completed at time one.

Other as a Shamer (OAS) Scale (Ross, Gilbert, & Allan, 1994; Allan, Gilbert & Goss, 1994)

This is an 18-item questionnaire which was devised to measure the global beliefs people hold about how others evaluate them in relation to external, trait-shame (items 102-120, Appendix D). Participants respond to questions about how they feel in relation to the shame they experience from others, on a five-point Likert scale (e.g., “I feel other people see me as not quite good enough”). This scale has been found to have satisfactory internal reliability and a three-factor structure of ‘inferior’, emptiness’ and ‘how others behave when they see me make mistakes’. The total score is obtained through summing all the items and a higher score is indicative of more significant external shame. The OAS was only completed at time one.

*Outcome measures (assessed at times 1 and 2)*

Falls Attributions (McKee, Orbell, & Radley, 1999)

Nine questions from McKee, Orbell and Radley's (1999) research identifying the attributions participants make about the falls were assessed at times one and two (items 14-22, Appendix D). The questions examined the participant's main belief about why they fell (i.e., due to internal factors such as 'because I am growing old' or 'because of the person I am', or external factors such as 'because of something in the environment'), using a tick option response to these items. Questions addressing whether the cause of their fall influences all aspects or just particular areas in their lives, and whether the cause of falling would cause them to fall again, were also assessed using a binary option. Their certainty about the cause of the fall, the likelihood of their falling again, whether they could have prevented themselves falling, their worries about falling in the near future and how likely they think it would be for their peers who have fallen to fall again. The responses to these items were measured on a seven-point Likert scale, each item was considered individually. No norms were available as the attribution items were not derived from a standardised measure.

Falls Efficacy Scale – International version (FES-I; Yardley, Beyer, Hauer, Kempen, Piot-Ziegler & Todd, 2005)

This is a 16-item questionnaire which has been developed from the Falls Efficacy Scale (FES; Tinetti, Richman & Powell, 1990), to measure fear of falling (items 23-38, Appendix D). Participants respond on a four-point Likert scale about the concern they feel about falling when engaging in various tasks of daily living. The measure provides

scores which range from 16 (no concerns about falling) to 64 (severe concern about falling). The items consider of self-care, domestic, social and physical activities that are frequently affected following a fall. The FES-I has excellent internal and test-retest reliability (Cronbach's  $\alpha=0.96$ ).

#### The Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983)

This is a 14-item questionnaire which provides a brief state measure of anxiety and depression, without contamination of reported physical symptomology. Participants respond on a four-point Likert scale to each of the seven questions featured in the two subscales. The possible range of scores for each subscale is from 0-21, a score of 8-10 suggest a possible clinical disorder, while a score of 11-21 indicates a probable clinical disorder. The internal consistency of the two subscales is good (anxiety scale, Cronbach's  $\alpha=0.93$ ; depression scale, Cronbach's  $\alpha=0.90$ ). Concurrent validity and construct validity are also good, with data indicating excellent psychometric properties. This measure is routinely collected by both falls programmes and therefore did not feature in the questionnaire booklet. These data were obtained from the patients' notes at week one and six of the falls programme.

#### Post-traumatic Stress Diagnostic Scale (PDS; Foa, 1995)

This is a 49-item questionnaire designed to assess PTSD symptomology, enabling a diagnosis and indication of symptom severity (items 39-64, Appendix D). Six components are identified from the results: a PTSD diagnosis, symptom severity score, number of symptoms, onset and duration of symptoms, symptom severity and level of impairment of functioning.



A diagnosis of PTSD is only made when all the six factors necessary for this classification are met (using DSM-IV (American Psychological Association, 1995), namely;

- i. Experiencing a traumatic event in which there was a perception of “actual or threatened death or serious injury, or a threat to the physical integrity of the self or others” (p.427), resulting in a response of “intense fear, helplessness or horror” (p.428);
- ii. As a consequence the individual experiences symptoms of re-experiencing the trauma, such as nightmares, re-living the traumatic event or physiological and psychological distress when exposed to aspects of the trauma;
- iii. Avoidance of factors which remind the individual of the trauma, such as avoidance of the place, thoughts or discussions of the trauma and blunted affect
- iv. Arousal symptoms, indicated by such as hypervigilance, sleep disturbance and problems concentrating.
- v. These symptoms must then cause clinically significant distress and disruption to the individual’s “social, occupational, or other important areas of functioning” (p.429)
- vi. The symptoms must be present for more than a month

The symptom severity score ranges from 0-51, and is derived from responses to the 17 items relating to specific PTSD symptoms, each of which are rated on a four point scale (i.e., 0-3). The PDS can be used to monitor the responses to treatment in outcome studies and to compare and estimate prevalence rates of PTSD in various clinical populations. It has excellent internal consistency (Cronbach’s  $\alpha=0.92$ ) and test-retest reliability and good validity.

The statistical analysis of the data is considered in the results section.

### *Prospective power analysis*

There is no previous research which has assessed the ability of the variables under investigation to predict psychological distress among falls patients. In the absence of such research a medium effect size was assumed for estimation of the sample size in this study.

Power analysis was performed using GPOWER (Erdfelder, Faul, & Buchner, 1996). Following Cohen (1992) a moderate size effect of 0.15 was assumed, with a power set at 0.80 and probability set at 0.05. It was estimated that 85 participants would be required to detect a medium effect size under these conditions in a multiple regression analysis using four predictor variables (i.e., external shame, internal shame, fear of falling and attributions for the fall). This number of participants would also be sufficient for the planned repeated measures ANOVAs, examining changes in the variables over time.

## RESULTS

### *Data Screening*

The data were screened to check levels of skewness and kurtosis, prior to analysis. A number of the OAS measures were found to have significant levels of skewness; these being, Other As a Shamer (OAS) 'inferior' ( $z = 4.95, p < 0.001$ ), OAS 'emptiness' ( $z = 5.95, p < 0.001$ ), OAS 'total' ( $z = 5.27, p < 0.001$ ), OAS 'mistakes' ( $z = 3.17, p < 0.001$ ). Square root transformations were performed on the first three measures, and a log transformation on the last, that reduced levels of skewness to non-significance.

In addition, the measures of the individual's 'perceived ability to prevent their fall' used at time one ( $z = 4.52, p < 0.001$ ) and at time two ( $z = 3.64, p < 0.001$ ) were also skewed.

1/x transformations were used to reduce levels of skewness to non-significance.

The transformed variables were used in all subsequent analysis, although the untransformed means and standard deviations are presented in Table 1 for ease of interpretation.

## *Descriptive Statistics*

As a result of their most severe fall, 69.4% (n=34) of participants were admitted to hospital, with 49% (n=24) of the overall sample experiencing a fracture as result. A total of 55.1% (n=27) fell indoors and 28.6% (n=14) were able to get up independently. While 57.1% (n=28) reported feeling embarrassed when they fell and 53.1% (n=26) stated that they would rather not have told anybody about their fall.

With regard to the number of falls experienced in the past year, 28.6% (n=14) reported having fallen only once or twice, while 36.7% (n=18) reported they had fallen up to five times. Of the remaining sample, 18.4% (n=9) thought they had fallen between five and ten times, and 16.3% more than ten times in the previous year. The most recent fall had been experienced less than one month ago by 26.9% (n=14) participants prior to beginning the group, while 36.5% (n=19) had fallen between one and two months ago, 7.7% (n=4) between two and four months ago, and 23.1% (n=12) had last fallen more than four months ago. It was also reported that 20.4% (n=10) of participants fell a least once since they began attending the falls programme.

Table 2 shows the descriptive statistics for the main predictor variables at time one, including internal reliabilities of the measures. All scores were found to be respectable ( $\alpha > 0.70$ ), except for the OAS emptiness subscale, which was satisfactory (De Vellis, 1991).



Table 1: Descriptive data for the predictor variables

<b>Variable</b>	<b>Mean</b>	<b>S.D.</b>	<b><math>\alpha</math></b>
<b>ISS Self Esteem</b>	23.78	6.73	.85
<b>ISS Total</b>	58.0	15.38	.72
<b>OAS Emptiness</b>	1.51	2.38	.61
<b>OAS Inferior</b>	2.37	3.63	.81
<b>OAS Mistakes</b>	1.36	2.51	.72
<b>OAS Total</b>	5.24	6.88	.84

Table 1 shows the mean scores for each of the predictor variables derived from standardised measures. The ISS shows possibly problematic levels of shame, although levels of self-esteem were found to be positive overall. All of the OAS subscales and total score suggested very low levels of external shame, as compared to other populations (Goss, Gilbert & Allan, 1994).

Table 2 provides the descriptive statistics for the clinical and outcome data collected at both time points.

Table 2: Time 1 and 2 descriptive data and summary of MANOVA.

Variable	Time 1			Time 2			F	$p\eta^2$
	Mean	S.D.	$\alpha$	Mean	S.D.	$\alpha$		
PDS severity	11.91	8.77	.82	9.65	7.93	.82	8.83**	.155
PDS no. of symptoms	5.80	4.54	-	4.37	3.78	-	7.90**	.141
FES-I total	40.04	15.28	.96	30.88	14.42	.96	35.41***	.425
HADS anxiety score	7.65	4.65	-	6.86	4.44	-	6.01*	.111
HADS depression score	5.90	3.88	-	5.14	3.54	-	6.48*	.119
Internal/External cause attribution*	1.51	0.51	-	1.63	0.49	-	4.85	.92
Perceived global/specific impact of the cause of the fall*	1.59	0.50	-	1.33	0.47	-	17.33***	.262
Belief that cause of fall will cause future falls*	1.31	0.47	-	1.43	0.50	-	4.85	.92
Perceived ability to have prevented fall*	2.49	4.04	-	2.43	2.35	-	0.01	.000
Perceived likelihood of falling in next 2 months*	4.20	2.28	-	3.20	1.90	-	12.51***	.207
Worry about falling in next 2 months*	4.51	2.53	-	3.18	2.46	-	16.64***	.257

Note: \*\*\*  $p < 0.001$  (2-tailed), \*\*  $p < 0.01$  (2-tailed), \*  $p < 0.05$  (2-tailed),  $df = 48$ .

\* Refers to individual fall attribution questions

### *Change in psychological symptoms over time*

A repeated measures MANOVA was conducted to examine changes in outcome variables from time one to time two (see Table 2). A significant multivariate effect of time was found,  $F(11,38)$ ,  $p < 0.001$ . Univariate F tests were used to examine the effect of time on each variable. Significant changes between the start and end of the group were identified across all measures, with the exception of the internal/external attributions made for the fall, the belief that the cause of the fall would result in future falls and the individual's perceived ability to have prevented the fall. The significant changes over time reflected predominantly large effect sizes ( $\eta^2 > 0.14$ ), with the exception of the HADS anxiety and depression scores which reflected a medium effect size ( $\eta^2 > 0.06$ ).

With regard to the experiencing of post-traumatic symptomology, 38.8% ( $n=19$ ) stated that they had felt helpless and terrified following being injured or seeing somebody else injured, or thinking their life or somebody else's was in danger as a consequence of the fall. Of the 51.9% ( $n=27$ ) who acknowledged re-experiencing symptoms as measured by the PDS at baseline, this fell to 38.5% ( $n=20$ ) post group. Similarly over the 6-week period, avoidance symptoms were experienced by 82.7% ( $n=43$ ) prior to the group and 71.2% ( $n=37$ ) after the group; and 71.2% ( $n=37$ ) cited arousal symptomology initially, changing to 57.7% ( $n=30$ ) at time two.

81.6% ( $n=40$ ) expressed feeling some impairment of their functioning as a result of their PTSD symptomology, and at time two 71.4% ( $n=35$ ) expressed still feeling some impairment in their functioning. A total of 30.8% ( $n=16$ ) met all the criteria for a diagnosis of PTSD at time one, while 24.5% ( $n=12$ ) still met the criteria after

completing the programme. Experience of a prior trauma other than the fall in question, was reported by 87.8% (n=43) of participants. All of the outcome variables changed significantly over time. Overall the mean number of PTSD symptoms significantly changed over the course of the 6 weeks, demonstrating a significant reduction in number of PTSD symptoms. Symptom severity scores also fell significantly from baseline to the end of the group, suggesting an overall decrease in the severity with which the PTSD symptoms were experienced.

The FES-I mean scores at baseline suggested overall that a moderate level of concern was felt about carrying out tasks of daily living. A significant decrease in scores was observed between baseline and the end of the group, suggesting that on average at time two, only some concern for falling was felt while engaging in activities of daily living.

HADS anxiety scores showed a significant decrease over time, with 51.02% (n = 25) above cut off scores indicating some level of clinical distress at baseline, dropping to 49.0% (n=24) post group. This significant change was also noted in respect of the HADS depression scores with 36.73%(n = 18) showing some level of depression at baseline, again falling to 30.06%(n = 15) at week six.

49% (n=24) made internal attributions for their most severe fall at baseline, while at the end of the group only 36.7% (n=18) made such an attribution, which was a significant change towards participants making an external attribution for their fall. 57.1% (n=28) stated that the reason they fell affected all aspects of their lives, not just in respect of falling. This proportion had changed to 32.7% (n=16) at the end of the group, illustrating a statistically significant change over time away from a perception of the cause of the fall having global influences. At the start of the group 69.4% (n=34)



believed that they would have a further fall as a result of the reason for their most severe fall, while at the end of the group this figure had dropped to 57.1% (n=28). Again a significant change was observed between the estimations between the time one and two, suggesting fewer people expected to fall again because of these reasons.

The proportion of those who felt they could have prevented themselves for falling at baseline was significantly different to estimations they made six weeks later, with a small increase in those who believed they could not have prevented the fall. The participant's perceived likelihood of falling in the next two months also faced a significant change from time one to time two with fewer participants feeling they would fall in the next couple of months. A similar trend was observed in ratings of the worry participants felt about falling in the next couple of months, with fewer people expressing worry about falling in this time period.

#### *Predictors of psychological outcomes at baseline*

#### Correlation analyses

Pearson correlation coefficients were used to assess the associations between the outcome variables and psychological variables at time one (see Table 3).

Table 3: Correlations between predictor and outcome variables at time 1

	PDS				FES-I Totals
	Symptom Severity	PDS No. Symptoms	HADS Anxiety	HADS Depression	
ISS Total	.44**	.30*	.25	.40**	.32*
ISS Self Esteem	-.37**	-.34*	-.27	-.35*	-.47**
OAS total	.40**	.37**	.39**	.47**	.45**
OAS inferiority	.35*	.29*	.33*	.36*	.35*
OAS emptiness	.24	.33*	.23	.42**	.32*
OAS mistakes	.32*	.33*	.37**	.40**	.48**
Internal/External cause attribution	-.38**	-.35*	-.40**	-.50**	-.24
Perceived global/specific impact of the cause of the fall	-.56**	-.43**	-.33*	-.39**	-.42**
Belief that cause of fall will cause future falls	.34*	.30*	.29*	.58**	.52**
Perceived ability to have prevented fall	.16	.10	-.05	.24	.20
Perceived likelihood of falling in next 2 months	.51**	.40**	.24	.25	.48**
Worry about falling in next 2 months	.44**	.45**	.37**	.36*	.59**

Note: \*\* p<0.01 (2-tailed),\* p<0.05 (2-tailed).

As Table 3 illustrates, with the exception of the participant's perceived ability to prevent their fall all of the predictor variables correlated significantly with some or all of the outcome variables at baseline.

The PDS symptom severity score at baseline was significantly correlated with all predictor variables except for the OAS emptiness subscale, while the PDS number of symptoms score at baseline was significantly correlated with all predictor variables. Significant associations were also identified between the FES-I total score at time one and all variables, apart from the attributions made for the fall.

The HADS depression score at baseline was significantly correlated with all variables apart from the participant's perceived likelihood of falling again in next two weeks. The HADS anxiety score at baseline was also significantly correlated with all variables other than the participant's perceived likelihood of falling again in next two weeks, the ISS self-esteem and OAS emptiness variables.

Considering correlations between the outcome variables and the demographic/clinical measures, significant correlations were found between FES-I total score at time one and whether help was needed to get up after falling ( $r=0.43$ ,  $p<0.005$ ) and whether they had attended hospital as a result ( $r=-0.43$ ,  $p<0.005$ ). PDS symptom severity at time one was also correlated with number of falls in the previous year ( $r=0.30$ ,  $p<0.05$ ). No further associations were identified between clinical and demographic control variables (i.e. age, gender, marital status, and time since most severe fall) and the outcomes at time one.

## Regression Analyses

A series of stepwise regression analyses was performed to predict the time one outcome variables for each regression analysis. Only those variables that were found to have a significant correlation with each outcome were included in the regression analysis, to reduce the numbers of predictor variables under investigation. The results of the regression analysis ( $\beta$  values) are shown in Table 4.



Table 4: Regression analyses ( $\beta$ 's): Predicting psychological outcomes at time one

	PDS				
	Symptom Severity	PDS No. Symptoms	HADS Anxiety	HADS Depression	FES-I Totals
ISS Total	.38**	-	-	-	-
ISS Self Esteem	-	-	-	-.25*	-
OAS Total	-	0.38*	-	-	-
OAS mistakes	-	-	0.29*	-	0.29*
Internal/External cause attribution	-	-	0.33*	-.28*	-
Perceived global/specific impact of the cause of the fall	-	-	-	.45***	-
Belief that cause of fall will cause future falls	-.52***	-	-	-	-
Perceived likelihood of falling in next 2 months	-	-	-	-	-
Worry about falling in next 2 months	-	0.23*	-	-	0.50***
Attended hospital as result of fall	-	-	-	-	-.37***
R <sup>2</sup>	.46***	.27***	.24**	.51***	.60***

Note: \*\*\*  $p < 0.001$  (2-tailed), \*\*  $p < 0.01$  (2-tailed), \*  $p < 0.05$  (2-tailed).

Two variables emerged as significant independent predictors of PDS symptom severity at time one; namely, the ISS total shame score and participant's belief that the cause of their fall will result in further falls. These variables were able to explain 46% of the

variance in PDS symptom severity at time one,  $R^2 = 0.46$ , Adjusted  $R^2 = 0.44$ ,  $F(2, 46) = 19.47$ ,  $p < 0.001$ .

Two variables, OAS total score and the participant's worry about falling in the next two months, emerged as significant independent predictors of number of symptoms at time one. These variables explained 27% of the variance in the PDS number of symptoms at time one,  $R^2 = 0.27$ , Adjusted  $R^2 = 0.24$ ,  $F(2, 46) = 8.58$ ,  $p < 0.001$ .

Two variables emerged as significant predictors of HADS anxiety score at baseline. These were the OAS mistakes subscale and the internal/external attributions made for the fall, and were able to explain 24% of the variance in the HADS anxiety score at baseline,  $R^2 = 0.24$ , Adjusted  $R^2 = 0.21$ ,  $F(2, 46) = 7.21$ ,  $p < 0.005$ .

Three variables emerged as significant predictors of the HADS depression score at time one; namely, the internal/external attributions for the fall, the participant's perceived impact (global/specific) of the reason for the fall at baseline, and the negative value of the ISS self-esteem score. These variables explained 51% of the variance in the HADS depression score at baseline,  $R^2 = 0.51$ , Adjusted  $R^2 = 0.48$ ,  $F(3, 45) = 15.71$ ,  $p < 0.001$ .

Finally, three variables emerged as significant independent predictors of FES-I at baseline. These variables were worry about further falls in the next two months at baseline, whether the participant had to attend the hospital after their fall and OAS mistakes subscale scores. These variables explained 60% of the variance in the FES-I at baseline,  $R^2 = 0.60$ , Adjusted  $R^2 = 0.57$ ,  $F(3, 45) = 22.22$ ,  $p < 0.001$ .

## *Predictors of psychological outcomes at time two*

### Correlation analysis

Partial correlations were calculated to examine the associations between the time one predictor variables and the time two outcome variables, controlling for the corresponding outcome variables (see Table 5).

Table 5: Partial correlations between time 1 predictor variables and time 2 outcome variables

	<b>PDS</b>				
	<b>Symptom Severity2</b>	<b>PDS No. Symptoms2</b>	<b>HADS Anxiety2</b>	<b>HADS Depression2</b>	<b>FES-I Totals2</b>
<b>ISS Total</b>	.36*	.54***	.18	.22	.04
<b>ISS Self Esteem</b>	-.24	-.33*	-.16	.10	-.37**
<b>OAS total</b>	.31*	.33*	.12	.33*	-.37
<b>Internal/External cause attribution</b>	-.20	-.35*	-.37**	-.18	-.07
<b>Perceived global/specific impact of the cause of the fall</b>	.38**	.36*	-.01	.06	.04
<b>Belief that cause of fall will cause future falls</b>	.13	-.15	-.12	-.03	-.12
<b>Perceived likelihood of falling in next 2 months</b>	.04	.36*	-.16	-.06	.10
<b>Worry about falling in next 2 months</b>	-.06	.09	.12	-.06	.19

Note: \*\*\* p<0.001 (2-tailed), \*\* p<0.01 (2-tailed), \* p<0.05 (2-tailed).



The partial correlational analysis revealed significant correlations between a number of variables, even when corresponding baseline outcome measures were controlled for.

PDS symptom severity at time two was significantly correlated with ISS total shame score, OAS total score and participant's perceived impact (global/specific) of the cause for the fall, when controlling for PDS symptom severity at baseline. PDS number of symptoms at time two was significantly correlated with a large number of predictors (when the baseline scores were controlled for); namely, the ISS total shame score, the ISS self esteem score, the OAS total shame score, the internal/external attributions made for the fall, the participant's perceived likelihood of falling in the next two months, and participant's perceived impact (global/specific) of the reason for the fall at baseline.

The HADS anxiety score at time two was only significantly negatively correlated with the internal/external attributions for the fall, when the HADS anxiety score at time one was controlled for. The time 2 HADS depression score correlated significantly with the OAS total shame score, when controlling for the baseline values. FES-I score at time two had a significant negative correlation with the ISS self esteem variable.

All correlations between the clinical and demographic variables and the time two outcome measures were non-significant, when controlling for corresponding baseline scores.

### *Regression analyses (stepwise)*

A series of stepwise regression analyses was performed to predict the time two outcome variables for each regression analysis. For each regression analysis, the baseline outcome variance was entered as a first step, followed by those variables that were found to have a significant partial correlation with the outcomes, to reduce the numbers of predictor variables under investigation. The results of the regression analysis ( $\beta$  values) are shown in Table 6.

Table 6: Summary of regression analyses ( $\beta$ 's): Predicting psychological outcomes at time two

	PDS				
	Symptom Severity	PDS No. Symptoms	HADS Anxiety	HADS Depression	FES-I Totals
ISS Total	-	.22**	-	-	-
ISS Self Esteem	-	-	-	-	-.28*
OAS total	-	-	-	.20*	-
Internal/External cause attribution	-	-	-.19**	-	-
Perceived global/specific impact of the cause of the fall	.24**	-	-	-	-
$R^2$	.69***	.70***	.80***	.75***	.61***

Notes: \*\*\*  $p < 0.001$  (2-tailed), \*\*  $p < 0.01$  (2-tailed), \*  $p < 0.05$  (2-tailed).

At time one, PDS symptom severity explained 64% of the variance in time two PDS symptom severity,  $R^2 = 0.64$ , Adjusted  $R^2 = 0.63$ ,  $F(1, 47) = 83.51$ ,  $p < 0.001$ . Of the social and cognitive variables, only the attribution of whether the reason for the fall had a global or specific impact on the individual's functioning, emerged as a significant predictor of time two PDS symptom severity. The variables in the final regression equation explained 69% of the variance in PDS symptom severity at time two,  $R^2 = 0.69$ , Adjusted  $R^2 = 0.68$ ,  $F(2, 46) = 51.64$ ,  $p < 0.001$ .

Time one PDS number of symptoms explained 63% of the variance in time two PDS number of symptoms,  $R^2 = 0.63$ , Adjusted  $R^2 = 0.63$ ,  $F(1, 47) = 80.98$ ,  $p < 0.001$ . Of the social and cognitive variables, only the ISS total shame score emerged as a significant



predictor of time two PDS number of symptoms. This variable explained 70% of the variance in PDS number of symptoms at the end of the group,  $R^2 = 0.70$ , Adjusted  $R^2 = 0.69$ ,  $F(2,46) = 54.14$ ,  $p < 0.001$ .

Time one HADS anxiety explained 77% of the variance in time two,  $R^2 = 0.77$ , Adjusted  $R^2 = 0.76$ ,  $F(1, 47) = 155.13$ ,  $p < 0.001$ . Of the social and cognitive variables, only the attribution of whether the reason for the fall had a global or specific impact on the individual's functioning, emerged as a significant predictor of time two HADS anxiety. The variables in the final regression equation explained 80% of the variance in PDS number of symptoms at the end of the group,  $R^2 = 0.80$ , Adjusted  $R^2 = 0.79$ ,  $F(2,46) = 91.51$ ,  $p < 0.001$ .

Time one HADS depression explained 72% of the variance in time two HADS depression,  $R^2 = 0.72$ , Adjusted  $R^2 = 0.71$ ,  $F(1, 47) = 119.50$ ,  $p < 0.001$ . Of the social and cognitive variables, only the OAS total shame score emerged as a significant predictor of time two HADS depression. The variables in the final regression equation explained 75% of the variance in PDS number of symptoms at the end of the group,  $R^2 = 0.75$ , Adjusted  $R^2 = 0.74$ ,  $F(2, 46) = 68.32$ ,  $p < 0.001$ .

Finally, time 1 FES-I scores explained 55% of the variance in time two FES-I scores,  $R^2 = 0.55$ , Adjusted  $R^2 = 0.54$ ,  $F(1, 47) = 56.23$ ,  $p < 0.001$ . Of the social and cognitive variables, only the ISS self esteem score emerged as a significant predictor of time two FES-I scores. The variables in the final regression equation explained 61% of the variance in FES-I scores at the end of the group,  $R^2 = 0.61$ , Adjusted  $R^2 = 0.59$ ,  $F(2, 46) = 35.47$ ,  $p < 0.001$ .



## **DISCUSSION**

The aims of the current study were to (i) address what proportion of older people who move through therapeutic programmes post-fall, present with posttraumatic symptomology, or other types of psychological distress, (ii) assess whether psychological symptoms change over time (e.g., a reduction or increase in anxiety, depression, fall efficacy or PTSD symptomology from the beginning to the end of the group), and (iii) identify factors (i.e. internal and external experiences of shame and attributions for the fall) which may predict these various psychological outcomes (i.e. anxiety, depression, falls efficacy and post-traumatic symptomology) over time.

Considering firstly changes in PTSD symptoms over time, PTSD symptoms were identified in 24.5% of participants at end of group compared with 30.8% at the beginning of the group, demonstrating a statistically significant improvement in reported posttraumatic symptomology over the course of the programme. This is slightly lower than figures published in McKee, Chung and Pais's (2004) study, which identified 32.3% of their sample as meeting all the criteria for PTSD. However, the McKee et al. study sampled patients in an inpatient setting following fracturing their hip as a result of falling and, as a consequence, reflects the experiences of those in an acute phase facing a more severe falls injury. In contrast, in the current study participants reported having their fall a mean of 11.54 months before the group. The severity of PTSD symptoms and the number of symptoms both showed a significant decrease over the course of the programme.

Those who felt that the cause of their fall had an impact on all aspects of their lives (i.e., global influence) had higher levels of PTSD symptom severity at the end of the group,

whereas high levels of internal shame, predicted a greater number of PTSD symptoms at the end of the programme. Global attributions for the cause of the fall were found to be important in this study, which compares with McKee, Chung and Pais's (2004) research, who found PTSD symptomology was associated with internal attributional style, less serious physical injury, falling inside, and needing support to get up. The role of attributional style in the development of later psychological difficulties in people who fall is clearly an area worthy of further investigation. Furthermore, as both this study and McKee, Chung and Pais's (2004) research found that a significant minority of people were experiencing post-traumatic symptomology after falling, both in acute and community settings, greater research into PTSD in this population would be valuable. This is particularly important as research into this disorder in younger people may have limited generalisability (McMurdo, Witham & Gillespie, 2005). Other studies into this population have not previously examined the relationship between feelings of shame and later development of PTSD symptomology, although the association found in the current study is consistent with the wider literature looking at feelings of shame and posttraumatic reactions (Lee, Scragg & Turner, 2001). This suggests that internal experiences of shame would be worthy of investigation for clinical teams to identify whether patients in their care may need further specialist help to manage more complex psychological problems.

Over the period of attendance for the programme there was a significant reduction in depressive symptomology, with 30.6% of participants demonstrating clinical levels of depression at the end of the group, compared with 36.73% at the beginning of the programme. This is higher than the current literature suggests, estimating between 8% (Vetter & Ford, 1989) and 25.5% (Biderman, Cwikel, Fried & Galinsky, 2002) had experienced depression following their experience of falling, although these studies had



used different measures of mood (i.e. DSSI/SAD, Beford, Fould & Sheffield, 1976; S-Geriatric Depression Scale, Cwickel & Richie, 1989), the former of which employing an older and more unusual measure, which makes comparisons more difficult.

Higher levels of external shame, were predictive of higher rates of depression at week six. Global measures of external, trait shame, or the global perception of how people negatively appraise the person, as used in this study (i.e., the Other as a Shamer (OAS) scale, Goss, Gilbert & Allan, 1994), have been previously linked to higher levels of depression, supporting the findings of this study. Other studies reporting depression after falls have identified falling indoors as a predictor of later depression (Vetter & Ford, 1989) or an association with a multi-dimensional, five factor, model including medical, medication, cognitive and wider functional markers (Biderman, Cwickel, Fried & Galinsky, 2002). However the age of the research and the unusual measures employed in the former study (i.e., older measures which are not widely used in the literature), limit its generalisability. The latter investigated a younger population suffering from arthritis, and as a result may have different influences in their experience of depression after falling. The results of the current study suggest that it may be helpful for clinicians to assess whether patients have significant concerns about other negative appraisals and shameful experiences, in addition to affective distress.

Forty-nine percent of the participants experienced clinically significant levels of anxiety at the end of the programme compared with 51.02% at the beginning of the group. This is higher than other studies which have reported the figure to be 20% (Vetter & Ford, 1989). However different measures were employed to assess anxiety in the two studies, and again these were found to be older and rarely used. Those participants who made internal attributions for their fall, were found to have to have

higher levels of anxiety at the end of the programme. The internal attributions an individual made for their fall were therefore predictive of the changes in levels of anxiety over the course of the group. However, the internal attributions made were not predictive of other aspects of psychological distress, contradicting in some ways the association between global attributions and PTSD symptom severity. Furthermore, there was an association identified between making internal attributions and an increased number of PTSD symptoms.

This is at odds with some of the literature, which suggests that attributions are key to how a person appraises themselves and the world (Weinberg & Strain, 1995) and result in an increased likelihood of developing depression (Abramson, Matalsky & Alloy, 1989) and PTSD (Ehlers & Clark, 2000). However this single item measure may not have been sophisticated enough to tap into the attributions made for the fall, although it has been shown in other studies to be related to psychological distress (McKee, Chung & Pais, 2004).

The levels of affective distress identified were higher here than observed in previous studies, although the populations under investigation were different, reflecting those living in more rural settings (Vetter & Ford, 1989) or those with specific medical difficulties (Downton & Andrews, 1990). The current study suggests that attributions are important in the development of mental health problems after falling, in addition to levels of anxiety, and should be assessed in clinic. Management of anxiety in relation to older people is important as anxiety has a significant impact on not just engagement in activity, but also on the ability to perform physical activity in older people (Gage et al., 2004). However, the extent of premorbid psychological difficulties was not formally assessed as part of this study, and so it cannot be concluded with certainty that these



psychological problems were not present prior to the falls incident. A prospective, longitudinal study of a community sample, may allow greater causal associations to be made.

Where individuals have constructed an understanding for their falls by making global and stable negative attributions, they may need specific psychological input, possibly using a Cognitive Behavioural Therapy framework to reframe the falls event (McKee & Gott, 2002). This could also be achieved on a larger scale through the use of leaflets, which attempt to modify negative internal, stable and global attributions, by normalising and de-catastrophising the falls event (Peterson et al., 1998). Furthermore integrating psychological formulations, as seen in other older people's services, might be useful for informing teams (Dexter-Smith, 2007). The potential for psychological interventions is particularly relevant with regard to older people who suffer from psychological, and particularly affective, distress after falls. Many of the psychotropic medications prescribed for anxiety and depressive symptoms, have been associated with increased likelihood of further falls (Avorn, 1998), with some studies identifying 39% of their sample who had fallen having taken sedatives, tranquillisers or hypnotics (Vetter & Ford, 1989).

Ratings of falls efficacy were found to reduce over the course of the programme, indicating that there was a decrease in fear of falling when engaging in activities of daily living. This is similar trend to that observed in other falls studies which have noted shifts in the reported levels of fear of falling over the course of attending a falls prevention group (McClure et al., 2005). Huang (2005) suggests that fear of falling is important because it is an attempt to promote the physical, psychological and social integrity of older people, occurring in the context of perceiving falling as an inevitable

part of ageing. Withdrawing from activity as a result of fear of falling may cause further problems as this prevents the development of wider strategies to manage their fear of falling, also potentially resulting in poorer engagement in rehabilitation activities.

Those participants who reported lower self-esteem showed an overall decreased falls efficacy at the end of the programme. Unlike other studies however, depressive symptomology (Gagnon, Flint, Naglie, Devins, 2005), living alone and falls history (Mann, Birks, Hall, Torgerson & Watt, 2006) were not correlated with fear of falling when engaging in activities, although different measures were employed. Other factors that have been found to be related to falls efficacy previously, but not included in the current study design, include aspects of neuroticism and general subjective health (Mann, Birks, Hall, Torgerson & Watt, 2006).

The relationship between self esteem and falls efficacy (a specific form of self-efficacy relating to an individuals confidence in carrying out activities of daily living without falling), can be understood in terms of some of the research around these traits, and the suggestion that self-esteem and self-efficacy are markers of the same higher order concept (Judge, Erez, Bono & Thoresen, 2002). The identification of an association between self esteem and self efficacy (of which falls efficacy is a specific example), is consistent with other falls studies which have identified self efficacy and wider personality traits as significant predictors of distress after falls (Bosma, Sanderman, Scaf-Klomp, Van Eijk, Ormel & Kempen, 2004).

Ratings of falls efficacy in participants at the end of the group was not associated with a single item measure of worry about falling (i.e., 'how worried are you about falling in the next two months?'), although it was predictive at baseline. Falls efficacy is believed



to be a component of fear of falling, and if the measure is examining what it states, one would expect a greater association. This is in line with other criticisms of the measure (McKee et al., 2002) that the FES-I is tapping into performance in activities of daily living, rather than falls efficacy and subsequent functional rehabilitation.

Jorstad, Hauer, Becker and Lamb (2005) review the available measures for assessing falls efficacy and fear of falling. They suggest that there is relatively limited evaluative literature on the utility of these measures and that specific tools should be selected based upon the concepts under investigation. The Falls Efficacy Scale (Tinetti, Richman & Powell, 1990), and the various versions of this, have been most favourably appraised in the published literature with regard to measuring the construct of falls efficacy. Given that falls efficacy is merely one component of fear of falling, Jorstad, Hauer, Becker and Lamb (2005) suggest that a multi-faceted measure of fear of falls such as the Survey of Activities and Fear of Falling in the Elderly (SAFE) (Lachman et al, 1998) or the Consequences of Falling (CoF) scale which allows for consideration of 'damage to identity' and 'loss of functional independence', and avoidance of activities (Yardley & Smith, 2002), may be useful. Although these two measures would have added to the depth of understanding of levels of fear of falling when compared to the single item question employed in the study, they are of considerable length and would have added significantly to the already substantial size of the questionnaire used.

Surprisingly high levels of internal shame were noted in this study, with overall the cohort reflecting possibly problematic levels of internal shame, in conjunction with high ratings of self-esteem. There were no age-based norms for this measure, which may have had an impact on the interpretation of these measures (Cook, 1990). It is of further note that scores on a measure of external shame (i.e. the perceived negative evaluations

of others) were very low, but again no age-based norms were available for this tool (Goss, Gilbert & Allen, 1994). Both of these measures assessed global, trait levels of shame. These measures have previously been found to be strongly correlated (Goss, Gilbert & Allen, 1994), although this was not seen in this study. It is of note that when participants responded to questions from the Internal Shame Scale (ISS) such as "I have this painful gap within me that I have not been able to fill", many participants responded positively, interpreting this with regard to spousal bereavement. Furthermore, questions such as "I have lost control of my body and feelings" were also responded to in a positive manner, with participants relating this to their experience of having fallen. It may have been more useful to have administered more event specific, event related measures of shame, although evidence suggests these are not as strongly associated with psychological distress as global measures of shame (Allen, Gilbert & Goss, 1994). It is important to investigate expressions of shame in this population further, as the current study suggests that these measures may be tapping into aspects of the individual's experience, other than those which are fall-related. In addition, exploring the effects of feelings of shame on help-seeking behaviour and engagement in rehabilitation in this population would provide valuable information for clinicians.

There was a significant shift in the proportion of participants who made internal attributions for their fall over the course of the group. Almost half of the sample attributed their fall to internal causes at the start of the group, dropping to 36.7% by the end. Internal attributions following a fall are associated with negative outcomes after a fall (Weinberg & Strain, 1995). Some participants suggested at the end of the six-week period, that as a result of the comprehensive assessment process received in the falls programmes, they now felt they had an external cause for their falls. Many now felt that as a result of medication changes, or being given strategies to manage their difficulties,



they now were now less vulnerable to hazards at home. However the extent to which specific aspects of the group influences different areas of functioning, needs further investigation.

NICE (2004) guidelines recommend that certain factors are included in falls programmes, such as a multidisciplinary assessment process considering all aspects of functioning related to the fall, and a cohesive group intervention taking into account strength and balance training, medication review and education and information.

Although falls programmes may include a psychological component to their groups, and also may indirectly therapeutically affect psychological distress through other programme activities, there are no fixed rules in the directives. The results of this study demonstrate that there are a significant number of people who experience psychological distress that would require specialist input. For example, complex disorders such as PTSD have been observed in this sample that are more resistant to amelioration over time. Furthermore, although some decreases have been seen over the course of the group, a significant minority still experience high levels of psychological distress. This has implications for further NICE guidance, and suggests it would be important to take into account the wider psychological effects of falls in older people. Furthermore, it could be helpful to consider two forms of falls programme, with an additional group to meet the needs of those experiencing significant psychological difficulties after their fall.

Although there were significant improvements across all domains of functioning over the course of the group, due to the lack of a control group, causal inferences cannot be made. It is possible that the normalising experience of group attendance, rather than the programme itself, may have improved the psychological well-being of participants,

meeting others who had encountered falls and reducing the likelihood of catastrophisation around the falls event (Peterson et al, 1998). Furthermore, all participants stated how much they had appreciated the social aspect of the group, particularly when social isolation was an issue.

Given the extent of the importance of social contact within the group reported by participants, it was unfortunate that in this study social support was not considered in more detail. Due to the length of the questionnaire, a single item measure was employed, which did not correlate with any of the outcome measures. Other studies have identified associations between social support and decreases in psychological distress after falling (Bosma, Sanderman, Scaf-Klomp, Van Eijk, Ormel & Kempen, 2004), as assessed by a variety of measures, such as the Social Support List (SSL12-I, Kempen & Van Eijik, 1995). This suggests that including an established measure of social support might have increased the predictive power of the model, and would be useful to examine in future research.

It is noteworthy that there was no representation from black and minority ethnic groups in the falls programme for the duration of the study. Johnson (2006) provides evidence in her study of older women in India, that 45% of those in the community and 64% living in long term care had experienced a fall. Evidence from other international studies suggests that both falls and the emotional consequences of falls, are experienced by minority and ethnic groups (Huang, 2005; Suzuki, Ohyama, Yamada & Kanamori, 2002; Wilson et al., 2005). The area in which the study was based is relatively ethnically diverse, and estimates from the 2001 Census (Corporate Policy Unit Sheffield Council, 2003) state that 8.8% people come from black and minority ethnic groups, raising the question of what is happening to the older people from these communities



who fall (Scheppers, van Dongen, Dekker, Geertzen, & Dekker, 2006). This appears to be a question worthy of further enquiry, to identify what the barriers are for older people from these communities accessing falls services.

A number of methodological limitations were noted in this study, the first of which is the small sample size. Unfortunately only 49 participants were able to complete questionnaires at both time points, which falls short of the 85 participants that had been estimated as required in the original power analysis. This small sample size means that there is a greater chance of making a type II error. However, given the small sample size, the significant effects found in the current study are large. Conversely, the number of variables under investigation, meant there was also an increased likelihood of making a type I error, especially in examining changes over time and in the correlational analyses.

This study also did not have a longer-term follow-up, beyond the end of the programme. The two services in which the falls programmes ran, had different approaches to maintaining contact after the end of the group, and as a result it would have been difficult to have pooled the data. We therefore do not know if those positive outcomes identified in the study over time, held after the programme ended, once the social contact and supported physical therapy are unavailable. This lack of a follow-up period means that the results are tentative and require further examination of how the changes in their levels of psychological functioning are sustained in the longer-term, as previous studies have suggested that fear of falling without intervention, is relatively consistent over time in those who have fallen (Vellas et al., 1997). In line with this criticism, Lach (2005) particularly warns caution in respect of measuring fear of falling over a single time point, because of the temporal instability of the construct. Future studies should



take into account these factors and aim to recruit a larger number of participants over an extended time period.

The data collected was self-report, and retrospective in nature, introducing possible errors as a result of memory and recall factors (Ganz, Higashi & Rubenstein, 2005). Furthermore, there is a tendency to over-estimate functioning when using self-report measures in falls studies (Elam et al., 1989), although there is greater correlation between self-report and functional assessment in community samples of people who fall (Magaziner, 1988). With regard to retrospective nature of the data, Peel (2000) found that a third of those recalling fall events introduced errors at one year, although recall was improved when an injury was sustained. A prospective, longitudinal design would have helped to reduce the burden on participant's memory, for example by employing monthly falls update postcards, as used in other studies (Vellas, Wayne, Romero, Baumgartner & Garry, 1997). Consultation of the medical records of those participating, or reporting by carers of those who had fallen, may also be helpful in this respect, and should be considered when exploring these research questions further.

Due to the lack of a control group, it is not possible to make causal inferences with regard to the nature of the changes in the variables. Therefore we cannot conclude with any certainty that the programme was responsible for these positive shifts in psychological symptoms, and cannot make any strong conclusions regarding the efficacy of the group. However, time since last fall was unrelated to the outcome variables at time one, suggesting that there is a process other than the passage of time which is affecting psychological functioning. Future research could perhaps employ a waiting list control group, in order to identify causal links.

It is important to distinguish trauma as a result of the fall, from the reactivation of other past traumas, such as stroke or bereavement. Furthermore, it is important to consider the impact of secondary losses as a result of the fall, for instance 'no longer feeling safe in your own home', or reducing activities of daily living. In the current study 87.8% expressed having experienced a prior significant trauma. Often the feelings of loss and dependency they experienced as a result of the fall seemed to reactivate distressing issues around bereavement, previous significant health trauma and other losses. This has implications for treatment as the 'fall' cannot be treated psychologically in isolation, and the wider events need to be addressed. The meaning an individual attaches to a fall still needs further enquiry in the literature, and particularly in populations who have been under-represented in published journals. For instance, the experience of falling for older men, as in the current study, reflects much of the research, in that it has either a small sample of men, or that they are excluded (Finbarr, Hart, Spector, Doyle & Harari, 2005). All participants in this study were drawn from the community. However there is no reason why those living in supported care would not benefit from the kind of intervention offered by the falls service. Although perhaps the reasons for them being in institutionalised living (e.g., increased disability or cognitive difficulties), would exclude them from the current study, it would be valuable to examine the experiences of this under researched group.



**In conclusion:**

- (i) Although this study is exploratory in nature, the findings suggest that community falls programmes are making positive changes in an individual's mood, falls efficacy and the attributions made for the fall. However, there are a number of people within the programmes who have significant levels of psychological distress as a consequence of their fall, or the secondary impact of falling, for instance, subsequent social isolation.**
- (ii) Predictors of psychological distress have been identified; namely, external shame, lower self esteem and the presence of negative internal, global attributions for their fall.**
- (iii) Screening people for certain risk factors identified as predictive of later psychological problems, as part of the assessment process, could be helpful in determining who may benefit from more specialist psychological input.**

**This study provides evidence that there are a proportion of community dwelling older people who attend falls programmes, have experienced difficulties in their mood, and in some cases posttraumatic reactions to the fall event. There also appears to be some support for the argument that the attributions made for a fall, the perceived impact this cause has on their wider functioning, and the subsequent feelings associated with this, impact upon the psychological features of distress under investigation.**

**This research also provides some evidence that falls programmes appear to have a positive effect on the mood and falls self-efficacy of those who attend, identifying certain associated risk factors for the development of greater difficulties.**



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### **Section 3: Critical Appraisal**

#### **Psychological Outcomes Among Older Adults Attending Falls Programmes**



## **CRITICAL REFLECTION ON THE RESEARCH PROCESS**

### **The Origins of the Project**

The study was initially born out of my memories of working in a residential home for older people. When some residents fell, and particularly following breaking their hip, there would be an assumption by staff members that this could be a turning point for the individual. Those who fell that had an attitude which was blaming of organisational issues, such as loose carpets responsible for tripping, continued much as they had before, attending social events and engaging in activities. However those who talked about their fall being as a result of becoming older, were often frightened of falling again and withdrew from participating in their rehabilitation, and very often, died soon after.

I wanted to pursue my interest into the psychological effects of physical health events for older adults and particularly the experience of trauma in later life. I approached my current academic supervisor following a presentation made at the University research fair, and later came into contact with my NHS supervisor who had access to the patients required for the study. They had collaborated together in previous pieces of research and both had significant research experience. At this time we discussed our interests and the topic of investigating falls and associated trauma reactions was proposed. I was struck by their enthusiasm to accept me and the ideas I had, in addition to the considerable skill they offered in helping me shape these ideas further.

The proposed study looking at the experience of older people who had experienced repeated falls and had been referred to a falls programme, was the result. The work of

Kevin McKee and his colleagues (e.g. McKee, Orbell, & Radley, 1999) directed the focus of the research into the trauma reactions associated with falls, fear of falling and wider mental health implications.

The inclusion of the consideration of shame measures came from discussions with older people who had fallen. They described to me feeling embarrassed when they had fallen, either when alone or in public. Many described having had many falls prior to their first being identified by the healthcare system, but “didn’t want to bother anybody”, and often did not tell even their family. In some cases people had been badly injured, but wanted to blame their injuries on other events that they had experienced, rather than admitting to have fallen. I was aware that the literature suggested particular implications for the treatment of trauma where feelings of shame were present (Lee, Scragg & Turner, 2001), and following further discussions with colleagues, and an identification of no current research linking the experience of falls with trauma and shame associations, felt this would be an exciting and valuable piece of work.

I felt that the gaps in the current literature, given the relatively common experience of falling for older people, meant that this research could have direct clinical implications. Following a meeting with the clinicians from the local Falls Service, and discussing the work and potential value of outcomes with them, I felt reassured that this would be relevant to clinicians from all disciplines working within the growing falls services.

The study has changed considerably since the initial ideas were formed, with the practicalities of data collection shaping the design further. The interest I have for this field, the enthusiasm and enormous flexibility of the services involved and the honour I

have had speaking with participants about their experiences of falling, has kept me interested and excited about the outcomes and value of the data obtained.



Table 1: Time line of research process

Year	Month	Process
2005	May	<ul style="list-style-type: none"> <li>Attended research fair &amp; began to think about ideas for potential research projects</li> </ul>
	June-July September- October	<ul style="list-style-type: none"> <li>Approached supervisors and discussed potential projects</li> <li>Made contact with services to discuss feasibility of project and implications for the service</li> </ul>
2006	November January March-June	<ul style="list-style-type: none"> <li>Submission of research proposal to university</li> <li>Submission of research proposal with amendments</li> <li>Took periods of time away from university and research process</li> </ul>
	July August September	<ul style="list-style-type: none"> <li>Approval received from University for research project</li> <li>Ethics &amp; research governance application made</li> <li>Research project considered by [REDACTED] Ethics Panel</li> </ul>
2007	November December January	<ul style="list-style-type: none"> <li>Response to feedback from [REDACTED] Ethics Panel</li> <li>Ethics approval granted</li> <li>Approval from [REDACTED]</li> </ul>
	February	<ul style="list-style-type: none"> <li>Approval from [REDACTED]</li> <li>[REDACTED] Research Governance granted</li> </ul>
	March April May	<ul style="list-style-type: none"> <li>Begin data collection phase</li> <li>Data collection</li> <li>Data collection</li> <li>Begin writing literature review &amp; methods section</li> <li>Submit review meeting forms</li> <li>Stop recruiting new participants</li> </ul>
	June	<ul style="list-style-type: none"> <li>End of data collection period</li> <li>Write up period</li> </ul>
	July	<ul style="list-style-type: none"> <li>Write up period</li> <li>Final corrections, duplication and binding</li> <li>Submission of thesis</li> </ul>
	August	<ul style="list-style-type: none"> <li>Feedback to services and individuals involved in research process</li> </ul>

## **The organisation and implementation of the project**

Table 1 shows a break down of the research tasks undertaken and the time schedule in which they were implemented.

### *Planning*

Unfortunately during the majority of the period during which I was planning and conducting the research project, I experienced a number of personal difficulties which were outside of my control. This resulted in my taking time away from the course and the research for a number of months, and meant that many of the research planning tasks, were completed under significant time pressures, delaying the implementation of all subsequent stages.

These delays were compounded by changes in the way that the local Ethics and Research Governance procedures occurred. Changes meant that other Ethics panels in the region had closed, and as a result there was an increase in the numbers being seen by the remaining panels. Furthermore, amendments to Research Governance procedures meant that there were significant setbacks in gaining approval and obtaining an honorary contract. This was made more difficult as the University research co-ordinator had recently left her position, and other University staff who had developed relationships with the Research Governance departments, were unavailable.



### *Data collection*

As a result of the reasons discussed previously, there was a delay in beginning data collection. This process was originally planned to start in November 2006, but instead began in February 2007, three months later than planned. The data collection phase itself also took much longer to complete than expected, with fewer people passing through the group than had been predicted based upon prior figures of group attendance. As a result only 49 of a total 85 participants predicted as required by the power analysis, were able to complete questionnaires at both baseline and time two, which resulted in a considerable rise in my anxiety. At times there were difficulties coordinating with the schedules of the falls service, particularly at one base where in actuality only 30 minutes had been allocated as available for me to speak with participants between group activities. This resulted in my spending longer than I had intended on numerous occasions, to try and approach participants in their break.

The data collection process was incredibly arduous and demanding, as it required me to spend nine hours, over three days, each week at the services involved. This meant that for the majority of the year I did not have a study day, and other research tasks were completed in my spare time. It was very difficult to balance the requirements of my clinical role, with the significant time demands of the research process, finding that I was juggling multiple duties simultaneously. The support and flexibility of my placement supervisors was fundamental in this being possible.

As there is no psychological input to the falls services at this time, and many of the patients expressed feeling socially isolated, many had not previously been given the opportunity to talk at length about their fall, or often other issues which caused them



distress. As a result, much of the time spent collecting data was also spent providing a space for people to talk through what had distressed them. The majority of the time this was to discuss prior traumas, such as bereavements (of which spousal bereavement featured heavily), industrial accidents, or other illnesses. It was an honour to listen to people talk of their phenomenal resilience and capacity for coping through adversity, and I felt like this was an important role. However, often it was also to boast about the success of children and grandchildren and the pride they felt as a result. I really enjoyed this 'normal', non-therapeutic interaction with older people, as it provided me with contact with a group of people that I typically would not normally see in my clinical work.

#### *Data analysis and write up*

The process of writing up the literature review seemed to go on forever, as it had to be done over the months in my spare time, and it was incredibly difficult to keep focussed and maintain my motivation. In addition, just prior to beginning the formal write-up phase I discovered unexpectedly that I had further academic assignments which needed completing for the same deadline as the thesis. This added to the significant pressures around writing up, which was compounded by not having a study day. A period of panic and feeling completely overwhelmed ensued. However, planning external deadlines by which time I was to have certain drafts completed was of help, to reduce the perceived size of the challenges ahead of me.

Data analysis had to be left to the last month as the data collection phase went on so long. I found this incredibly bewildering and asked many statistics questions of my supervisor as a result, but over time developed an even better understanding of my data.

I had retained all my research leave to the last month, knowing that I work best under pressure and without the distractions of my clinical work. Although this was how I worked best, this brought difficulties in fitting in with the demanding schedules of my supervisors, who also had clinical and academic responsibilities beyond my thesis and deadline. Despite this, both supervisors were incredibly flexible and responsive to my questions, providing comments and helpful suggestions, in the short time scale available. Unfortunately I experienced a further bereavement in the final couple of weeks of the write-up process, which made focussing on my research more difficult at times.

#### *Barriers and facilitators of the research process*

Organisational difficulties such as the limited time available to collect data at one base, hampered the data collection process. Furthermore a very demanding final year placement put pressures on the available time and energy to conduct essential research tasks. I underestimated the length of time it would take to go through the ethics and research governance processes, which was compounded by the university co-ordinator leaving her position at the same time as procedural changes occurring within the two NHS Trusts. This meant that a process of applying for honorary contracts had to be entered into, and the associated necessary, time-consuming bureaucracy requirements complied with as mentioned earlier.

In addition to experiencing personal difficulties outside of my control, I also had a number of family bereavements, one of which occurred two weeks prior to submission of the thesis. These losses had a significant effect on my ability to work at times. Given



the extent of the personal difficulties which I experienced over the duration of my training, I had to develop an understanding and find a way to overcome a tendency towards an avoidant way of coping with increased anxiety. As a consequence of taking time away, I found myself having to repeat research tasks such as reading literature, to familiarise myself with it once more. This added significantly to the time required to complete basic tasks.

As a result of these issues it was difficult to maintain motivation at times, and the use of peer supervision was essential to normalise the process and reflect upon a common experience. It was very difficult to maintain motivation in the last stages of the thesis, as after three years of working so hard on this course, and ten years overall working to this point, I felt exhausted. However, the support of friends and family, and the realisation that it was nearly over, kept me going.

In the early stages of the research process I did not use the supervisory relationship as I should have and found myself often floundering with some of the research tasks, but then felt too embarrassed to address this with my supervisors. However it was essential that I developed a positive working relationship with my supervisors, who were always welcoming. Once I had taken responsibility for addressing this, and improving the communication, both supervisors were very responsive to my questions, often responding to queries in a very short space of time. This was vital given my lack of experience in research at doctoral level. Furthermore, the containing and relaxed approach of my research supervisor who assured me that it was possible to complete the research tasks, on time, with a great deal of hard work.



Furthermore, I was thankful that the focus of my research was one which still excited and interested me. There was keen involvement at management level for the project, and the nurses and therapists from the services had seemed to go out of their way to assist me and make me welcome. I had enjoyed attending the services, enjoyed talking with staff and service users, and wanted to do a 'good job' to do justice to all those who had supported me and shared their experiences.

## **Learning outcomes**

I have learned a great deal about the research process overall and the importance of the planning stage in enabling the rest of the work to go more smoothly. As a researcher, I have learned that I work best when I am part of a larger research team, sharing the skills and duties required for the research process, and the burden of responsibility. I need to put in place external deadlines for myself, in addition to having dedicated time to focus on research activities. Furthermore the research has to be interesting to me and have relevance for my clinical practice, to enable me to think about what the outcomes mean for the individuals I work with, and maintain motivation to the end. I would like to undertake further research to build my experience and competence in this area, but in future would have a more narrow, but detailed focus to the area under investigation, rather than being swamped by 'interesting' variables. However, I think it would also be helpful for me to do some qualitative work, to complement my understanding of quantitative methods.

Personal learning outcomes have been that I recognise my need to continue to have contact with 'normal' older people, both so that I do not begin to associate ageing with inevitable functional and psychological decline, as a result of the contact with exclusively distressed older people, whom I meet in my clinical work. However, conducting this research has confirmed my decision that I want to work with older people who experience psychological distress, in my clinical role after qualification.

## **Methodological limitations of the research**

Although the methodological limitations of the research have already been noted in the main research report, below is a consideration of some of the fundamental issues.

A larger sample size was hoped for, but with an overall size of 49 participants completing questionnaires at both time points, there is an increased likelihood of a type II error. Although significant, and relatively large effect sizes were noted. However, because the study also took into account a large number of variables of interest, this increased the likelihood of a type I error. Larger and more focused studies are required in future, although these may have funding implications.

The self-report and retrospective nature of the measures employed, meant that there was a heavy reliance on the memory of the participant, potentially introducing error as a consequence (Ganz, Higashi & Rubenstein, 2005). Further research could be done which does not rely on self-report and retrospective recall by employing a prospective, longitudinal design and consulting the clinical notes of those participating, and additionally obtaining carer validation of falls. Furthermore, many of the measures employed did not have age-based norms (i.e., PDS, OAS, ISS) introducing further caution in the interpretation of outcomes.

It may have been difficult for some people to discuss their feelings of shame and difficulties following their fall, with a young, female researcher. Particularly when asking questions about sexual functioning (with regard to impairment of functioning in the PDS) and shameful experiences. This potentially could have shaped answers if participants were influenced in their responses to the questions asked.



As a control group was not employed, it is not possible to make causal inferences with regard to the nature of the changes in the psychological outcomes. Therefore it is not possible to conclude with any degree of certainty that the programme was responsible for these positive shifts in psychological symptoms. Introduction of a waiting list control group could help with identifying causality in further studies. Also, because data was not collected beyond the end of the falls programme, we do not know whether the changes noted held after the programme ended. This is suggested as important to investigate as research has suggested that these symptoms may alter over time, particularly when the intervention, and associated social contact, has ended (Lach, 2005).

### **Clinical implications of the research**

Although the clinical implications of the research have already been noted in the main research report, below is a consideration of some of the fundamental issues.

This study has demonstrated that a proportion of those passing through falls groups are suffering significant levels of psychological distress after their fall. This includes clinically significant depression, anxiety, post-traumatic stress symptomology, and reduced falls efficacy (i.e., a decreased confidence for carrying out tasks of daily living without falling). The negative implications for the individual of these difficulties after falls has been documented (Salkeld et al., 2000; Suzuki, Ohyama, Yamada & Kanamori, 2002; Yardley & Smith, 2002). However, the extent of the difficulties which were reported are particularly significant, as there is currently no psychology provision in to falls groups and current national guidance does not acknowledge the need for

psychological input to the multi-disciplinary team (NICE, 2004). Although mental health services have integrated psychological formulations into team decision-making and assessment process (Dexter-Smith, 2007), general medical services have not at this time.

There are implications for the introduction of a screening process into the wider assessment of those who attend falls programmes. The results suggest it would be important to identify the attributions an individual makes for their fall (and whether these reflect internal, global, and stable attributions), feelings of shame or embarrassment for the fall, affective disorders and post-traumatic symptomology. Those participants who are potentially more vulnerable to the development of psychological difficulties, could attend an alternative group which addresses their distress in greater detail in addition to the typical medical and functional focus of group.

Given the limited research into the psychological outcomes of falls, I believe it is important to share the study outcomes with clinicians working with those who have fallen, both at local and wider levels. It is hoped that the study outcomes will be shared through publication in a peer-reviewed journal, and ideally through presentation at a conference. Links to the research will also hopefully be made through the website of Prevention of Falls Network Europe (ProFaNE). Furthermore it is important to feedback the services involved in the study, which will be done through attending monthly team meetings and distributing a 2-page synopsis of the outcomes. It also seems important that the informal feedback participants shared about the personal value of the group, be shared with those responsible for making it such a positive experience.



## **Further research**

Although the directions for future research have already been noted in the main research report, below is a consideration of some of the fundamental issues.

There is a need for more research which looks at the experiences of minority groups who fall, for instance men, and those from minority groups in the UK. This is important as previous studies have implicated gender (Lach, 2005) and ethnic origin (Wilson et al., 2005), as influential in the development of later psychological difficulties, and as a result the wider generalisations from other studies may not be appropriate.

This study provided evidence that feelings of internal shame were present in those attending falls programmes. However, there were some issues around the participant's responses to the Internal Shame Scale (ISS; Cook, 1990) items, particularly those relating to feelings of loss and emptiness. Many of those who responded, discussed these feelings in relation to spousal bereavement and life stage issues, and as a result may not be reflecting the same constructs as the ISS were aimed at. It is of note that the responses to the Other As a Shamer (OAS, Goss, Gilbert & Allen, 1994) scale did not have as elevated levels. Nevertheless, elevated levels of shame were found in this sample, and it would be valuable to further investigate feelings of shame in this population and the applicability of these measures.

There is also a need for more detailed investigation of the impact of a fall on the person and the meaning they attach to this event, using a phenomenological approach to research. Furthermore, studies which avoid the methodological limitations identified in the prior section, that would allow greater inferences around causality, a reduction in potential bias, and increase in both the sample size and length of follow-up.



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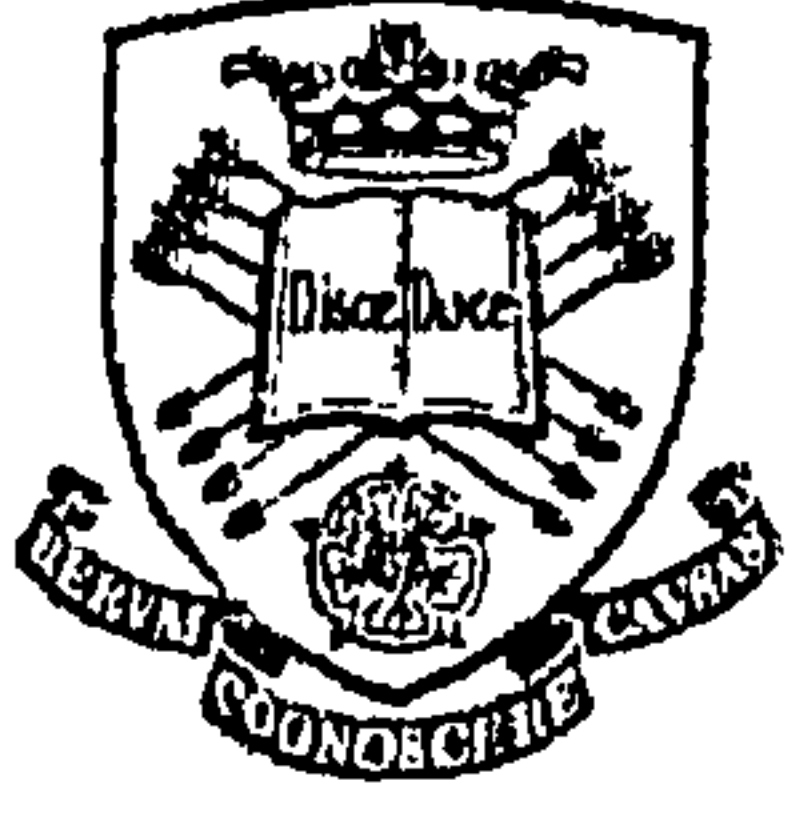
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## **APPENDICES**



## **APPENDIX A**

### **Formats**



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All submissions should be made online at *Psychology & Health's Manuscript Central site*. New users should first create an account. Once a user is logged onto the site submissions should be made via the Author Centre.

Submitted papers will be subject to blind review. Authors should prepare and upload two versions of their manuscript. One should be a complete text, while in the second all information identifying the author should be removed from files to allow them to be sent anonymously to referees. When uploading files authors should define the non-anonymous version as "File not for review".

On submission of the manuscript authors will be required to indicate whether there were any possible conflicts of interest in the conduct and reporting of research (e.g. funding by an organisation or participation by an individual that might benefit financially from the research). Potential conflicts of interest must be reported in the Acknowledgements section of the manuscript. All manuscripts must include a statement confirming that the research had obtained relevant local ethical approval and was carried out in accordance with universal ethical principles (see Emanuel, E.J., Wendler, D. & Grady, C., 2000. What makes clinical research ethical? *Journal of the American Medical Association*, 283, 2701-2711).

Each paper will be read by at least two referees. Authors will be invited to suggest preferred and non-preferred reviewers when they submit the manuscript, but the editors reserve the right to make the final decision regarding choice of reviewers. Authors should not suggest reviewers with any conflict of interest (e.g. reviewers with whom they have recently collaborated, or from their own institution).

## FORMAT OF MANUSCRIPTS

Manuscripts should be typed according to the guidelines in the Publication Manual of the American Psychological Association (5th edition, 2001). Manuscripts should be double-spaced throughout (including tables and



references), and each page should be numbered consecutively. Manuscripts should not exceed 30 pages (including references, tables, and figures).

**Title page:** This should contain the title of the paper, a short running title, the name and full postal address of each author and an indication of which author will be responsible for correspondence, reprints and proofs. Abbreviations in the title should be avoided.

**Abstract:** This should not exceed 200 words and should be presented on a separate page.

**Key words:** Abstracts should be accompanied by between three and six key words or phrases. These will be used for indexing and data retrieval, and so where appropriate we recommend using standard MeSH terms (the terms used for indexing articles for MEDLINE)..

Reports of statistical tests should include an indication of effect size whenever possible. Reports of randomised controlled trials should state any registration details of the trial and should follow CONSORT guidelines where relevant (see Moher, D., Schulz, K.F. & Altman, D.G. for the CONSORT group, 2001. The CONSORT statement: Revised recommendations for improving the quality of reports of parallel-group randomized trials. *Annals of Internal Medicine*, 134, 657-662).

## TEXT HEADINGS

Headings in the text should be formatted as follows if there are four levels of heading:

First Level Heading

*Second Level Headings*

*Third level headings*

*Fourth level headings*

If only two levels of heading are used these should be Levels 1 and 3. If three levels of heading are used these should be Levels 1, 3 and 4. If five levels of heading are needed a Level 5 heading can be added which should consist of centred upper case text (see APA manual).

## REFERENCES

References should be indicated in the text with the author's name and year of publication in parentheses. If there are two authors, both names should be given. If there are more than two authors, all should be given on the first occasion, and then the first author "et al." should be used subsequently. Use "and" between author names mentioned in the text and an ampersand (&) when mentioned in parentheses and in the reference section. The full list of references should be given in alphabetical order on a separate page, with titles



of books and journals given in full. APA guidelines should be followed for the references. Examples:

Ziegelmann, J.P., Lippke, S., & Schwarzer, R. (2006). Adoption and maintenance of physical activity: Planning interventions in young, middle-aged, and older adults. *Psychology and Health*, 21, 145-163.

Mauss, I.B., & Gross, J.J. (2004). Emotion suppression and cardiovascular disease: Is hiding feelings bad for your heart? In L.R. Temoshok, I. Nyklicek, & A. Vingerhoets (Eds.), *Emotional expression and health: Advances in theory, assessment, and clinical applications* (pp. 62-81). Hove: Brunner-Routledge.

## FIGURES

All figures should be numbered with consecutive arabic numerals, have descriptive captions and be mentioned in the text. Figures should be kept separate from the text but an approximate position for each should be indicated in the text. It is the author's responsibility to obtain permission for any reproduction from other sources.

Preparation: All figures must be of a high enough standard for direct reproduction. Axes of graphs should be properly labelled and appropriate units given. Electronic figures should be submitted as Tiff, EPS or Powerpoint illustrations, with a minimum line weight of 0.5. Photographs must be high quality glossy originals of maximum contrast, about twice the final size of the figure. Figures should be planned so that they reduce to 10.5 cm column width. A list of figure captions should be typed on a separate page and included in the typescript.

## TABLES

Number tables with consecutive arabic numerals and give each a clear descriptive heading. Avoid the use of vertical rules. Table footnotes should be typed below the table, designated by superscript lower-case letters.

## PROOFS

Authors will receive proofs (including figures) by email for correction, which must be returned within 48 hours of receipt. Authors' alterations in excess of 10% of the original composition cost will be charged to authors.

**Free article access:** Corresponding authors will receive free online access to their article through our website ([www.informaworld.com](http://www.informaworld.com)) and a complimentary copy of the issue containing their article. Reprints of articles published in this journal can be purchased through Rightslink® when proofs are received. If you have any queries, please contact our reprints department at [reprints@tandf.co.uk](mailto:reprints@tandf.co.uk)

## PAGE CHARGES

There are no page charges to individuals or to institutions.

**APPENDIX B**

**Ethics approval**





**North Sheffield Ethics Office**

1st Floor Vickers Corridor

Direct Line: 0114 271 4894 or 271 4011

Fax: 0114 256 2469

Email: sue.rose@sth.nhs.uk

**Northern General Hospital**

Herries Road

Sheffield

S5 7AU

21 December 2006

Ms Sophie L Monaghan  
Trainee Clinical Psychologist  
University of Sheffield  
Clinical Psychology Unit  
Department of Psychology  
Western Bank  
Sheffield  
S10 2TP

Dear Ms Monaghan

**Full title of study:** Psychological outcomes among older adults attending falls programmes  
**REC reference number:** 06/Q2308/133

Thank you for your letter of 04 December 2006, responding to the Committee's request for further information on the above research [and submitting revised documentation].

The further information has been considered on behalf of the Committee by the Chairman.

**Confirmation of ethical opinion**

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation [as revised].

**Ethical review of research sites**

The Committee has designated this study as exempt from site-specific assessment (SSA). There is no requirement for [other] Local Research Ethics Committees to be informed or for site-specific assessment to be carried out at each site.

**Conditions of approval**

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

- The sentence beginning "Otherwise you can use the normal hospital complaints procedure and contact....." has been removed from the paragraph "What if I wish to complain.." This should be replaced.
- The sentence "although the findings will contribute to improvements in care" should be changed to "although we hope the findings will contribute to improvements in care"

## Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
Application		08 August 2006
Investigator CV		
Protocol	6	18 July 2006
Peer Review		06 August 2006
Questionnaire: Short follow up	5	12 November 2006
Questionnaire	5	08 November 2006
Letter of invitation to participant	From clinician	01 November 2006
Letter of invitation to participant		01 November 2006
Participant Information Sheet	3	12 November 2006
Participant Consent Form	2	12 November 2006
Response to Request for Further Information		04 December 2006

## Research governance approval

You should arrange for the R&D department at all relevant NHS care organisations to be notified that the research will be taking place, and provide a copy of the REC application, the protocol and this letter.

All researchers and research collaborators who will be participating in the research must obtain final research governance approval before commencing any research procedures. Where a substantive contract is not held with the care organisation, it may be necessary for an honorary contract to be issued before approval for the research can be given.

## Statement of compliance

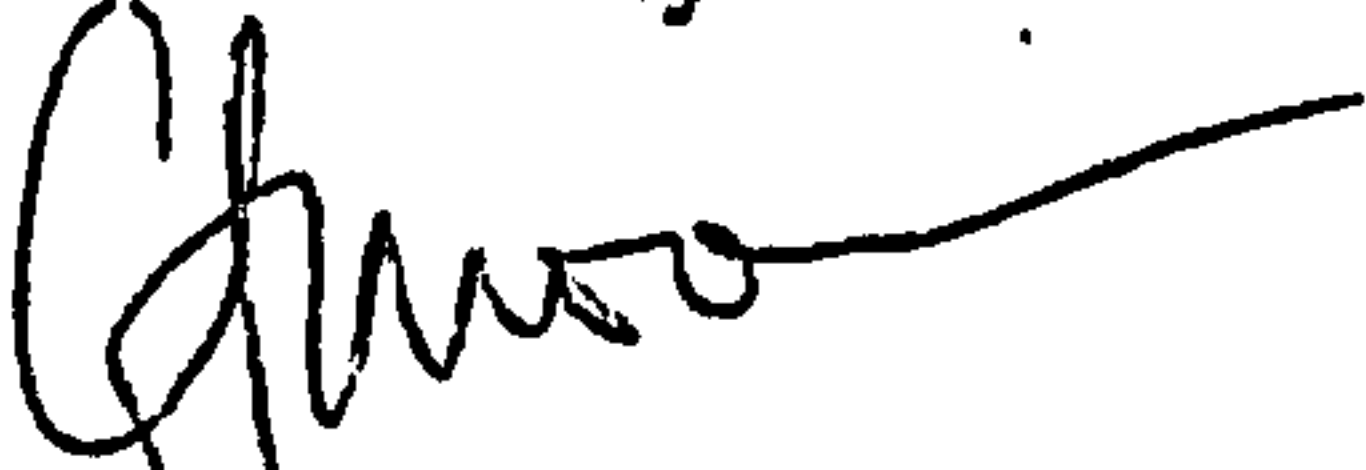
The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

06/Q2308/133

Please quote this number on all correspondence

With the Committee's best wishes for the success of this project

Yours sincerely



Dr C A Moore  
Chairman – North Sheffield Research Ethics Committee

Email: april.dagnall@sth.nhs.uk

Enclosures: Standard approval conditions [SL-AC1 for CTIMPs, SL-AC2 for other studies]

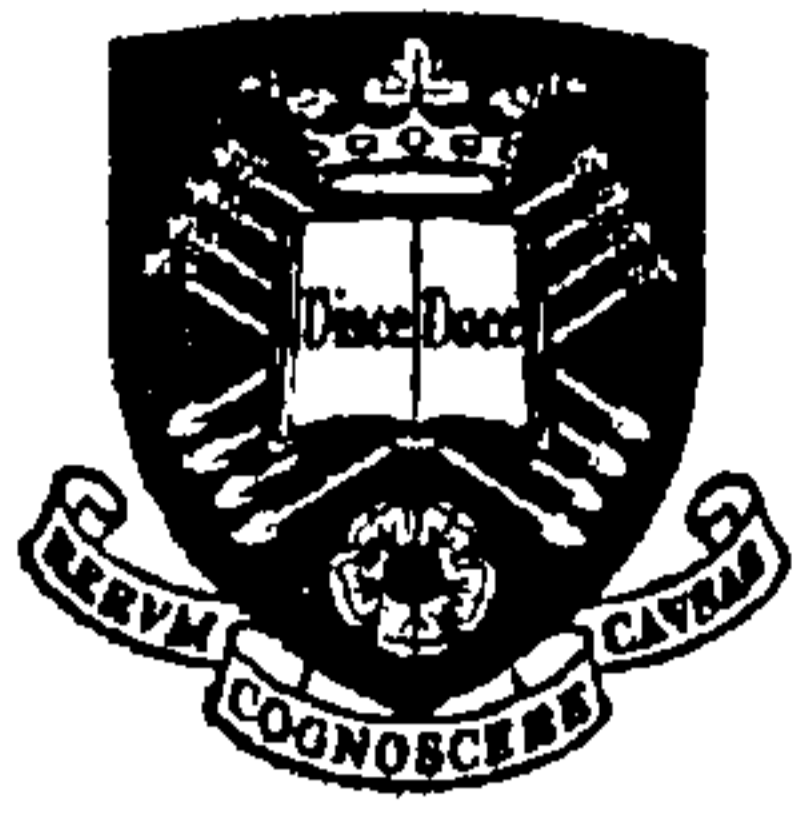
Copy to: Mrs Greta Pearman, Research Office, University of Sheffield  
STH R & D Department



## **APPENDIX C**

**Participant covering letter (researcher), participant covering letter (clinician), participant information sheet and consent form.**





**The  
University  
Of  
Sheffield.**

Department Of Psychology.  
Clinical Psychology Unit.

Doctor of Clinical Psychology (DClin Psy) Program  
Clinical supervision training and NHS research  
training & consultancy.

Clinical Psychology Unit  
Department of Psychology  
University of Sheffield  
Western Bank  
Sheffield S10 2TP UK

Telephone: 0114 2226570  
Fax: 0114 2226610  
Email: [dclinpsy@sheffield.ac.uk](mailto:dclinpsy@sheffield.ac.uk)

November 2006  
Dear Sir/Madam,

RE: Psychological outcomes among older adults attending falls programmes

I am writing to you to introduce the above study which aims to look at people's experiences following having a fall. The study is looking at how people feel after having a fall, as sometimes people report feeling more worried or unhappy following this experience. We aim to use this information to improve services offered to people who have a fall in Sheffield. It will also contribute towards the Doctorate in Clinical Psychology from the University in Sheffield.

Participation in the study is entirely voluntary, and if you do not wish to be involved in this research it is fine to say so. Your treatment will not be affected in any way if you decide to decline participation.

If you do decide to be involved in this research, I will spend some time with you on the first day of the Falls Programme completing a questionnaire about how you have been feeling following the fall. At this point you will have the opportunity to tell me or your clinical team if you do not wish to take part without it affecting your treatment in any way.

I will also be present at the end of the falls programme and at your follow up appointment to complete shorter questionnaires at this time. If you decide at either of these times you have changed your mind and do not want to be involved, you can withdraw from the study at this point, again without it affecting your treatment.

I enclose an information sheet which describes in greater detail the purpose of the study, in addition to a further letter from Dr Peter Lawson from the Sheffield Falls Service explaining the collaborative nature of the study.

If you have any questions about this study, please feel free to contact me at the above address or on 0114 222 6570.

Yours sincerely

Sophie Monaghan  
Principle Investigator/ Psychologist in Clinical Training

Brearily Wing  
Northern General Hospital  
Herries Road  
Sheffield  
S5 7AU

November 2006

Dear Sir/Madam,

I am writing to you to introduce a study that you are invited to take part in voluntarily while attending the falls programme.

In order to understand how people feel following the experience of falling, and to identify what factors can get in the way of rehabilitation, we are collaborating with a piece of research which aims to look at how people feel about themselves following a fall. Some people can feel very low or anxious following a fall, or have flashbacks to the event itself, while others can change the way they see themselves. We are interested in how a fall affects people and to identify whether there are areas where people may need additional support.

Any information provided will be anonymised after the data has been collected, so that there will be no way of identifying you or your responses. The findings of this research will be used to improve the service offered to people who attend the falls programmes in Sheffield. This study has gone through a rigorous external review process to ensure that your rights as a patient are protected.

You will be approached on your first day of the falls programme to be asked whether you would like to participate. If you decide to be involved, the researcher will help you complete a questionnaire which will take approximately 20-30 minutes. At the end of the programme and at your follow-up appointment you will be asked to complete a shorter questionnaire. You are entitled to refuse to participate or withdraw from this study without the care you are offered being influenced in any way.

If you have any questions about the research, please contact the researcher Sophie Monaghan at the University of Sheffield on 0114 222 6570.

Yours sincerely,

Dr Peter Lawson  
Consultant Physician and Geriatrician





**The  
University  
Of  
Sheffield.**

Department Of Psychology.  
Clinical Psychology Unit.

Doctor of Clinical Psychology (DClin Psy) Programme  
Clinical supervision training and NHS  
research training & consultancy.

Clinical Psychology Unit  
Department of Psychology  
University of Sheffield  
Western Bank  
Sheffield S10 2TP UK

Telephone: 0114 2226570  
Fax: 0114 2226610  
Email: dclinpsy@sheffield.ac.uk

### **Psychological outcomes among older adults attending falls programmes**

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

Thank you for reading this information.

#### **What is the purpose of the study?**

Every year, 30% of those over 65 years of age will experience a fall. For some people this can result in changes in the way they see themselves as being able to cope with aspects of life they had previously had no problem with. The purpose of this study is to identify what factors help people recover both physically and emotionally following a fall. We also hope to address what features of the attending the falls group are useful to you, and which are not so helpful, so that this information can be used to develop other means of assisting other people who have experienced falls.

The study would involve you completing a questionnaire before and after you attend the group, and then a final questionnaire three months after the group has ended.

#### **Why have I been chosen?**

You have been asked to participate in this study because you have experienced a fall in the past year which has resulted in your seeking assistance from the falls clinic. This study aims to recruit all of those who attend the falls group between February 2007 and June 2007.

#### **Do I have to take part?**

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and will be asked to sign a consent form. If you decide to take part you are still free to withdraw up until completion of the final questionnaire and without giving a reason. After this point data is anonymised and therefore individual responses cannot be identified. A decision to withdraw at any time, or a decision not to take part, will not affect the standard of care you receive.

#### **What will happen to me if I take part?**

If you decide to take part in this study, you will be asked to complete three questionnaires which will each take approximately 20-30 minutes to complete. The lead researcher will help you to complete this if you wish, in a private room at the clinic. The questionnaires will ask you about your fall, the physical injuries you sustained as a result, but also your thoughts and feelings about how the fall has affected you. As explained above, a questionnaire will be given to you before and after your involvement with the falls group, and approximately three months after the end of the



group. The total length of time you will participate in the study will be no more than 6 months from completing the first questionnaire.

**What are the potential risks and benefits involved in participation?**

It is not predicted that you will experience any harm taking part in this study, although some people can become distressed when talking about their feelings. There will be the opportunity to talk through this with a clinician and you will be offered additional support if desired. In the event that something does go wrong and you are harmed during the research study there are no special compensation arrangements. If you are harmed and this is due to someone's negligence then you may have grounds for legal action for compensation against the University of Sheffield, but you may still have to pay for your legal costs. The normal National Health Service complaints mechanisms will still be available to you (if appropriate).

There will not be any direct financial benefits of taking part in this study, although we hope the findings will contribute to improvements in care.

**Will my taking part in this study be kept confidential?**

All information which is collected about you during the course of the research will be kept strictly confidential. Information gathered for this study and later used in reports or publications, will have all identifying information removed, so that you cannot be recognized.

**What will happen to the results of the research study?**

The results of this study will form part of my Doctorate in Clinical Psychology research thesis, from the University of Sheffield. Furthermore, the information produced may be published in peer reviewed, academic journals, disseminated via presentations and shared with the services involved in this project. Anonymised raw data will be stored in locked cabinets at the University of Sheffield for 5 years after completion of the research. If you could like to obtain a copy of a summary research report in October 2007, please contact the researchers named at the bottom of this information sheet. As stated above, your anonymity will be protected at all times.

**What if I wish to complain about the way in which this study had been conducted?**

If you have any cause to complain about any aspect of the way in which you have been approached or treated during the course of this study, the normal National Health Service complaints mechanisms are available to you and are not compromised in any way because you have taken part in a research study.

If you have any other complaints or concerns, please contact the project co-ordinator: Sophie Monaghan, Clinical Psychology Unit, University of Sheffield, Western Bank, Sheffield or her supervisor, Dr Paul Norman, Clinical Psychology Unit, University of Sheffield, Western Bank, Sheffield.

Otherwise you can use the normal hospital complaints procedure and contact: Patient Advice and Liaison Service (PALS), Northern General Hospital, Sheffield or alternatively use the university complaints procedure and contact the following person: Greta Pearman, Research and Consultancy Unit, University of Sheffield, 2/4 Palmerston Road, Sheffield, S20 2TE.

**Who to contact for further information**

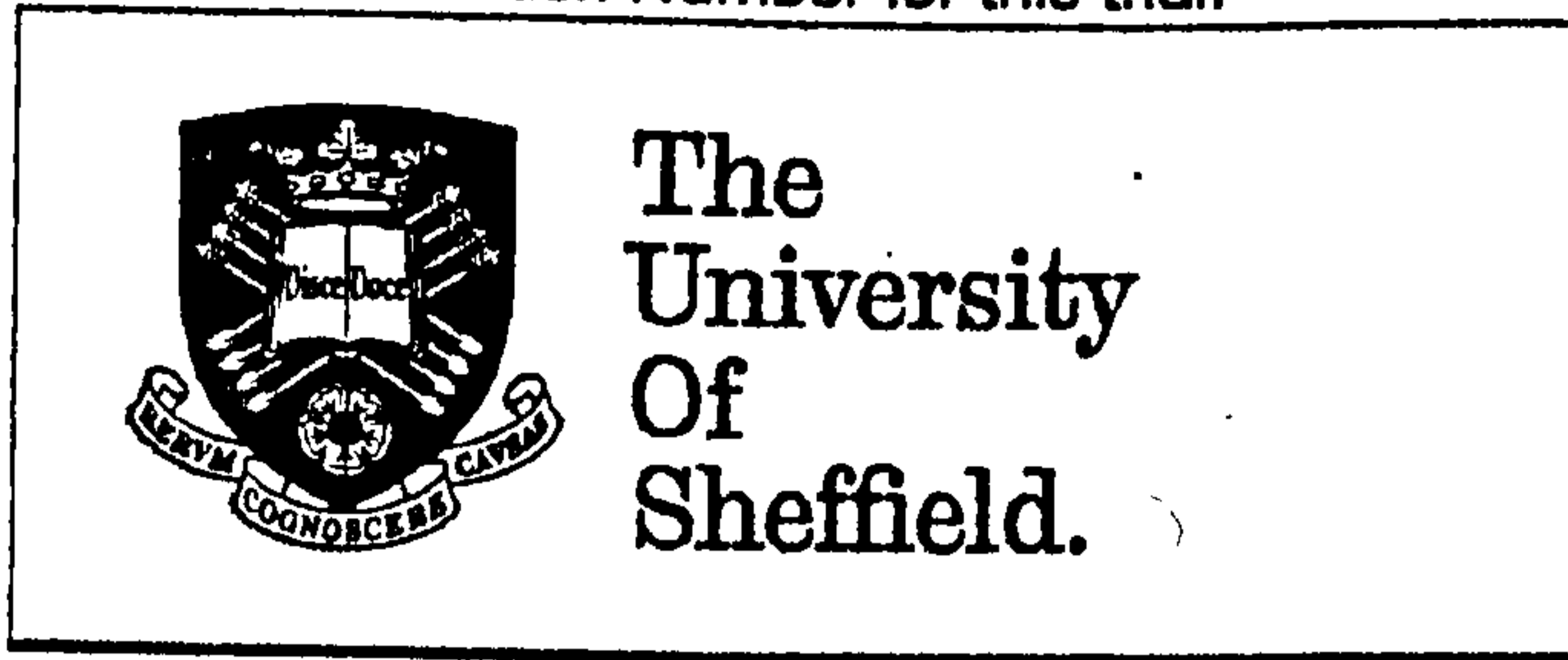
**Primary researcher:** Sophie Monaghan  
Psychologist in Clinical Training  
Clinical Psychology Unit  
University of Sheffield  
Western Bank  
Sheffield  
0114 222 657

**Research Supervisor:** Dr Paul Norman  
Department of Psychology  
University of Sheffield  
Western Bank  
Sheffield  
0114 222 6570



Centre Number: :

Patient Identification Number for this trial:



Department Of Psychology.  
Clinical Psychology Unit.

Doctor of Clinical Psychology (DClin Psy) Program  
Clinical supervision training and NHS research traini  
consultancy.

Clinical Psychology Unit  
Department of Psychology  
University of Sheffield  
Western Bank  
Sheffield S10 2TP UK

Telephone: 0114 2226570  
Fax: 0114 2226610  
Email: dclinpsy@sheffield.ac.uk

### CONSENT FORM

**Title of Project:** Predictors of psychological distress among older adults attending falls clinics

Name of Researcher: Sophie Monaghan

**Please initial box**

1. I confirm that I have read and understand the information sheet dated 12/11/06 (version 3) for the above study and have had the opportunity to ask questions.
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected.
3. I understand that sections of any of my medical notes may be looked at by responsible individuals from the Clinical Psychology Unit at Sheffield University or from regulatory authorities where it is relevant to my taking part in research. I give permission for these individuals to have access to my records.
4. I agree to take part in the above study.

\_\_\_\_\_  
Name of Patient

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name of Person taking consent  
(if different from researcher)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

Sophie Monaghan  
Researcher

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

1 for patient; 1 for researcher; 1 to be kept with hospital notes

## **APPENDIX D**

### **Time 1 and time 2 questionnaires**



**Psychological outcomes among older adults attending falls programmes**

Questionnaire No: \_\_\_\_\_ Patient no: \_\_\_\_\_ Date of completion: \_\_\_\_\_

**We would like to ask you some questions about yourself, the fall you had and how you feel now.**

**Demographic and fall information:**

1. Age: \_\_\_\_\_ years old

2. Sex: *(Please circle one)*                      Male                      Female

**Thinking about the most severe fall you have had in the past year (if you have had more than one):**

3. Roughly how long ago was your last fall? *(Please circle)*

Less than 1 month ago	Between one and two months ago	Between two and four months ago	More than four months ago
-----------------------	--------------------------------	---------------------------------	---------------------------

If this is different from your most severe fall, please indicate approximately how long ago your most severe fall was:

4. Where did you fall? *(Please circle)*

Indoors                                      Outdoors

5. Did you need help to get up after your fall? *(Please tick one response)*

- No, I got up by myself
- Yes, I was helped up almost immediately
- Yes, I had to wait a few minutes for help
- Yes, I had to wait up to one hour for help
- Yes, I had to wait up to three hours for help
- Yes, I had to wait for over three hours for help

6. If you did not need anybody to help you up, did you tell somebody about your fall? *(Please circle)*

Yes                                      No

7. Including this fall, how many times have you fallen within the last year? *(Please circle)*

Only once	Once or twice	Up to 5 times	Between 5 and 10 times	More than 10 times
-----------	---------------	---------------	------------------------	--------------------

**After your most severe fall:**

8. Were you physically injured? *(Please circle)* Yes No
9. Was someone else physically injured? *(Please circle)* Yes No
10. Did you think your life was in danger? *(Please circle)* Yes No
11. Did you think someone else's life was in danger? *(Please circle)* Yes No
12. Did you feel helpless? *(Please circle)* Yes No
13. Did you feel terrified? *(Please circle)* Yes No

14. Which of the following is closest to the main reason that you fell? *(Please tick box)*

- Because of the kind of person I am
- Because I am growing older
- Because of something I did or did not do
- Because of something somebody else did or did not do
- Because of something about the environment or weather conditions
- Because of bad luck

15. What did you think was the one major cause of the fall?

---

16. How certain are you that this was the main reason for the fall? *(Please circle)*

Not at all certain						Very certain
1	2	3	4	5	6	7

17. In the future, do you think that the reason you fell this time might cause you to fall again? *(Please circle)*

Yes No

18. Is the reason you fell something that just influences whether your fall, or does it influence other areas of your life as well? *(Please circle)*

Influences just this particular situation

Influences all situations in my life

19. Looking back, do you think you could have prevented yourself from falling? *(Please circle)*

Could definitely not have prevented the fall						Could definitely have prevented the fall
1	2	3	4	5	6	7



20. How likely do you think it is that you will fall again in the next 2 months? *(Please circle)*

Highly unlikely						Highly likely
1	2	3	4	5	6	7

21. How much of a worry is the thought of falling again in the next 2 months? *(Please circle)*

Not at all worrying						Very worrying
1	2	3	4	5	6	7

22. How likely is it that the average person of your age and sex (who has sought treatment after a fall) will fall again in the next 2 months? *(Please circle)*

Highly unlikely						Highly likely
1	2	3	4	5	6	7

In this section we would like to ask you some questions about how concerned you are about the possibility of falling. Please reply thinking about how you usually do the activity. If you currently do not do the activity (e.g. if someone does your shopping for you), please answer to show whether you think you would be concerned about falling IF you did the activity. For each of the following activities, please circle the number to the right of the item which is closest to your own opinion to show how concerned you are that you might fall if you did this activity.

		Not at all concerned	Somewhat concerned	Fairly concerned	Very concerned
23	Cleaning the house	1	2	3	4
24	Getting dressed/undressed	1	2	3	4
25	Preparing simple meals	1	2	3	4
26	Taking a bath or shower	1	2	3	4
27	Going to the shop	1	2	3	4
28	Getting in and out of a chair	1	2	3	4
29	Going up and down stairs	1	2	3	4
30	Walking around outside	1	2	3	4
31	Reaching up or bending down	1	2	3	4
32	Answering the telephone	1	2	3	4
33	Walking on a slippery surface	1	2	3	4
34	Visiting a friend/relative	1	2	3	4
35	Going to a place with crowds	1	2	3	4
36	Walking on an uneven surface	1	2	3	4



		Not at all concerned	Somewhat concerned	Fairly concerned	Very concerned
37	Walking up and down a slope	1	2	3	4
38	Going out to a social event	1	2	3	4

Below is a list of problems that people sometimes have after experiencing a traumatic event. Read each one carefully and tick the answer that best describes how often that problem has bothered you since the fall which has led you to seek help: *(Please tick relevant box)*

	Never	Once in a while (for example, once a week or less)	Half of the time (for example, 2 to 4 times a week)	Almost always (for example, 5 or more times a week)
39: Having upsetting thoughts or images about the fall that come into your head when you don't want them to				
40: Having bad dreams of nightmares about the falls				
41: Reliving the fall, acting or feeling as if it was happening again				
42: Feeling emotionally upset when you are reminded of the fall (for example, feeling scared, angry, sad or guilty)				
43: Experiencing physical reactions when you are reminded of the fall (for example, breaking out into a sweat, heart beating fast)				
44: Trying not to think about, talk about or have feelings about the fall				
45: Trying to avoid activities, people, or places that remind you of the fall				
46: Not being able to remember an important part of the fall				
47: Having much less interest or participating much less often in important activities				
48: Feeling distant or cut off from people around you				
49: Feeling emotionally numb (for example, being unable to cry or unable to have loving feelings)				
50: Feeling as if your future plans and hopes will not come true				



	Never	Once in a while (for example, once a week or less)	Half of the time (for example, 2 to 4 times a week)	Almost always (for example, 5 or more times a week)
51: Having trouble falling or staying asleep				
52: Feeling irritable or having fits of anger				
53: Having trouble concentrating (for example, drifting in and out of conversations, losing track of a story on television, and forgetting what you read)				
54: Being overly alert (for example, checking to see who is around you, being uncomfortable with your back to a door, etc)				
55: Being jumpy or easily startled (for example, when someone walks up behind you)				

Have any of the above problems interfered with the following: *(Please circle)*

56: Work	Yes	No
57: Household chores and duties	Yes	No
58: Relationships with friends	Yes	No
59: Fun and leisure activities	Yes	No
60: Relationships with your family	Yes	No
61: Sex life	Yes	No
62: General satisfaction with life	Yes	No
63: Overall level of functioning in you life	Yes	No

### **Past Stressful Events**

64. Many people have lived through or witnessed a very traumatic event at some time in their lives. Below is a list of traumatic events. Let me know if any of the events have happened to you or have been witnessed by you. *(Please tick box if you have experienced any of the following)*

- Serious accident, fire or explosion (for example, an industrial, farm, car, plane, train or boating accident, Natural disaster (for example, tornado, flood, hurricane or major earthquake)
- Assault by a family member or somebody you know (for example, being mugged, physically attacked, shot stabbed or held at gunpoint)
- Assault by a stranger (for example, being mugged, physically attacked, shot stabbed or held at gunpoint)
- Military combat or war zone, Imprisonment (for example, prison inmate, prisoner of war, hostage)
- Torture
- Life-threatening illness or other traumatic event



**How you feel about yourself**

In the following section there is a list of statements which describe feelings or experiences that you may have had from time to time or that are familiar to you because you have had them for a long time. Most of these statements describe feelings and experiences that are generally painful or negative in some way. Some people will seldom or never have many of these feelings. Everyone has had some of these feelings at some time, but if you feel that these statements describe the way you feel a good deal of the time, it can be painful just reading them. Try to be as honest as you can in responding.

Read each statement carefully and circle the number to the right of the item that indicates the frequency with which you find yourself feeling or experiencing what is described in the statement. Use the scale below.

DO NOT OMIT ANY ITEM

**Scale**

1= NEVER, 2 = SELDOM, 3 = SOMETIMES, 4 = FREQUENTLY, 5=ALMOST ALWAYS

		Never	Seldom	Sometimes	Frequently	Almost always
65	I feel like I am never quite good enough	1	2	3	4	5
66	I feel somehow left out	1	2	3	4	5
67	I think other people look down on me	1	2	3	4	5
68	All in all, I am inclined to feel like a success	1	2	3	4	5
69	I scold myself and put myself down	1	2	3	4	5
70	I feel insecure about others opinions of me	1	2	3	4	5
71	Compared to other people, I feel like I somehow never measure up	1	2	3	4	5
72	I see myself as being very small and insignificant	1	2	3	4	5
73	I feel I have much to be proud of	1	2	3	4	5
73	I feel intensely inadequate and full of self-doubt	1	2	3	4	5
74	I feel as if I am somehow defective as a person, like there is something basically wrong with me	1	2	3	4	5
75	When I compare myself to others I am just not as important	1	2	3	4	5
76	I have an overpowering dread that my faults will be revealed in front of others	1	2	3	4	5
77	I have a number of good qualities	1	2	3	4	5
78	I see myself striving for perfection only to continually fall short	1	2	3	4	5
79	I think others are able to see my defects	1	2	3	4	5



		Never	Seldom	Sometimes	Frequently	Almost always
80	I could beat myself over the head with a club when I made a mistake	1	2	3	4	5
81	On the whole, I am satisfied with myself	1	2	3	4	5
82	I would like to shrink away when I make a mistake	1	2	3	4	5
83	I replay painful events over and over in my mind until I am overwhelmed	1	2	3	4	5
84	I feel I am a person of worth, at least on an equal plain with others	1	2	3	4	5
85	At times I feel I could break into a thousand pieces	1	2	3	4	5
86	I feel as if I have lost control over my body functions and feelings	1	2	3	4	5
87	Sometimes I feel no bigger than a pea	1	2	3	4	5
88	At times I feel so exposed that I wish the earth would open up and swallow me	1	2	3	4	5
89	I have this painful gap within me that I have not been able to fill	1	2	3	4	5
90	I feel empty and unfulfilled	1	2	3	4	5
91	I take a positive attitude toward myself	1	2	3	4	5
92	My loneliness is more like emptiness	1	2	3	4	5
93	I always feel there is something missing	1	2	3	4	5
94	Overall I feel happy with the way my body looks	1	2	3	4	5
95	There are parts of my body that I feel ashamed of	1	2	3	4	5
96	I feel disgusted by my body, or parts of it	1	2	3	4	5
97	I feel my body is as pleasant as those around me	1	2	3	4	5
98	If someone criticises me I can't stop thinking about it	1	2	3	4	5
99	I often dwell on my mistakes	1	2	3	4	5
100	When people upset me it goes over and over in my mind	1	2	3	4	5
101	I am preoccupied with my failings	1	2	3	4	5

We are interested in how people think others see them. On the following page is a list of statements describing feelings or experiences about how you may feel other people see you.



Read each statement carefully and circle the number to the right of the item that indicates the frequency with which you find yourself feeling or experiencing what is described in the statement. Use the scale below.

DO NOT OMIT ANY ITEM

Scale

0 = NEVER, 1 = SELDOM, 2 = SOMETIMES, 3 = FREQUENTLY, 4 =ALMOST ALWAYS

		Never	Seldom	Sometimes	Frequently	Almost always
102	I feel that others see me as not good enough	0	1	2	3	4
103	I think that other people look down on me	0	1	2	3	4
104	Other people put me down a lot	0	1	2	3	4
105	I feel insecure about other people's opinions of me	0	1	2	3	4
106	Other people see me as not measuring up to them	0	1	2	3	4
107	Other people see me as small and insignificant	0	1	2	3	4
108	Other people see me as somehow defective as a person	0	1	2	3	4
109	People see me as unimportant as compared to others	0	1	2	3	4
110	Other people look for my faults	0	1	2	3	4
111	People see me as striving for perfection but being unable to reach my own standards	0	1	2	3	4
113	I think others are able to see my defects	0	1	2	3	4
114	Others are critical or punishing when I make a mistake	0	1	2	3	4
115	People distance themselves from me when I make mistakes	0	1	2	3	4
116	Other people always remember my mistakes	0	1	2	3	4
117	Others see me as fragile	0	1	2	3	4
118	Others see me as empty and unfulfilled	0	1	2	3	4
119	Others think there is something missing in me	0	1	2	3	4
120	Other people think I have lost control of my body and feelings	0	1	2	3	4

**THANK YOU FOR HELPING US UNDERSTAND HOW YOU FEEL ABOUT YOUR FALL**



**Psychological outcomes among older adults attending falls programmes**

Questionnaire No: \_\_\_\_\_

Patient no: \_\_\_\_\_

Date of completion: \_\_\_\_\_

**We would like to ask you some questions about yourself, the fall you had and how you feel now.**

1. Which of the following is closest to the main reason that you fell? *(Please tick box)*

- Because of the kind of person I am
- Because I am growing older
- Because of something I did or did not do
- Because of something somebody else did or did not do
- Because of something about the environment or weather conditions
- Because of bad luck

2. What did you think was the one major cause of the fall?

\_\_\_\_\_

3. How certain are you that this was the main reason for the fall? *(Please circle)*

Not at all certain						Very certain
1	2	3	4	5	6	7

4. In the future, do you think that the reason you fell this time might cause you to fall again?  
*(Please circle)*

Yes

No

5. Is the reason you fell something that just influences whether your fall, or does it influence other areas of your life as well? *(Please circle)*

Influences just this particular situation

Influences all situations in my life

6. Looking back, do you think you could have prevented yourself from falling? *(Please circle)*

Could definitely not have prevented the fall						Could definitely have prevented the fall
1	2	3	4	5	6	7

7. How likely do you think it is that you will fall again in the next 2 months? *(Please circle)*

Highly unlikely						Highly likely
1	2	3	4	5	6	7



8. How much of a worry is the thought of falling again in the next 2 months? *(Please circle)*

Not at all worrying						Very worrying
1	2	3	4	5	6	7

9. How likely is it that the average person of your age and sex (who has sought treatment after a fall) will fall again in the next 2 months? *(Please circle)*

Highly unlikely						Highly likely
1	2	3	4	5	6	7

In this section we would like to ask you some questions about how concerned you are about the possibility of falling. Please reply thinking about how you usually do the activity. If you currently do not do the activity (e.g. if someone does your shopping for you), please answer to show whether you think you would be concerned about falling IF you did the activity. For each of the following activities, please circle the number to the right of the item which is closest to your own opinion to show how concerned you are that you might fall if you did this activity.

		Not at all concerned	Somewhat concerned	Fairly concerned	Very concerned
23	Cleaning the house	1	2	3	4
24	Getting dressed/undressed	1	2	3	4
25	Preparing simple meals	1	2	3	4
26	Taking a bath or shower	1	2	3	4
27	Going to the shop	1	2	3	4
28	Getting in and out of a chair	1	2	3	4
29	Going up and down stairs	1	2	3	4
30	Walking around outside	1	2	3	4
31	Reaching up or bending down	1	2	3	4
32	Answering the telephone	1	2	3	4
33	Walking on a slippery surface	1	2	3	4
34	Visiting a friend/relative	1	2	3	4
35	Going to a place with crowds	1	2	3	4
36	Walking on an uneven surface	1	2	3	4
37	Walking up and down a slope	1	2	3	4
38	Going out to a social event	1	2	3	4



Below is a list of problems that people sometimes have after experiencing a traumatic event. Read each one carefully and tick the answer that best describes how often that problem has bothered you since the fall which has led you to seek help: *(Please tick relevant box)*

	Never	Once in a while (for example, once a week or less)	Half of the time (for example, 2 to 4 times a week)	Almost always (for example, 5 or more times a week)
10: Having upsetting thoughts or images about the fall that come into your head when you don't want them to				
11: Having bad dreams of nightmares about the falls				
12: Reliving the fall, acting or feeling as if it was happening again				
13: Feeling emotionally upset when you are reminded of the fall (for example, feeling scared, angry, sad or guilty)				
14: Experiencing physical reactions when you are reminded of the fall (for example, breaking out into a sweat, heart beating fast)				
15: Trying not to think about, talk about or have feelings about the fall				
16: Trying to avoid activities, people, or places that remind you of the fall				
17: Not being able to remember an important part of the fall				

	Never	Once in a while (for example, once a week or less)	Half of the time (for example, 2 to 4 times a week)	Almost always (for example, 5 or more times a week)
18: Having much less interest or participating much less often in important activities				
19: Feeling distant or cut off from people around you				
20: Feeling emotionally numb (for example, being unable to cry or unable to have loving feelings)				
21: Feeling as if your future plans and hopes will not come true				
22: Having trouble falling or staying asleep				
23: Feeling irritable or having fits of anger				
24: Having trouble concentrating (for example, drifting in and out of conversations, losing track of a story on television, and forgetting what you read)				
25: Being overly alert (for example, checking to see who is around you, being uncomfortable with your back to a door, etc)				
26: Being jumpy or easily startled (for example, when someone walks up behind you)				

Have any of the above problems interfered with the following: *(Please circle)*

27: Work	Yes	No
28: Household chores and duties	Yes	No
29: Relationships with friends	Yes	No
30: Fun and leisure activities	Yes	No
31: Relationships with your family	Yes	No
32: Sex life	Yes	No
33: General satisfaction with life	Yes	No
34: Overall level of functioning in you life	Yes	No

**THANK YOU FOR HELPING US UNDERSTAND HOW YOU FEEL ABOUT YOUR FALL**