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A qualitative study of the impact of hip fracture in the elderly population

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Running head: IMPACT OF HIP FRACTURE

**A Qualitative Study of The Impact of Hip Fracture in The Elderly
Population**

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Submitted in Fulfillment of the Requirements for the Degree of Master of
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USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

Abstract

The social, emotional and economic impact of falling in the elderly population is significant. Falls are the leading cause of injury related deaths and hospitalisation amongst people aged 65 years and older, a major factor in their morbidity and mortality rates. Post fall sequelae can have major ramifications that include reduction or avoidance of activities, attributable to an enduring fear of future falls. Twenty-three older people who had fallen in the community were located via hospital records and invited to participate in the study. Subjective accounts of the impact of falling and sustaining a hip fracture were obtained by means of open response interviews of ten older people (mean age 82). Qualitative analysis identified themes relating to self-concept, social support and self-efficacy. There is strong empirical evidence that self-efficacy predicts behavior and functioning following hip-fracture whereby low confidence generally leads to avoidance of activity. This was supported in the present study. Reduced mobility can have serious consequences for the health status of the elderly and actually increases the likelihood of falling.

Declaration

I certify that this thesis does not, to the best of my knowledge and belief:

- (i) incorporate without acknowledgement any material previously submitted for a degree or diploma in any institution of higher education;
- (ii) contain any material previously published or written by another person except where due reference is made in the text; or
- (iii) contain any defamatory material.

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A Qualitative Study of the Impact of Hip Fracture in the Elderly Population

Research which informs and influences policies relating to optimal directions for public health expenditure is of significant importance to governments, health care workers and the wider community. The prudent allocation of limited resources towards programmes which are likely to have far reaching benefits for a great number of people whilst simultaneously reducing the burgeoning costs of health care, is a considerable proposition for Australia and many other countries. The following research aims to provide information to assist in this endeavour by addressing a significant health problem which presently threatens to undermine the quality of life for many ageing Australians and places a burden on health services and aged care facilities.

According to the Australian Institute of Health and Welfare (AIHW) the demand for health services and long-term care is influenced by the ageing of the population together with changes in the health status of older people. The Australian population has been ageing since the early 1970's, with the trend expected to continue for at least another 50 years. Projected increases in population numbers are significantly greater for the older segment of the population (aged 65 and older), with highest growth occurring among those aged 80 and over (AIHW, 1998).

The Australian Bureau of Statistics (1988) state that 3.5 million people (one in four) living in Australia will be aged 80 or over by the year 2016. This trend is of particular significance with regard to the formulation and implementation of health services and in particular, long term care. According to AIHW (1998), Australian

men and women aged 65 years have the sixth highest life expectancy in the world. For the period 1994-1996 life expectancy at age 65 was 15.8 years for men and 19.6 years for women.

In Australia and other developed countries, mortality at older ages has fallen dramatically since the 1960s due to declines in death from cardiovascular diseases such as coronary heart disease and stroke. According to AIHW these reductions in death rates impact upon trends in morbidity and disability in older ages. Reduced mortality from chronic diseases and a concomitant ever increasing life-expectancy, means increased survival of ill and frail older persons living to age 85 and older. One of the consequences of becoming frail aged is a greater propensity to fall, which can have life threatening consequences. Howland, Lachman, Walker Peterson, Cote et al. (1998) report that frail older adults are twice as likely to fall as healthier persons, with the trend appearing strongest in those age 80 and older.

Gething (1999) considers that optimising services provision for older people is a concern (and responsibility) not exclusively for aged care specialists but for *all* segments of the health care sector, as older people are the principal users of health services in Australia and many other developed countries. Some negative stereotypical views of aged people (e.g. inactive, dependent) tend to undermine and underestimate the diversity, complexity, capabilities, strength and potential of older people. Gething believes aged care may be seen as “a low status option” (p. 2) and is often not a preference for those working within the health system. With the emphasis on curative techniques, older people who often require longer lengths of hospital

stay, may be seen as monopolising health services and reducing the efficient running of the hospital.

Gething (1999) states there may be a discrepancy in treatment goals between older people and health professionals. Social and general well being, a desirable treatment outcome for many older people that reflects enhanced quality of life, may be overshadowed by functional indicators of health sought by health professionals. Conditions considered to be an inevitable component of the ageing process, such as reduced activity leading to disengagement, low mood and reduced self-efficacy, may be potentially modifiable with a more comprehensive treatment approach. Research now shows that indicators of mental health such as self-efficacy, coping, helplessness/control, competency and self-concept are important components in mediating outcomes of physical trauma such as hip fracture in the elderly population (Commodore, 1995; Tinetti & Powell, 1993; Tinetti, Richman & Powell, 1990).

Epidemiology

Howland et al (1998) and Norton (1999) report that falls and fall-related injuries are the leading cause of injury-related deaths and hospitalisations in older adults. The incidence of fall-related hospital admissions increases at an exponential rate with advancing age, with the incidence being low up until age 60, increasing gradually each year until about age 70. Subsequent to this, the incidence rate rises much more quickly each year, and is evident in both men and women. The increasing mean age of persons with fall related injuries and the increasing rates of general morbid conditions indicates more difficulty in the treatment and care of those older people.

The most serious complication arising from a fall in the elderly population is hip fracture (a break in the bone near the top of the femur). Kannus, Niemi, Parkkari, Palvanen, Vuori, and Jarvinen (1999) report that the number of hip fractures is increasing at a rate that cannot be accounted for exclusively by demographic changes. Their study investigated people aged 50 and above living in Finland (population 5 million) and found that during the study period (1970-1997), the number of hip fractures in Finnish people increased at an annual average rate of 10.5%, rising from 1857 in 1970 to 7122 in 1997. The corresponding fracture incidence (per 100,000 people) increased from 163 to 438 (increase of 169%). However during the study period, the Finnish population of people aged 50 years and over increased by only 43% (from 1.14 million to 1.63 million).

The age adjusted incidence of hip fractures also showed a steady increase over this period (1970 -1997), with incidences in women rising from 292 to 467 and from 112 to 233 in men. Based on this trend, the number of people suffering from hip fractures in Finland will almost triple in the years from 1997 to 2030. Kannus et al., (1999) suggest the deterioration in age-adjusted bone mineral density and strength, with accompanying increase in the age-adjusted incidence of injurious falls of the elderly as possible causal factors. The median age of the elderly people with a hip fracture also rose during the study period from 74 years in 1970, up to 81 years in 1997 (women from 76 to 82 years and men from 70 years to 76 years). During the same period the mean life expectancy rose from 74 to 81 for Finnish women and from 66 to 73 for Finnish men. Further analyses of cohorts revealed that within a birth cohort over a period of 10 years the pattern of hip fracture was similar. However a comparison between cohorts revealed a higher incidence among younger

than older cohorts. Overall, the number and incidence of hip fractures increased considerably in both sexes, with the rise most pronounced in the oldest age groups. A similar development may be seen in other countries.

In the United States, Lorenzo (1998, p.2) reports that hip fractures are occurring in "epidemic rates" with an incidence of 80 per 100,000 population, doubling for each progressive decade of life after age 50. It is estimated that by age 90, one third of all American women and one sixth of all American men will have sustained a hip fracture. Currently, hip fracture accounts for more than 25 percent of the 1.2 million total number of annual fractures occurring in the U.S. When hospital days for post fracture sequelae are included, hip fracture accounts for 30% of all hospitalised patients in the US and two thirds of all hospital days (American Academy & American Association of Orthopaedic Surgeons, (AAOS, 2000). The prevalence rate in women is nearly 3 times that of men and in 1996, they made up 80% of the total 350,000 hospitalisations for hip fracture (an increase of 23% from 1988). This is predicted to increase to 650,000 by the year 2050.

Jaglal, Sherry and Schatzker (1996) conducted a retrospective study of hospital discharge abstracts between 1981-1992 on Canadian adults aged over 50 years. The study included time trends in hip fracture rates, in-hospital death rates, length of hospital stay and discharge destination, to assess overall magnitude and impact of hip fracture upon the Canadian health care system. Overall hip fracture rate was 3.3 per 1000 persons (1.7 per 1000 men and 4.6 per 1000 women). There was no change in age-adjusted rates of hip fractures between 1981 and 1992, even though there have been increases in the number of hip fractures. There was also no change in the

in-hospital death rate over that period. The age adjusted length of hospital stay in 1981 was 28.6 days compared with 22.2 days in 1992. Based on these figures, the authors estimate the number of hip fractures to increase from 8490 in the year 1990 to 16,963 in the year 2010.

In Australia one in three people over the age of 65 living in the community sustain at least one fall a year, with one third of these subsequently requiring medical attention (Gilsenan, Hill & Kerse, 1999; Norton 1999). The majority lead to bruising and abrasion with approximately 13% resulting in a dislocation or fracture.

According to Pocock, Culton and Harris (1999), the mean age of fall induced injuries increased from 67.3 years in 1970, to 73.0 years in 1997. Assuming age-specific rates remain constant, in the next 20 years the authors project a virtual doubling in the annual incidence rate of hip fractures, from around 15,000 to 30,000.

Etiology and Risk Factors

The risk of hip fracture in older people is directly correlated with an increased likelihood of falling, with an estimated 90% of hip fractures amongst this population a result of a fall. Falls are more common as age increases, partly because of the increased occurrence of coexisting diseases such as atherosclerosis, parkinsonism and mental impairments such as senility and dementia. Falls may reflect other general characteristics of the elderly at risk for hip fractures. Reduced neuromuscular function (e.g. muscle weakness and joint stiffness) and concomitant impaired mobility, proprioception in the feet (sensory or motor neuropathy), disturbances in gait (characterised by reduced stride length and increased stance time), disturbances in balance, increased body sway velocity, particularly when the eyes are closed, orthostatic hypotension and impaired cognition all increase the

likelihood of falls (DiGiovanna, 1994; Lord, Ward, Williams, & Anstey, 1993).

Many of these problems are related to diseases frequently diagnosed in the elderly such as stroke and osteoarthritis. Medications, particularly sedating medications, tricyclic antidepressants, benzodiazepines, phenothiazines, diuretics and antihypertensives, are implicated as risk factors for increased falls and hip fractures and actually double the risk in both demented and cognitively intact populations (Shaw & Kenny, 1998).

According to DiGiovanna (1994), advanced age related changes such as changes in the ears, impaired visual acuity including reduced peripheral vision and accommodation, which serve to decrease the elderly person's protective reflexes, also predispose the elderly to falling. Osteoporosis (whereby low bone mass is the defining characteristic) is the primary cause of fractures resulting from falls and affects more than 24 million Americans. Approximately 80% of those with osteoporosis are women and as many as 60% of all women over 60 are affected. Although women are affected in much greater numbers than men, as they age men's susceptibility to osteoporosis increases. An estimated 1.2 million annual fractures are attributable to the disease, with 20% of these fractures of the hip. A person sustaining an osteoporotic fracture (wrist, vertebrae, or hip) after age 40, has approximately double the risk of a subsequent fracture. Smoking and excessive alcohol use have also been found to have an association with osteoporosis. Maternal history of hip fracture and greater height are also predictors of hip fracture, which may also have an association with other skeletal characteristics (Birge, 1999).

Shaw and Kenny (1998) estimate the prevalence rate of dementia in the UK at about 5% in those aged over 65 and 15% of those aged over 80. However with an

annual incidence in patients with dementia at 40-60%, falls in this population are twice the rate of their cognitively unimpaired equivalents. Falls in the cognitively impaired elderly commonly lead to more serious injury with less likelihood of making a satisfactory recovery. The authors report that this population is five times more likely to be institutionalised after hip fracture and have a 6 month mortality of 71%, which is more than 3 times that of elderly people who are cognitively unimpaired. Abnormalities in gait and balance accounted for by impairments of central processing as a consequence of structural and neurochemical degeneration caused by the dementing process largely account for the increased rate.

Increasing age, muscle weakness, functional limitations, environmental hazards, use of psychoactive medications and a history of falls were all found to be risk factors for hip fracture in a study conducted by Stevens and Olson (2000). Increased risk had a positive correlation with age, with women 85 and over nearly 8 times more likely than women aged 65-74 to be hospitalised for hip fracture. The study also found the risk for white women aged 65 and over to be greater than for black women and greater risk was associated with lack of physical activity, osteoporosis, low body mass index, and a previous hip fracture.

Lord et al. (1993) conducted a cross sectional study which evaluated health and lifestyle factors associated with falls. The study comprised 740 women aged 65 and over who were randomly selected from the community. In the twelve months prior to study 66.1% had no falls, 19.7% had fallen once and 14.2% had fallen twice or more. Common causes were trips, slips and loss of balance. Poor vision, inactivity and subjective fall risks were variables independently and significantly associated with falling. Only a small number reported dizziness, giddiness or feeling faint as the

cause. Medical conditions were not predictors of falling although information techniques gathered via structured interview may have been inadequate for clinical assessment. History of stroke was associated with more falls as was poor vision, psychoactive drug use and ingestion of four or more medications. Only a small number of participants had impaired cognitive status and this did not impact on the number of falls. Those receiving community services and those who had limitation of daily living activities were more likely to fall.

Within their study, Lord et al. (1993) found physical activity to be an influential factor. Seven or more hours per week of both organised and non organised activity reduced the incidence of falls, although the authors acknowledge the direction of this effect is hard to establish. Physical activity has been shown to increase muscle strength and flexibility and improve balance and reaction time, however those with poorer stability or mobility are understandably less likely to exercise to begin with. Smoking and alcohol use were not significantly associated with falls in the study, although there was a trend for non drinkers to have slightly more falls. This may be attributed to the tendency for those in poor health and those taking psychoactive drugs to reduce alcohol intake generally (Lord et al. 1993).

Gallagher, Hunter, and Scott (1999) report both an absence of antecedents and consequences of falling in large studies and a lack of random surveys. A more comprehensive picture of falling was the objective in their study which analysed data collected during a random survey of 1,277 people aged 65 and over in British Columbia. Two hundred and eleven (16.5%) of participants reported falling at least once in the preceding 6 months with an overall rate of 18.6 per hundred for women and 13.3 for men. Men were proportionately more likely to fall outdoors than

women and women were more likely to sustain an injury from their falls. Bivariate and multivariate relationships between falling and variables such as demographics, health, and psychological and psychosocial factors were examined. Falling was directly related to age and chronic illness and indirectly to socioeconomic states (SES) and gender with implications that older, poorer women tend to have more chronic illnesses which predisposes them to increased likelihood of falls. Although age and gender are not factors amenable to clinical intervention, reducing the prevalence of chronic illnesses amongst the elderly and improving SES may help reduce incidences of falling.

Complications and Factors Mediating Post-Operative Recovery and Rehabilitation

Maximising recovery following hip fracture presents an important clinical challenge. Impediments to optimum functioning after a fracture are multifactorial and include depression; age; male gender; concomitant disease; delirium; dementia; having sustained a major fall; poor postfracture balance, gait, and mobility; poor social support before and after fracture; longer hospital stay; and rehospitalisation after discharge (Zimmerman, Smith, Gruber-Baldini, Fox et al., 1999).

Delay in bringing the elderly to the hospital and subsequent delay in surgical repair (which should ideally be within 1 or 2 days of injury) is also associated with increased postoperative morbidity and mortality. Prompt surgical repair more quickly mobilises the individual and compensates for the slow healing of bones in older people. Rapid mobilisation reduces further bone and muscle deterioration as well as the risk of blood clots and pneumonia (between 12% -15% of individuals who have osteoporosis related hip fractures, die as a result of complications such as pneumonia). Thromboembolism is also a common and severe complication after hip

fracture. The incidence of deep venous thrombosis is estimated to be 50-70% without intervention. Trauma and ischemia of the veins occur from the hip fracture injury and during the surgical repair. Venostasis results from immobility before and after surgical repair (Zimmerman et al., 1999).

Arfken, Lach, Birge and Miller (1994) found outcomes following hip fracture in the elderly to be adversely affected by numerous factors. Prefracture non-ambulatory status, age greater than 85 years old, prior residence in a nursing facility, lack of family or social support and number of postoperative complications such as constipation and urinary incontinence (frequent postoperative complications in the elderly). Change in routine, inability to transfer to toilet, lack of exercise, and poor hydration were also compounding factors. The potential severe adverse outcomes of hip fracture such as decrements in functioning and loss of independence may also leave the older person vulnerable to depression.

The Role of Depression

Several factors have been identified as predisposing to depression in later life. These include poor health, poverty, institutional living and loneliness. Disabled and ill persons of all ages are at greater risk for depressive symptoms, according to Wolfe, Morrow, and Fredrickson (1996). Depression may be a psychological reaction to the limitations, discomfort, and demands imposed by physical illness, whereby stressors arising from medical illness and disability precipitate or worsen depressive episodes. The most important indicators: recent changes in health, social circumstances or consulting behaviour, are all easy to pick up in the primary-care

setting but may not be as easily identifiable in a community setting where there is less contact with health professionals (Jenike, 1995).

Symptoms of anger, anxiety, sadness, sleeplessness and depression are common following hip fracture. Of these, persistent depression in particular a risk factor for poor recovery. Up to one-half of patients exhibit substantial depressive symptomatology during hospitalisation which is associated with failure to return to prefracture levels in walking and other activities (Mossey, Knott & Craik, 1990; Zimmerman et al., 1999). In a study by Mossey et al. (1990) depressive symptoms that were persistently elevated through one year postfracture were related to physical functioning outcomes, but people whose depression resolved within 6 months postfracture, fared no worse than those displaying no depressive symptoms.

While routine screening for depression in elderly people who have suffered a hip fracture is not widely available, the possibility that screening might overload clinical services must be acknowledged. However according to Pinkowish (1999) failure to diagnose depression, which is often reversible with prompt and appropriate treatment, may result in delayed recovery from medical illness and surgery.

Zimmerman et al. (1999) argue that because many people experience reactive depression following illness or trauma, it is important to understand the role of chronicity in predicting health outcomes. Zimmerman et al. (1999) examined the relationship between depression and functional recovery at one year post hip fracture and investigated which characteristics discriminated those people who were at greatest risk of poor outcomes. They assessed 272 people aged 65 and older whilst in hospital and again at two months using various measures. Almost half (48%) the

participants were found to be depressed during the first assessment period, but at 2 months, half (24%) of these cases had resolved. Depression during hospitalisation was not predictive of later functional status, however persistent depression at 2 months was significantly related to poorer physical functioning at 12 months and was associated with increased risk of dependence in dressing, grooming and assistance with meal preparation.

The effects of persistent depression which were not seemingly specific to the actual hip fracture itself in the above study, suggest depression might extend beyond an elderly hip-fracture population and may relate to the demands imposed on the frail elderly by a sudden change in health status. As no significant differences were found between participants whose depression persisted on various measures including, social function, cognitive function, comorbid disease, age, gender, race, education, marital status, Zimmerman et al., (1999) suggest depression as a marker for poor recovery generalises beyond hip fracture.

Morbidity and Mortality Following Hip Fracture

Research has shown varying mortality and morbidity rates within one year post hip fracture. Norton (1999) reports that even after effective treatment, the implications of hip fracture can be devastating and lead to debilitating psychological and physical sequelae. According to Howland, et al., (1998) and Lord, Rogers, Howland, and Fitzpatrick (1999), hip fracture is associated with significant mortality, long-term disability (over half lose the ability to walk without assistance), and with major lifestyle changes. Many elderly people are unable to perform daily living activities such as bathing and toileting without assistance and some (between

15% - 25%) individuals need to enter an institution for extended care (Tennstedt, Howland, Lachman, Peterson, Kasten & Jette, 1998).

Wolinsky, Fitzgerald and Stump (1997) assessed 368 persons over age 70 who had sustained a hip-fracture between 1984 and 1991. A substantial deterioration in the health of older adults was evident, leading to an increased number of functional status dependencies and a significant likelihood of subsequent hospitalisation. Hip fracture was found to be significantly related to mortality, particularly in the first 6 months post-fracture. More than 4% of hip fracture patients die during the initial hospital stay with a 1-year post-fracture mortality rate of 24%.

Magaziner, Lydick, Hawkes, Fox, et al. (1997) obtained survival statistics of 814 patients admitted to a Baltimore hospital for hip fracture. Excess mortality associated with hip fracture (in relation to general life-expectancy for the same age) occurred within the first few months following fracture. Expected one year survival was 82.6 %. The degree of excess mortality varied by sex and age. In general, patients more than 84 years of age had 2.6 times the risk of dying within 3 months of a hip fracture as patients aged between 65 and 74, decreasing by 6 months after fracture. For men the most important factors threatening survival in the first year following fracture were advanced age, at least one serious concomitant illness and delirium at the time of admission. Functional status of hip fracture patients over a year following hospital discharge was also studied. Patients who were older, had longer hospital stays and subsequent returns to the hospital had the poorest recovery. Patients who survived more than 6 months had a tendency to plateau in terms of recovery to pre-fracture status. Even though about 60% of patients were able to walk again after a hip fracture and most could perform tasks that are less directly affected

by hip fracture (using the telephone, grooming, handling money), only about half were able to perform more complex tasks such as shopping or housework that depend on leg and hip strength.

Gordon and Huang (1995) also report excess mortality among fracture cases. In an unselected hip fracture population, mortality after one year in those aged over 75 was 10% greater than the general population of the same age. Women aged 50-74 who had fractured a hip experienced 4% excess mortality after 1 year and 8% after 2 years compared to women who had experienced a forearm fracture, suggesting that the hip fracture itself and not the sequelae of a fall was the cause of excess mortality. The authors claim that excess mortality after hip fracture may reflect poor general health or the sequelae of fracture and surgical treatment.

Other research (Fox, Magaziner, Hebel, Kenzora., & Kashner, 1999; Gilsenan, Hill & Kerse, 1999; Salkeld et al., 2000) found that fewer than 50% of those sustaining a hip fracture regained their pre-fracture functional status with approximately 30% of people dying within one year of injury. Stevens and Olson (2000) agree that avoiding hip fracture may be a life and death issue for some elderly people. The authors report one in six white women will have a hip fracture during their life time, with up to 20 percent of the 250,000 elderly people who fall victim every year not surviving longer than a year. In the US, for the year 1997, there were nine thousand deaths amongst the elderly which were directly attributable to falls and post fall sequelae.

Fear of Falling

The prevalence and ramifications of fear of falling, has a substantial impact on older adults, care givers, the wider community and health and hospital service providers. Tinetti, del.con, Doucette, and Baker (1994) report that 43% of people over the age of 72 experience fear of falling with the result that 24% of fallers and 15% of non-fallers restrict their activities in an effort to reduce the risk. Fear of falling has been correlated with lower self-rated health and a history of previous falls, impaired balance and the use of walking aids (Howland et al, 1993; Arfken et al., 1994). Commodore (1995) found that whether an injury results or not, falls may impact upon self confidence and cause people to avoid previously performed activities, resulting in the likelihood of older victims becoming house-bound.

Although fear of falling could be considered an inevitable consequence of falling, some studies have shown restricted physical and social activity mediated by fear of falling to be independent of injury, prior falls, age, gender or health status (Howland et al., 1993; Kellogg International Work Group, 1987; Lachmen, Howland, Tennstedt, Jette, et al., 1998; Tinetti & Powell 1993). One study identified fear both in fallers (48%) and non fallers (27%) in persons aged over 75. This result implies that development of fear of falling is not dependent upon a person actually experiencing a fall. Greater fear of falling has been associated with lower quality of life in terms of physical health, mental health and social and leisure pursuits, showing that fear of falling may be an independent risk factor for poor quality of life. It is possible that those with poorer quality of life (functional imitations and limited social connectedness) may develop greater fear of falling.

According to Lord et al. (1999), fear of falling in the elderly may be viewed as a “rational response to a likely and potentially dangerous event” (p. 1077). However for those who have fallen, fear may limit function beyond what might be expected from the effects of injury or underlying physical ability alone. Fear may be an inaccurate description of the actual underlying emotion surrounding self restriction of activities in the elderly population. Tinetti and Powell (1993) believe fear evokes psychiatric or phobic connotations and that self report of global states, such as fear, show little predictive ability for actual behaviour. This is attributed to the fact that studies often use yes/no dichotomous measures rather than looking at degrees of intensity of fear. Self- efficacy and confidence are suggested as more helpful concepts in understanding a propensity to develop fear of falling. There is strong empirical evidence that self-efficacy (capabilities within a domain of activities, dependent upon self confidence within a specific activity) predicts behaviour and functioning, whereby low confidence generally leads to avoidance. Multivariate analysis (Tinetti & Powell, 1993) has shown a stronger relationship between efficacy and function than between falls and function. According to the authors, this suggests that greater attention needs to be paid to the physical and psychological consequences of falling rather than to the incidence of falls alone when investigating the impact of falls on function.

Trials were conducted by Tinetti, Richman and Powell (1990) in order to develop an instrument enabling assessment of fear of falling in relation to activity restriction and also to examine the relationship between fear of falling and quality of life. The sample included 270 American men and women aged between 62 and 93. Thirty six percent had sustained falls requiring medical attention during the

preceding 5 year period, and 39% knew a friend or relative who had sustained a serious fall. The highest level of fear in the newly devised Falls Efficacy Scale was reported for items "going out when it is slippery" followed by "taking a bath". "Going up and down stairs" and "reaching for something overhead" also involved relatively high levels of fear of falling.

According to Lachmen, Howland, Tennstedt, Jette, et al. (1998), their instrument (The Survey of Activities and Fear of Falling in the Elderly) distinguishes between those who restrict activities due to fear of falling and those who are afraid of falling but do not restrict activities. They feel that the Falls Efficacy Scale (Tinetti, Richman & Powell, 1990) and the Activities Specific Balance Confidence Scale (Powell & Myers, 1995, cited in Lachmen et al., 1998), although measuring ADLs which are basic and critical for independent living, do not contain items which focus on exercise or social activity. They maintain that the consequences of fear of falling may begin in more advanced activities such as these, which may not be essential for independent functioning, but which nevertheless contribute to reduced quality of life. This fear thus leads to an eventual functional decline or slow deterioration of ADL functions because of activity restriction and physical deconditioning (Lachmen et al., 1998).

Because hip fractures are generally associated with lengthy periods of immobility and a slow recovery phase, a patient's lifestyle can become very limited and loss of independent living is very common. The AAOS (20000) estimate that in America by 2005, 17% of men 65 and older and 43% of women 65 and older, will live alone. By 2010 this is projected to rise to 45 % of those 85 years and older living alone and by 2020 women will account for 85 % of those over 65 living alone.

Following hip fracture, many patients must live with their families, creating psychosocial pressure on both parties, or enter residential care. Currently in America, hip fractures result in 60,000 nursing home admissions annually.

The incidence of hip fracture can mean the end of independent community living and the transfer into long term care facilities or permanent residential care for many elderly people. This is a real fear for most independently living older people. Consequently their falls together with their fear of falling may not be known by other family members, friends or health care providers, as those affected may be reluctant to reveal their experience.

Salkeld, Cameron, Cummings, & Easter, et al. (2000) estimated the preference between life and death by studying levels of quality of life associated with hip fracture and fear of falling among older women, living independently within the northern suburbs of Sydney. This was achieved by finding the point at which respondents showed no preference between a longer but lower quality of life and a shorter time alive, in full health. Quality of life interviews were conducted with 194 women aged over 75 who had experienced a hip fracture. To develop descriptions of health states, 16 open ended questions were used to define the dimensions of quality of life most affected by a hip fracture and the language used by the women to describe their experiences.

Salkeld et al., (2000) utilised data from the qualitative research together with clinical opinion in order to create 4 health states of (1) full health, (2) fear of falling (3) a good hip fracture (in which the person returns to independent living in the community) and (4) a bad hip fracture (where the person moves to a nursing home). An interval scale utilised 0 (death) and 1 (full health). Fear of falling was valued at

0.67; A good hip fracture was valued at 0.31, while bad hip fractures which culminated in admission to a nursing home were valued at 0.05. A substantial number (eighty percent) of respondents reported they would rather be dead than face loss of independence and quality of life (utility = 0). It was concluded that among older women who are now living beyond average life expectancy, falls and hip fractures pose a profound threat to health related quality of life. It would appear that if the ability to live independently within the community is compromised by poor health, then the option of death may be seen as preferable to some older people.

Respondents commented that they felt that quality and not quantity of life was a priority. They felt they were living on borrowed time any way and not only was death expected at their stage of life, it was also preferable to what they perceived as a vast deterioration in quality of life precipitated by moving into a nursing home. Most women prepared to trade off considerable length of life to avoid the reduction in quality of life following a hip fracture. Nearly all women would trade off almost their entire life expectancy to avoid the state of loss of independence, dignity, and possessions that delineates moving from their own homes into a nursing home.

Within the study, there was no significant difference in responses by those participants who had previously suffered a hip fracture (25% of total sample) and those who had not. Data from the Northern Sydney hip fracture audit show that in the 12 months following hip fracture, 22% of women who had previously been living independently were admitted to a nursing home and only 24% were walking with the same proficiency as pre hip fracture (Salkeld et al., 2000). Lawrence, Tennstedt, Kasten, Shih, Howland and Jette (1998) assessed the intensity and correlates of fear of falling in the proceeding twelve months among community dwelling older

persons. Responses to hypothetical situations which compared fear of falling, of being robbed in the street, forgetting an important appointment, experiencing financial difficulties, or losing a cherished item were assessed. Fear of falling was ranked first and elicited intense fear. Lower levels of fear of falling were related to higher levels of perceived ability to manage falls and functional disability after controlling for generalised fearfulness. The authors suggest that fear of falling may to some extent be a manifestation of a more generalised anxiety. Older adults might blame themselves for falling or consider falls to be an inevitable consequence of the ageing process.

According to Howland et al. (1998), fear of falling can compromise social interaction by self restriction of situations and activities which may be perceived as less safe, increasing the risk for isolation, depression and anxiety. Findings from their study show those who were afraid of falling were significantly more likely to have had a fall in the past 3 months and significantly more likely to have had falls requiring medical attention in the last 5 years. There was no difference in respect to knowing a friend or relative who had experienced a serious fall. They were significantly more likely to report dizziness and vision problems and significantly more likely to use a walking aid. They were also significantly more likely to experience chronic body pain and have lower perceptions of their general health, have significantly lower Mental Health Index scores and were significantly less likely to be socially integrated, but did not differ with respect to social support. In their study neither the degree of falling nor the experience of falls was associated with activity restriction.

Financial and Social Implications of Falls and Fall-Related Injuries

Falls place a major economic burden on health care as well as social and emotional burdens upon victims and their families. According to Renaissance Orthopaedics (1999), the cost of hip fracture including direct medical care, formal non-medical care and informal care provided by family and friends, now equals that of the care for those affected by heart disease. Jaglal, Sherry and Schatzker (1996) conducted a retrospective study of Canadian hospital discharge abstracts between 1981-1992 in order to assess the magnitude and the burden of hip fracture on the Canadian health care system. These were estimated at 2.8 billion dollars, which excludes major consequences of fall related injuries such as increased rates of morbidity and mortality. Long-term consequences such as loss of independence, loss of confidence and susceptibility to future falls are also not incorporated into these costs. The authors concluded that despite stable age-adjusted rates of hip fractures, the doubling of the number of hip fractures by 2010 due to an ageing population will become an increasing burden on the Canadian health care system.

The AAOS (2000) believe that hip fractures are a major public health problem, the cost of which can only be assessed by fully incorporating financial and societal considerations into the total cost. They cite the current annual cost to the US health care system for acute and chronic care for patients with hip fractures to be \$US9.8 billion (average cost of \$US35,000 per patient). According to the authors, there are no data to demonstrate that shorter hospital stays for hip fracture (often implemented in order to control health care costs) lead to cost savings to society. Evaluating the cost effectiveness of new treatment pathways whereby patient outcome is measured

against total cost, which includes reduced morbidity, re-admission to hospital, depression, and utilisation of community services, is recommended.

The Australian Institute of Health and Welfare (AIHW) cite average health expenditure for people aged 65 years and over as \$4,919 per person during the period 1993-1994. This is almost four times greater than the \$1,301 per person for those aged less than 65. Moreover during the same period, although comprising only 12% of the total Australian population, \$11 billion (35%) of the total \$31 billion expenditure on health services, was accounted for by older people. Fall related hospitalisations, within this older segment of the Australian population, cost an estimated \$2.5 billion per annum (AIHW, 1998; Gilseman, Hill & Kerse 1999).

The AIHW (1998) cite that older Australians have a higher rate of hospital admission than the general population and a longer length of hospital stay (LHS), which averages 7.3 days compared to 4.5 days for younger Australians. Older Australians also accounted for 1.5 million (30%) of all hospital separations between 1995-1996. This translates to 11 million patient days (48% of total patient days) for this period. The number of women hospitalised during this period outweighed number of men (6,306,400 to 4,864,300) and reflects the disproportionate number of women in the older population. However by age 85 and older, men had higher rates of hospitalisation than women and this may be attributable to the fact that many women are widowed at this age and may be living in nursing homes, whereas older men are more likely to be living with a spouse in the community (AIHW, 1998).

The economic and social implications of demographic ageing on Australian society may be attenuated somewhat if services can be restructured to meet the growing and expensive needs of an ageing population. The AIHW (1998) state that it

will become increasingly important for research and health system resources to be directed towards the prevention and treatment of the non-fatal disabling diseases of old age which includes hip fracture. Norton (1999) cites the Australian Government's recent budget announcements, allocating substantial funds for fall prevention initiatives among older people and stresses the need for effective strategies together with evaluation methods in order to maximise this funds allocation, not only for economic soundness but also to reduce the personal burden on many individuals and their families.

Treatment and Rehabilitation

Until the middle of this century a fractured neck of the femur would likely lead to death, but with the advent of penicillin, hip surgery became possible. Traditionally various combinations of approaches are employed to help people who have sustained a fracture. Virtually all hip fracture cases in developed countries are hospitalised for treatment as skilled nursing care and rehabilitation are required following hip fracture. The overall goal is to return the hip fracture patient to the premorbid level of function. If cognitive state allows, education about disease, coping skills, support groups and counselling may be appropriate. The use of antidepressants has also been shown not only to relieve depressive symptoms, but to also have a beneficial effect on pain. A combination of orthopaedic surgery and early postoperative physical therapy is usually the best approach (Kellogg International Work Group, 1987).

Physical rehabilitation should begin on the first postoperative day, as early mobilisation has been found to be the key to prevention of complications such as thromboembolism, deconditioning, infections, contractures and skin breakdown. Pain relief by way of medication may also assist mobility in acute care. Assistive

gait devices such as walking stick and walker are usually needed for support during standing and walking with gait training on level surfaces and stairs. Simple exercises to improve muscle strength, endurance, balance, co-ordination and posture are critical. Proficiency in correct mechanics for transferring to and from cars, chairs, beds toilets etc. needs to be gained. Exercise prevents loss of strength and muscle atrophy where ambulation is severely restricted (Kellogg International Work Group, 1987).

Sherrington and Lord (1997) determined the effect of a home based weight bearing exercise program established at a visit by a physiotherapist on strength, postural control, and mobility following hip fracture. Forty two people aged 64-94 were recruited on average seven months after a fall related hip fracture and were randomly allocated to the intervention or the control group. Participants were matched in terms of medical conditions, medication use, disability and activity levels. At pre-test, exercisers and controls performed similarly in tests, however at the end of the trial, the intervention group showed significantly greater quadriceps strength in the affected leg. The intervention group also had increased walking velocity, improved weight-bearing ability and reported reduced subjective falls risk. There were no significant improvements in controls. The authors concede that without needed longitudinal data following the trials, it is unknown whether these results are sufficient to prevent future falls.

Norton (1999) cites the need to exercise caution in assuming that improving muscle strength following muscle strengthening activities will be taken as a positive change by the elderly. According to Norton, such improvements may lead to increased participation in physical activities, with subsequent increases in exposure

to risk and consequent possible increases in the incidence of falls and fall related activities. Norton believes that strategies that ameliorate fall-related injuries by reducing the impact of a fall or focusing on skeletal resilience are important considerations.

Fall Prevention

The incidence and complex nature of falls presents a challenging task for health professionals wishing to implement and deliver fall prevention strategies. Norton (1999) reports that progress has been impeded by small-scale studies which lack sufficient power to identify effects of intervention strategies and also to identify those settings and population groups for whom the intervention is likely to be most effective. Dissemination of information to policy makers and health professionals derived from large scale, randomised controlled trials that demonstrate the effectiveness of interventions, offer substantial progress in reducing the global incidence of falls and fall-related injuries - particularly hip-fractures.

Prevention programmes and geriatric assessment within clinical practice and trials efficacy could be considered as a target for intervention and may be particularly beneficial. Tinetti and Powell (1993) consider the most powerful influences on efficacy to be personal accomplishment, vicarious experience, social persuasion, and physiologic states such as sweating or tachycardia. The authors recommend commencing training with simple tasks to make personal accomplishment an achievable reality which is likely to build upon self-efficacy and lead to the attempt of more complicated tasks.

Prevention programmes for hip fracture should incorporate multi-factorial interventions that include advice on optimal medication and management of medical

problems, nutritional problems, exercise and physical fitness, functional and psychosocial problems. The provision of education and skill building surrounding fall risk factors are also important. Activities that increase strength, balance and co-ordination have been shown to reduce the risk for falls and fall-related injuries, with studies demonstrating as much as 40% reduction in hip-fracture risk with increasing levels of physical activity (Tinetti, et al. 1994). Staying active, walking for exercise, treating impaired vision, maintaining appropriate body weight, reducing caffeine intake, stopping smoking, and hormone replacement therapy to maintain bone density in women are also ways to minimise the risk of hip fracture (Stevens & Olsen, 2000).

Tinetti, deLeon, Doucette, and Baker (1994) support the growing body of literature that recognises the importance of a sense of efficacy or mastery. The authors contend that unless negative beliefs and attitudes are changed, interventions are unlikely to be effective. Their own study found a significant relationship between perceived ability to manage falls and falling and fear of falling, which supports a conceptual distinction between perceived ability to control falls and perceived ability to manage falls and falling. According to Tinetti et al. (1994), the findings reinforce interventions that include cognitive restructuring components as an important mechanism for changing fear of falling. Results of their study which incorporated eight sessions of Cognitive Behavioural Therapy, showed an immediate effect on increasing the level of intended activities and mobility control for those who had been compliant with the programme. Although lower levels of intended activity were recorded by a 12 month follow up, improved functioning was still maintained in contrast to the control group who reported increased dysfunction.

Secondary prevention, such as hip pads for those at greater risk (those fearful of subsequent falls following hip fracture), may prevent hip fracture and increase likelihood of increased ambulation. Hip pads shunt the energy away from the point of impact and reduce the force of the fall upon the proximal femur. Wickham, Walsh, Cerrato and Rowell (1999) report substantial reductions in the number of individuals sustaining hip fracture in institutionalised older people, compared with controls. Minimising skeletal fragility with administration of vitamin D and calcium and alendronate have also been shown to be effective (Stevens & Olsen, 2000).

Other secondary prevention measures to decrease the likelihood of future falls include environmental hazard modification such as grab bars for toilets and showers, and handrails, which are routinely installed post operatively. Ensuring adequate lighting, avoiding slippery surfaces such as wet or highly waxed floors, removing obstacles such as throw rugs, and wearing well-fitting shoes are also important considerations (Kellogg International Work Group, 1987).

Psychological contingencies of prevention have been less studied than physical factors. Research which highlights psychological correlates of activity restriction and predisposing factors leading to increased risk of falls (Tinetti & Powell, 1990; Tennstedt et al., 1998), suggest that attention to factors such as increased self-efficacy are important inclusions in the design and implementation of fall prevention programmes.

The reviewed literature illustrates that fear of falling in the older population is a significant issue. Restriction of movement and activities relating to this fear impacts negatively both physically and psychologically on the health of both those who have fallen previously and on those who fear they could. A direct comparison of

functioning pre and post fall as appraised subjectively, does not appear to have been previously addressed in the literature. The feelings upon returning home from hospital and reintegrating into the community (for those fortunate enough to be able to do so); modifications to behaviour which relate to a sense of self and subjectively evaluated capabilities or limitations of ability and level of health, have also not been explored in depth. Insight into the level of psychological impact of the fall and possible erosion in self-efficacy has also rarely been reported by participants own interpretation, but generally by way of dichotomous responses to questionnaires. It was of significant importance therefore in the present study to provide the scope for participants to not only answers to questions already alluded to in prior research (e.g. ability to continue ADLs and continuation of social participation) following their hip fracture, but also to understand whether these participants actually had a different sense of self which impacted negatively upon self-efficacy. In order to ascertain this information which will provide insight into where interventions may be directed to minimise the negative impact of hip fracture, detail rich information is needed with lengthy interviews which will allow participants to relate many aspects of their lives and their feelings in their own words, following their experience of hip fracture.

The Present Study

The present study utilises subjective reports from community dwelling, older adults who have experienced a fall resulting in hip fracture to provide a primary source of information. The aims of the study are to understand the personal experience and impact on quality of life of older people who fall and sustain a hip fracture, and also to help inform health professionals of development and

intervention strategies. The devastating post fall sequelae which include fear of future falls and subsequent functional decline, are potentially modifiable according to Tinetti and Powell (1993). This study aims to add to the body of knowledge which will assist in promoting self-efficacy in the elderly following a fall in order to reduce morbidity and mortality rates post hip fracture and to assist those affected to return to a closer approximation of pre-morbid functioning.

Findings from the present study will also be used to inform a possible future study which intends to evaluate the effectiveness of enhanced physical therapy plus a psychological intervention aimed at improved rehabilitative outcomes. Questions which the current research seeks to address are:

- 1). How does the experience of falling and sustaining a hip fracture impact upon the lives of older people?
- 2). How do older people perceive their ability to adapt following a hip fracture?
- 3). Are there any identifiable psychological consequences of falling and what are they, from a subjective perspective?
- 4). Does the experience of falling and in particular, sustaining a hip fracture, contribute to an enduring fear of future falls and how does this manifest physically and psychologically?
- 5). What are the identified areas which may have implications for enhanced rehabilitative interventions by health practitioners such as physiotherapists, occupational therapists and psychologists?

Method

Participants

The process of sampling was purposive "...a form of non-probability sampling where cases are judged as typical of some category of cases of interest to the researcher" (deVaus, 1991, p.78). This method was preferable to random sampling for the purpose of the qualitative research. According to Cohen, Swerdlik and Phillips (1996) a personal account allows determination of what an experience means for the person and affords the opportunity to provide a comprehensive description of the topic under investigation. Extracts from the hospital records of 23 ex-patients who met criteria for inclusion in the study were forwarded to the main researcher by the co-researcher, the Associate Professor of Geriatric and Community Medicine at Fremantle Hospital and Health Services. Criteria for inclusion in the study required were to be aged 65 or older and to have sustained a hip fracture as a result of a fall. Participants also needed to be English speaking and living in the community rather than in a nursing home. Co-morbidity was acceptable - excluding dementia which would not allow sufficient cognitive functioning for the purpose of the study or to allow for informed consent.

Two of the 23 ex-patients had died since their hip fracture. Twenty one remaining ex-patients were contacted by letter which contained information relating to the nature and purpose of the study together with associated benefits and risks. The voluntary nature of the study, assurances of anonymity and confidentiality and their right to withdraw at any time without it affecting any present or future treatment at any medical centre was also included. The letter stated that contact by

phone would be made within one week to ascertain their willingness to participate in the study (see Appendix A for a copy of the information letter).

One ex-patient could not be contacted by phone and two ex-patients who did not have phones connected to their homes were mailed reply paid envelopes with their information letter, but did not respond. Three ex patients did not wish to be interviewed (one of whom had Parkinson's Disease and did not feel sufficiently able to participate; and one of whom had recently had a knee replacement subsequent to her hip fracture, which would also have complicated reports of current functioning). The husbands of two ex- patients declined as they felt their wives were not sufficiently well enough to participate and in another case, one ex-patient had recently been admitted to another hospital for reasons un-related to the hip-fracture.

The daughter of one ex- patient said that physically, her 91 year old mother was functioning really well since her operation, however mentally she had deteriorated, was very confused and did not remember having the hip fracture. Another daughter also reported that her mother (also aged 91) had substantial cognitive impairment since her fall. Her mother was described as previously high functioning and very independent (cooking, house-work etc.). Since her hip fracture, she reportedly spent most of her time in bed, and would not move without a walking frame. She also had no recollection of her fall or having been operated upon in hospital. This may suggest that for those adults more advanced in age, post fall sequelae (possibly shock, trauma or effects of surgery, including anaesthesia), exacerbates decrements in cognitive functioning. Although these participants were showing some evidence of confusion pre fall, their cognitive deterioration post-fall had been marked. Ages of the remaining 10 ex-patients (six females and four males) who wished to

participate ranged from 68 years to 88 years (mean age 81.2 years). Three of the participants (all females) lived alone, and the other seven participants all lived with their spouses. All hip fractures took place between October 1999 and February 2000

Instruments

Two instruments were used to collect data; an open response interview schedule and the Geriatric depressions Scale. The interview schedule consisted of 17 open response questions to give sufficient scope for elaboration (see Appendix C). The questions were developed following a thorough search of relevant literature pertaining to both fear of falling and hip fracture in order to ascertain domains for exploration. Examples of questions are: How would you compare your ability to manage daily living activities pre and post fall? Do you perceive your self in any way differently now since your fall? How often do you think about your fall? What was returning home like for you?

Assessment of Depression Screening opportunities are not always available to identify depression in community living elderly people, therefore following the interview a short 15 question version of The Geriatric Depression Scale (GDS., Sheikh & Yesavage, 1986) was administered verbally with instructions for participants to reflect on how they had felt during the past week. The GDS does not include any somatic items and instead, focuses on more of the cognitive and behavioural components of depression. The measure uses a yes/no response format, with a score of more than 5 indicative of mild depression. The scale has been tested and used extensively in community, acute and long-term care settings to facilitate assessment of depression in older adults. When evaluated against diagnostic criteria

for depression, the GDS has been found to have 92% sensitivity and 89% specificity (Sheikh & Yesavage, 1986).

Procedure

A suitable time was made for a home visit by the researcher at which written consent to the interview was obtained (see Appendix B). At the start of the interview, participants were invited to volunteer any other information they felt was relevant to their hip fracture as there were no time constraints. It was left to the discretion of the participant, as to whether they wished to have any family members present during the audio-taped interview. Following the interview, the Geriatric Depression Scale was administered orally. Average length of time spent interviewing was approximately 2 hours, with participants generally expanding enormously upon solicited information and providing a rich source of material relating to their experience and subsequent readjustment.

Data Analysis

Information obtained from the participants was analysed qualitatively based on stages of analysis proposed by Cohen et al.(1996). These include immersion; categorisation; phenomenological reduction and triangulation.

During the initial interview information was intensively listened to, and during the transcription stage closely attended to, in order to maximise assimilation of the explicit and implicit meaning of the dialogue. Following transcription each interview was individually assigned categories within the various segments of the text. Categories were informed and constrained by domains obtained from a thorough review of the literature pertaining to falls and hip fractures amongst older people,

and relevant to the current research questions. Each successive interview was similarly coded with new categories added as and if they emerged.

Meanings of categories were questioned and data were examined for alternative explanations or for closer alignment to other categories either previously assigned or newly emergent (similar to the process described by Miles & Huberman, 1994).

These categories were then closely examined and prioritised in order of recurrence and centrality, with some interrelated categories collapsed into each other.

Following this stage and in order to increase internal validity, a discussion was undertaken with one of the supervisors to the study who is most familiar with qualitative methodology, having utilised this method in his published research. Input was sought in relation to convergence of the categorisation of material into themes according to specific domains. It was mutually decided that the categories were integral to two broad domains. A psychological domain contained themes relating to self-efficacy and self-concept and a social support domain contained themes which incorporated the family and also health services.

Results

In seeking to address the research questions relating to whether there is an identifiable psychological aftermath from falling and sustaining a hip fracture for the participants interviewed, findings from the interviews are presented in two stages. Initially information from the interview, which is of a descriptive nature, is presented. This data fulfils the purpose of gaining an understanding of characteristics of the participants including historical information, which may provide insights into factors that are related to the current fall. Following these are results of the thematic content analysis of the data that emerged after examining participants' responses in

relation to the underlying latent content of the dialogue. This provides insight into the thoughts, feelings and emotions of the participants in relation to their assimilation back into their home environment several weeks after discharge from hospital.

During the interview participants related many details and described circumstances which helped build a profile of their particular characteristics. These are described below in order to gain an understanding of any commonalities which may predispose a person to falling and sustaining a hip fracture. Research literature contains numerous etiological characteristics of those older people most at risk (advanced age, cognitive impairment, history of stroke etc.). This is important in order to target those most likely to benefit from primary prevention strategies. Knowledge of adaptation and any difficulties or complications following treatment can also be instrumental in informing secondary prevention measures.

Previous Surgery Previous knee replacement surgery (collateral to hip fracture) was very common (7 participants). It is unclear from the research literature whether knee replacement surgery has been correlated with falls resulting in hip fracture, but it is possible that those elderly people who have undergone knee surgery may develop a propensity to falling at a later stage (possibly because knee replacement may be a previous complication of osteoporosis). Participants reported recovering extremely well from knee surgery, therefore reduction of activities (and associated decline in musculoskeletal strength and flexibility) would appear not to be implicated in the current fall.

Fall History The participants were a heterogeneous group in terms of previous fall history; five participants reported frequent previous falls, though three of these

had not experienced previous fractures. Two participants had fallen once previously and in both cases had sustained fractures - one broke both wrists and one broke both kneecaps. Cummings, Nevitt and Kidd (1988) cite the need for longitudinal prospective studies in order to accurately assess the associations between fall risk factors (e.g. interactions between intrinsic and extrinsic factors), the occurrence of falls, and fall outcomes (e.g. frequency of falls, whether an injury results, and level of injury severity). The authors claim that researchers do not know all the factors that contribute to falls and fall-related injuries or how personal and environmental factors interact to cause a fall, as persons frequently cannot explain the causes or circumstances surrounding fall events. In one prospective study, one quarter to one third of the participants reportedly, did not remember a fall that occurred 36 months earlier. These findings were not supported in the present study, with all participants clearly able to relate the circumstances surrounding their fall.

Circumstances Relating to the Current Fall The majority of participants (8), were in the company of other people when they fell, with all falls occurring in the day time. Circumstances surrounding the fall were varied - six participants fell inside their own home and one participant fell inside someone else's home whilst visiting. One participant fell outside in their garden and the remaining two participants were away from home when they fell - one at a social function and the other, outside whilst walking the dog. Only one of the participants was alone and unable to summon help after falling. Three participants sustained open head injuries from the fall in addition to the hip fracture. All participants reported inability to stop themselves from falling, possibly a result of reaction/reflex deficits attributable to increased age.

The Length of Hospital Stay The length of hospital stay (LHS) varied considerably. The longest was 55 days and the shortest was 7 days, (mean LHS 24.7 days). Magaziner et al. (1997), who studied functional status of hip fracture patients over a year following hospital discharge, found patients who had longer hospital stays had the poorest recovery. In the present study LHS was related to poorer post-fall functioning and fear of future falls and supports previous research whereby LHS is associated with poorer recovery (Magaziner et al., 1997). In all cases where participants has a prolonged LHS (55, 49, 43, & 26 days), there was, as may be expected, a high rate of co-morbidity. This may also be related to more impact from hip fracture in relation to limitations in post fall functioning.

In the present study the length of hospital stay was associated with an increased fear of falling and subjective appraisal of increased risk of future falls (this is covered in more depth later). As length of hospital stay was also associated with the degree of co-morbidity in the present study, in support of the previous research, it may be expected that those who appraise their health as poor undergo greater erosions to self-efficacy following a fall and sustaining a hip fracture.

Post Surgery Complications Information received at interviews included reports of any post surgery complications. One participant had since been hospitalised for thromboembolism of the leg that had caused him considerable trauma. He reported considerable anxiety in relation to this occurring again and was worried about the effect it could have on his heart. Another participant was experiencing ongoing urinary infections, which sometimes happens due to the necessary insertion of a

catheter following surgery. One participant had since experienced a stroke (though it is not clear whether this was related to the hip fracture). Three of the participants had experiences at least one additional subsequent fall following their hip fracture.

Environmental Modifications Factors in the environment which may assist post fall functioning and serve to decrease the likelihood of future falls are an important consideration in fall rehabilitation and prevention. All participants had environmental modifications made to their homes as a standard service offered by the public hospital system. These included (where not already fitted) hand rails in the toilet and bathroom, and a shower hose and shower chair, an ordinary chair and a commode or toilet seat, if desired. All participants were able to leave the hospital with a walking frame, a walking stick, and in one case, a wheel chair to suit level of functioning and preference. Six of the ten participants were receiving some form of community care for assistance with house-work. Not all provision of services was a direct result of the hip fracture, but when added to pre-existing health decrements, the impact of the fracture was augmented.

Biological Functioning - Appetite The impact of hip fracture upon the appetite of many of the participants in the present study was significant, with most reporting decreased appetite following the trauma of the hip fracture and subsequent surgery. All reported initial disturbances, with most experiencing enduring changes to appetite levels.

Lack of exercise due to activity restriction, including curtailments to outdoor activities may also be a mediating factor. Inability to manage ADLs was also apparent in some cases with some participants reporting cooking less or not at all since their fall and of losing a considerable amount of weight, which further

increases the risk of osteoporosis and of further falls. One participant reported feeling a state of shock after her hip fracture and of losing a considerable amount of weight. She said; “ The first few days I didn’t eat very much, I think it must have been the shock or something...I lost a lot of weight going from a size 14 down to a size 10”.

Another participant no longer cooked hot meals since her hip fracture, partly because it required standing for longer periods and also because she had no appetite for meals such as hot dinners. She reported; “Sometimes I’ve got to make myself eat. I don’t cook, I just have sandwiches. I’m frightened to go near the stove in case I get burned. I’d probably shake all over the place”.

A reduction in activity levels was commonly reported and this seemed to have an adverse impact upon the appetite of many participants. A typical comment was as follows; “I’m eating a lot less now...probably because I’m not active enough”.

Adequate nutrition, important throughout life, can be a mediating factor between life and death in the elderly who have suffered a hip fracture. Protein is drawn from the decreased reserves in underweight, older people (as part of the metabolic response to stress) and can rapidly develop into serious under-nutrition with only minor stresses. In one study eighteen percent of severely undernourished fractured femur patients died compared with four percent of well nourished patients of similar age (Lipski, 1993). Although findings were related to pre fracture nutrition, post fall nutrition is also important in mediating post fall recovery.

Biological Functioning - Sleep When asked about comparisons in quality of sleep, many participants reported a deterioration in ability to sleep since their fracture - mainly due to a necessitated revised sleeping position as the following

comment by one participant illustrates; "I don't sleep as much because I can't sleep on my left side".

One participant reported being unable to find the same degree of comfort when lying down following her hip fracture. She said; "I toss and turn trying to find the most comfortable spot".

Another participant who reported feeling rather depressed following her hip fracture found herself lying awake for hours ruminating. She was reluctant to take the sleeping tablets prescribed by her doctor, but usually had to succumb in order to fall asleep as indicated in the following quotation;

"I sleep very badly...I'll go to bed at half past nine say and it will be 3 O'clock or half past 3 and I haven't even got a sign of going to sleep, so I take a sleeping tablet and I swear I won't take one the next night".

Content Analysis

Further analysis of the latent content of the dialogue provided an interpretative reading of the symbolism underlying participants' responses. Falling and sustaining a hip fracture was evidently a major life event for the participants in the present study. A profound psychological impact from the experience was identifiable throughout much of the content of the interviews. A theme relating to lack of self-efficacy was apparent in the way in which participants described a sense of loss of control and mastery over their lives. Further implicated in self-efficacy was a loss of confidence in functional ability and fear of future falls leading to curtailment or withdrawal from activities.

Self-Efficacy

Tinetti and Powell (1993) suggest fear of falling is best defined as “a lasting concern about falling that leads to an individual avoiding activities that he/she remains capable of performing” (p. 36). This suggests a self-imposed activity restriction which is unrelated to ability and more likely related to anxiety about falling. As previously reported, self-efficacy and confidence are more helpful concepts in understanding a propensity to develop fear of falling. Degree of confidence in carrying out daily living activities with the inhibition of fear of falling is likely to impact considerably upon the physical, social and mental health status of independently living older adults.

Those who are afraid of falling or do not have sufficient confidence to perform activities without the fear of falling have been shown to function at a lower level and to be less active (Arfken et al., 1994, Tinetti & Powell, 1993). Although an adaptive fear of falling may promote effective coping skills for falls prevention excessive fear and loss of confidence that impacts upon self- efficacy may be maladaptive in that it may compromise the quality of life of independently living older adults.

Vulnerability Participants commonly reported feeling vulnerable since their fall, which impacted upon self- efficacy. Taking extra care and caution in movements and activities in order to minimise the risk of future falls was frequently mentioned. This displays a sense of eroded self-efficacy evidenced by lack of confidence in ability.

Fear of falling again was very evident in some participants interviewed in the present study. One participant was still quite (psychologically) dependent upon a wheel chair for moving around the house which was fully tiled. This seemed to

provide a feeling of safety for the participant who felt more secure whilst in the wheelchair and at less risk of falling again. Although he reported an ability to walk with crutches he avoided this when possible due to intense fear as shown in the following quote;

“Since then (hip fracture) I’m terribly wary about walking even now I’m terrified of walking. I can walk on my own, but in the back of my mind I’m frightened of falling again. I do walk but only with crutches, such a bad break I’m terrified of falling again. I can’t get about the same. I can’t walk around Fremantle the same, I can’t do that now, I’m not as strong... I’m frightened about what I do from now on, because oh I’m 82 now and the things I love to do, I’m frightened to do it. I want to go out and clean the fish pond and I’m frightened to get up and do it”.

Unfortunately continued severe restriction to physical exercise may exacerbate erosions to self-efficacy as confidence in ability is impeded. Arfken et al. (1994) report that fear of falling in itself may be directly related to likelihood and incidence of falls, when restricted activity leads to deconditioning of the body and associated bone and muscle atrophy and deterioration. People most afraid of falling have been found to have a poorer quality of life and more likely to experience future falls. Studies (Howland et al. 1998; Tinetti & Powell, 1993) have therefore established the importance of fear of falling as a targeted outcome for intervention.

Other participants also echoed this enduring fear of future falls. One said; “My biggest concern is having another accident”. Another participant felt that he was

actually deteriorating in self-confidence and stated; "I've gone backwards - fear of falling again I guess".

Loss of flexibility and physical strength. When asked to compare pre and post fall functioning as related to changes in activities, most participants reported a reduction in flexibility and physical strength and inability to function as well as before their hip fracture. One participant could not bend over very far, especially on the side of the hip fracture and relied on his wife who was severely cognitively impaired (and present at the interview) to assist in fastening his shoe shoes and washing his feet when in the shower. He reported; "I want to fasten my boots I can't. She does this one for me and puts my socks on. I can't clean my feet either so she has to come in the shower with me". The same participant was also unable to tend to his garden to the same degree following his fracture and said; "I can't garden I can't bend down too much. I do things in the garden standing up but er, I can't mow the lawn or anything now".

One participant felt she had slowed down and was generally less energetic all round. Her evaluation of ability to manage now compared to before her hip fracture was as follows; "I'm just slower. .it's really put the brakes on me". Another participant felt cumbersome in her movements since her hip fracture as reflected in her comment; "I suppose I'm a little more awkward in things. I'm very awkward and I can't get round the same now".

A loss in physical strength was mentioned and this impacted on many participants ability to manage housework. One participant said; "I do a lot less housework because I can't push the vacuum round".

Performing simple tasks around the house proved difficult for many participants as a result of loss of stamina and dexterity. One male participant reported general feelings of lethargy and weakness since his hip fracture as his following comment illustrates:

“I don’t seem to have much strength in my hands now that’s one thing that seems to have gone. I took a plug off and I couldn’t get it back again. I got it back eventually but those sorts of things I find hard. Also I used to do a lot of work on the car which I can’t do now”.

Reduction of activities. Compromised social interaction, increased risk for isolation, depression and anxiety are all correlates of self-limited activity associated with fear of falling. This may compromise quality of life by limiting social contacts or leisure activities (Lachmen et al., 1998). Many participants reported a reduction or abandonment of activities and interests since their hip fracture. One had curtailed the amount of dancing which he and his wife used to do regularly before his fall and one participant reported not venturing outside very often since his fall. Although he used to enjoy shopping, this had now ceased. He reported; “I used to go out shopping before I had the fall. I’ve never been since the fall- I haven’t been anywhere”.

Reliance upon assistive aids. Only a minority of participants (three) had regained a sense of confidence in their ability to walk unaided, most relied upon assistive aids to move around and manage ADLs. One participant still used crutches to move around the house, and said; “Oh I couldn’t get there (kitchen) without them (crutches), I’d be wobbling all over the place”. One participant felt unable to move around the house without his walking frame and said; “I’m dependent on this thing (walker) now”.

Another participant who was previously very independent (according to her daughter) also expressed reliance upon assistive aids in performing daily activities such as transferring from bed to the toilet as illustrated in the following quote; “I don't think I could manage without the rail by my bed getting up and getting on the commode, and I know I couldn't go back to a proper shower”.

Coping response. Although some degree of caution may be an adaptive coping response, in its extreme, fear of falling can be immobilising by creating debilitating anxiety that impacts upon enjoyment or interferes with an activity. Some participants reported a state of hyper- vigilance indicative of a trauma response to their fall. Various participants expressed caution in their movements. One participant said; “I'm always cautious see. I don't get up on my stool because I still feel that I've got to be careful”. Another mentioned; “I've got to be very careful I don't trip. I just take one day at a time and watch myself”. Another participant remarked that he consciously thought about falling whenever he walked saying; “I just play it very cautious now, it's just..I think before I step, whereas before I just used to step out”.

Some participants reported that they didn't think about falling again, because they felt it was unlikely to happen as they were being cautious. Therefore participants were *implicitly* thinking about falling, and their coping response was to modify their behaviour in order to minimise the risk. One participant told me; “I haven't any thoughts about falling again because I'm going to be so careful”.

Another participant when asked if they had any thoughts about falling again replied; “I take every precaution now, so I'm not going to fall”.

Self-Concept

A theme of self-concept also emerged from the data which related to text which implied a re-appraised sense of self as aged and frail following the hip fracture and also to reports of feelings of worthlessness. Whitbourne (1985) reports that the particular way in which psychological adaptation affects self-esteem is thought to occur through the mechanism of the body image, or bodily self-concept. Definitions of these provide a sense of what is meant with respect to feelings of bodily competence whereby the individual's self-appraisal of the adequacy of the body is influenced by how it copes effectively with the environment in which they carry out their daily activities.

Re-appraised sense of self as frail and aged. Some participants reported that whilst they felt very fit and expected to live for many more years prior to the hip fracture, the experience had aged them considerably. As a result of the injury and concomitant inability to function as before, many now saw themselves as frail and aged and felt their future life expectancy was now very much reduced. One participant was quite certain the hip fracture had robbed him of what had one been for him a long and productive old age. He felt this had been foreshortened by the hip fracture and post-operative complications of surgery, as his comment below shows;

“You don't get better at this age, you go down the scale. You're not going to improve. I was ready for a hundred. I was going to knock a century off. I'll not get to a 100 now. I can't exercise. I started (rebuilding a wall) and then this happened and I can't finish it now”.

Another participant reported feeling very limited in his capabilities and as with the previous comment, also did not seem to hold any hope for improvement

“Oh well, I’ve gone backwards...I can’t work outside and I can’t do the housework ...I’ve lost an awful lot of confidence. Before the fall I used to go to town a lot. I used to love going to town and walking - I was a good walker- not now”.

The perception that she had aged since her hip fracture was also expressed by another participant. She said: “I think it’s aged me. I said to myself the other day, I think it’s aged me 10 years. I’m hoping I’ll be as I was before but I can’t really see it”.

A sense of frailty was now evident in some participants and almost a sense of resignation to the fact that they were becoming older whereas before the fall , they seemed to feel a sense of hardiness and robustness despite their advancing age. One participant remarked; “I don’t kid myself, I am a lot frailer. I don’t know whether it’s having the fall that as I said, put the brakes on me and, but er I’m slowing down with my age too I think”.

Another felt the experience had a detrimental cognitive impact on her and wanted her daughter present at the interview as she lacked confidence in remembering facts. When reporting the date of her fracture which was corrected by her daughter, she replied; “Oh what am I talking about - see my whole mind is just slipping through”.

Self-Consciousness. Whitbourne (1985) states that self-esteem is also derived from the physical functioning of the body, and also by the way that the body is judged by others as socially valued and acceptable. This has particular relevance to

decrements in functioning and appearance (reliance of aids) with respect to hip fracture. Some participants were very conscious of the way they appeared to others when using assistive walking devices. It was common for participants to be very conscious of using walking aids. They were concerned both about the image they portrayed to other people and the use of aids also impacted upon their self-image and self-concept. When asked whether he had used the frame for long following his surgery on participant replied; "The frame reminded me of old people, so I'd rather have the crutches which I could get rid of. I only had the crutches for a couple of weeks and then I got the stick". Another remarked that she hated taking the walking stick when leaving the house because she felt it aged her and said; "Oh, it just makes me feel old. I don't like it you know".

One participant refused to use a conventional walking frame, and managed to find one which she felt resembled less of an assistive walking device and more of a shopping aid. Her comment was; "I was embarrassed about taking it (walker) out. This doesn't look like a frame, it just looks like a shopping trolley".

One participant was self-conscious of the way in which her hip surgery had affected the way she walked (unaided). She was conscious of a slight limp and of not appearing to walk straight. She was most conscious of this when in public and felt people may be watching her and noticing as her comment shows; "I find when I walk I'm very conscious of what I look like. I hate to think you know...but I notice if I put my hands behind my back, I walk much straighter".

Self-worth. A sense of worthlessness and self denigration and self blaming in relation to the fall was common and supports findings from Lawrence et al. (1998) who found older adults tend to blame themselves for falling which undermines

positive self- concept. One participant remarked in relation to her fall, “I keep cursing myself for being so stupid..it was just a stupid mistake”. Another said; “I was just clumsy and I did it and I’ve got to live with it for the rest of my life now - I’m a damn nuisance to myself”. Another also berated herself saying; “I just say to myself, what the hell did I do that for. I just get so mad at myself because I can’t do a lot of the stuff”. This sense of frustration was apparent in one participant when she was reminded of her limitations when using a walking aid. She said; “I feel cross with myself pretty often, especially when I’ve got to grab the walker all the time for my balance - I just get frustrated with myself”.

Themes Reflecting Social Support

Domains which incorporated social support were also identified and these were categorised into two areas, one of which was information relating to support from family members. Included in this themes were issues of increased dependency on, family members following hip fracture and also the interaction between the participant and family members.

Family and friends Howland, Peterson, Levin, Fried, Pordon, and Bak (1993) suggest that social support may serve as a buffer to the debilitating consequences of fear of falling. Those elderly who are afraid of falling may benefit from discussing their fears with friends, relatives and health care providers and developing supportive networks in devising and implementing individual fall prevention strategies. Support from family and friends (who may encourage activity) is an important prerequisite for continuing to remain active even when fear of falling is present. However unless longitudinal studies are undertaken which include retrospective data, it is not possible to ascertain whether activity curtailment is a

cause, or result, of social support. Others may be prepared to take risks and remain active if they have knowledge that they can rely on others to offer support and help in need. Those who do not feel they can rely on friends and family in times of crises may be less likely to risk a fall and feel particularly vulnerable to losing their independent living status (Howland et al. 1998).

Although social support has been shown to have significant impact on life satisfaction, particularly in the older population, social support may actually lead to increased dependence whereby well meaning friends or relatives constantly remind to be careful or do things for the person; comments such as “don’t do that, you might fall” actually may erode confidence (Tinetti & Powell, 1993). Although family members were not interviewed in the present study, comments made during the interview by family members were noted. Some such comments may inadvertently have impacted upon the participant’s confidence in their ability to function, particularly those who did not appear to be functioning as well as others. This is not to infer that caution and attentiveness on the part of family members is causal to lower functioning; it may well be a result of this. However it was noted in the study that there did seem to be a correlation with lower self- efficacy in participants and solicitousness and apprehension expressed by their spouse. The wife of one participant told me;

“I have to get up as well (during the night) and make sure he doesn’t fall over. If I have to go shopping, I just go and I make sure everything’s right here and he’s settled and everything’s near him. We have a cordless phone and I take a mobile and it’s all programmed ready in case he needs me”.

One spouse remarked; “She can’t go in the bath because if she sits in the bath, she’d never stand up”. Another spouse also expressed concern around her husband’s use of the bath; “I get the bathroom ready for him to bathe carefully with something (towel) in the bottom of the bath”.

Some participants were cognisant of the hyper vigilance of their family and expressed resentment. It was noted that these participants (different from those implicated in the above comments) were functioning much more highly and showed resilience to erosions in self-efficacy. One participant expressed exasperation at her husband’s concern as the following comment reflects;

“He watches me and if I’m out the back and he talks to me from in the lounge there and I don’t answer him, he’ll come looking to see if I’m all right .. it annoys me the fact that he’s always concerned about me and that all the time”.

One participant refused to succumb to her daughter’s “fussing” and remarked; “You know my daughter insists on “don’t get out the car mum, I’ll come round and help you” and I’m out and half way down the street by the time she comes round”.

Dependency Previous research has found that those people considered well enough to return to community living have often been found to undergo a permanent reduction in functioning, precipitating loss of independence and reduced quality of life (Tennstedt et al., 1998). Although there was a high degree of morbidity in the current sample, many considered themselves independent and high functioning prior to their hip fracture. Gallagher, Hunter and Scott (1999) examined the concept of health within illness whereby those afflicted by arthritis stroke etc. may still be

living full, healthy lives. However their affliction predisposes them to a greater risk of falling and if they do so, their existing independence is severely eroded and quality of life is reduced.

Falling and increased dependency have also been shown to adversely affect mood and self esteem and impact upon life satisfaction (Commodore, 1995. Tennstedt et al., 1998; Tinetti et al., 1994). A hip fracture is often a turning point in the lives of many elderly people. Inability to resume independent functioning, relocation to an assisted living or long term care setting, pain and increased difficulty moving, fear of another fall and fracture, loss of family environment and home, and loss of self-esteem may occur (Tennstedt et al., 1998). For those who live alone in the community, a hip fracture can be a crisis. Their sense of independence may be seriously eroded to a greater degree than those elders residing in nursing homes receiving assistance with daily living activities, or those with a supportive family member. Those elderly people (whilst still no doubt greatly affected by a hip fracture) have already made that psychological adjustment to the realisation that they need others to help them manage their life. Therefore it may not be the disease per se but functional limitations resulting from the disease that impact upon disability and increased dependence (Johnson & Wolinsky, 1993).

In the present study several participants expressed increased dependency upon family. A son of one of the participants brought home cooked meals to his parents' house and stored a few days supply in the refrigerator. The participant also acknowledged that he was dependent upon his son to carry out for certain jobs around the house, which he had previously undertaken himself such as taking down curtains to wash. He acknowledged; "I'm depending on him for certain things".

Another participant had restricted her outings substantially since her hip fracture, though she mentioned that she had also had a long bout of influenza and the wet weather conditions also affected her desire and ability to go out. She reported that she was less likely to use public transport as she always had before, on the occasions when she did venture out doors. Her dependence upon her family for transportation had increased substantially and she commented; “I’m relying on them (family) picking me up and taking me places instead of going on busses myself”.

The spouse of another participant was severely affected by arthritis, and he mentioned that he had been his wife’s “chief carer and cook and bottle washer” up until his hip fracture. They were now reliant upon a carer to help with many ADLs and he commented; “I’m dependent virtually on the carer coming in now”.

Psychosocial pressure Evidence of psychosocial pressure (Tinetti, 1993) arising from increased need for social support from families was apparent in some participants. One participant felt that she was at times a burden upon her daughter who, although she lived nearby, was working outside the home. She reported that she was anxious to leave hospital but felt that as she lived alone, her daughter had to take on the role of carer as although previously independent, she was now severely restricted in her ability to manage by herself. Her comment illustrates this;

“The only thing I worry about is I throw too much on my daughter you know. I feel I’m throwing a lot on her which she should not have to do, I don’t want to have to do it you know, and I keep as much away from her as I possibly can”.

Another participant also expressed increased dependency on her family following her fracture. She commented;

“I have been so able to look after myself and I’m more or less reliant on them now (family)...She (daughter) doesn’t like housework either..sometimes I think she’ll come in and do mine when she should be doing her own”.

Health Services Categories reflecting social support mediated by health service delivery, practices and policies also emerged consistently throughout participants’ narration of their hip fracture experience. Aligning with this theme was a desire for more knowledge of outcomes following hip fracture; the desire for greater contact with health professionals and services, and for more extensive rehabilitation. In the present study two participants had sought independent treatment from physiotherapists in the weeks following their hip fracture and felt this had helped their progress enormously, both physically and psychologically.

Lack of personal knowledge in relation to hip fracture Lachmen et al.(1998) report there has been increased attention to the role of falls as a public health issue in the U.S., which may have resulted in increased awareness of the likelihood and consequences of falling and a concomitant increase in fear of falling amongst the elderly. This was not supported in the present Western Australian study in which all participants were unfamiliar with anyone else who had sustained a hip fracture and therefore were unclear about what to expect in relation to the expected recovery period and their subsequent ability to perform activities.

Some participants expressed uncertainties about symptomatology they were experiencing following their operation. This vacuum of information and awareness

would presumably heighten participants' fears of the outcome of their hip fracture as they had no prior knowledge with which to allay their fears. The desire for longer follow-up contact and reassurance from health professionals was apparent from participants who had been worried about symptoms following their discharge from hospital and had sought further self-referred medical advice and reassurance. One participant remarked; "I was wondering about the burning feeling I was getting on the side...but once I'd been to the physiotherapist, it put my mind at rest and I stopped thinking about it then you know".

Another participant reported feeling uncertain whether the "heaviness" she felt from her hip surgery was to be expected. Her comment was: "I had a heavy feeling here (hip) and the doctor sent me off and I had it x-rayed and there was nothing wrong with it so I was happy enough".

One participant was unsure how long it should be taking him to return to a closer approximation of pre-fall functioning. His uncertainty is reflected in the following quote; "I didn't know what to expect. How long does it really take to recover? I've heard up to about 5 months".

Desire for more extensive rehabilitation and follow-up contact from health professionals Although most of the participants in the study lived with a spouse, those participants who lived alone and those who were the main carers for their spouses expressed a desire for longer rehabilitation following the acute care phase, prior to returning home from hospital. One participant who cared for his wife said; "I felt it wasn't time to come because I knew I wasn't fit". Another participant who was a widow remarked;

"I don't think there's enough...after you come out of hospital,

there's not enough going back to see the doctor or physio' (unless self-initiated)..whereas they could go to the doctors and the doctor could say "oh you're doing fine". I think you need rehab' for another week or fortnight..I don't think a person should go home on their own...They (family) can't boss you around; You take it from the medical staff because they know what they're doing".

The above comment supports research which cites that adaptations to chronic illness or a loss of functioning is enhanced by having an effective system of social support. Effective social support depends upon a match between what one needs and what one receives from those within one's social network. Different people within a social network are valued for providing different types of support. Emotional support is valued from those we are closer to at a personal level, while information and advice are valued from experts (Dakof & Taylor, 1990).

Longer contact with health professionals has also been advocated in previous research into outcomes following hip fracture (AAOS, 2000). Reducing the length of stay for hip fracture is believed to lead to a fragmentation in the care of hip fracture because the acute hospital phase is cut without enhancing and co-ordinating the post-acute phase, including rehabilitation and home support. The burden of care shifts to families at a tremendous emotional cost. Often there is a sudden loss of follow up care after hospital discharge and the patient is cut off from the previous day to day relationship with medical staff, resulting in a feeling of isolation and uncertainty in relation to capabilities and limitations (AAOS, 2000).

In the opinion of AAOS (2000), following hip fracture the patient should regain independence in activities of daily living and ambulation before discharge from the acute-care setting. Instrumental activities of living (shopping, cooking, housework) may require assistance in the early post operative stage, though basic activities of daily living (eating, bathing, dressing) are often achieved before discharge. Patients who did not function independently before the hip fracture and those who do not progress rapidly in the hospital and inpatient rehabilitation setting are candidates for a subacute rehabilitation or long-term care facility. The ideal is to establish a patient care model, based on functional patient needs and return of the patient to the highest possible activity level after hip fracture.

Lack of dissemination of information As a result of the ageing population, family physicians are increasingly likely to participate in the care of elderly patients suffering hip fracture. However one participant who had attended her own G.P. for her six week check-up (being closer proximity than the hospital) felt unsupported by her physician's lack of knowledge in relation to hip fracture as her comment below shows;

"The first time I went to see her (participant's own local GP) she said "I know nothing about hips at all". I wanted to know, did I have to do this and do that and when I'd got to stop doing it (exercising) and so forth and they (when the G.P. contacted the hospital) said when she feels she can stop it, stop it. That it was you know, when she feels like it...so it's not really good enough I mean to say".

As proposed by Norton (1999), dissemination of information pertaining to the management, treatment and rehabilitation of hip fracture among health professionals and between health professionals and patients would be beneficial. While traditionally the domain of orthopaedic surgeons and physiotherapists, information for follow up care after discharge from hospital could be disseminated to General Practitioners, who are increasingly likely to come into contact with older people who have suffered hip fracture. This would facilitate easier integration from the primary care facility back into the community. A Falls Intervention Database which includes a critical appraisal of 130 fall prevention programs has been developed at the National Research Institute in Victoria, Australia. The purpose is to promote and facilitate the sharing of valuable information and resources in addition to being responsive to outcomes (Gilsenan & Hill, 1999).

Uncertainty in relation to medication Participants were reluctant to take analgesics and seemed unsure of the benefits of pain relief in assisting post operative functioning. One participant felt that masking pain symptoms would mean he would be unable to accurately monitor his state of health, or that further damage to the hip might result if he was unaware of the pain sensation, which he saw as a signal to take caution. He commented;

“I’ve heard of people having an injection to kill the pain in a bad back and they walk around and don’t know what harm they’re doing because they can’t feel it. If they hadn’t had a pain killer and they had the pain, they would go careful and do things differently”.

Although expressing that he was still in a lot of pain, another participant also said that he did not like the idea of assisted pain relief by way of medication. Even during hospital during the acute care phase, he was non compliant with the medication regime. He said; "I soon got off that (morphine). They used to give it to you daily in the capsule, I'd wait till they'd go and throw it out".

Positive reinforcement Information from health professionals in the form of comments and reassurance would seem to have been largely offered to participants in the study, rather than participants taking a proactive stance in asking for information. However participants would seem to have paid a great deal of attention to comments made by medical staff and were able to repeat these verbatim in many instances. Even though some comments may be inadvertent, many positive comments appear to have impacted greatly on participants' expectancies and self-efficacy. During the six week follow-up appointment one participant relayed comments made by the doctor of which he seemed very proud. He reported;

"The doctor looked at the X ray and he said "oh that's healed nicely, there's nothing wrong with that". He said "let's see you walk"...and he said "we don't want to see you again" - the exact words he said!"

Another participant was only home from hospital for two days before she ventured out in the car - and was very proud of her achievement. Comments by medical staff seemed to be largely responsible in giving her a sense of self-confidence in her ability to achieve this as the following comment shows; "I said to them can I drive a car? And they said as long as you're comfortable sitting in it and you feel as though you can do it, go ahead".

Results of Assessment of Depression

The mean score of the GDS in the present sample was 5.4 ($SD = 1.6$) with a range of 6 (highest score was 8, lowest was 2). A score of more than 5 indicates possible depression. The participants who reported fear of future falls and eroded self-confidence also scored highest on the GDS. Therefore in the present study there appears to be a correlation between lowered self-efficacy and depression. The same participants were also more dependent upon family members and/or community services. Items reflecting consistency in responses were as follows;

Item 2: "Have you dropped many of your activities and interests"? was endorsed positively by nine of the ten participants and reflects decrements in functioning capabilities.

Item 13: "Do you feel full of energy?" was endorsed negatively by eight participants. (Though given the participants' ages, prevalence and degree of comorbidity, and nature of injury, this is not surprising).

Item 4: "Do you often get bored?" was also endorsed positively by six of the participants and may be primarily attributable to lowered energy levels and the restriction of activities reflected in scores on items 2 and 13.

Item 8: "Do you often feel helpless?" was endorsed positively by six participants, which again may be directly attributable to their inability to carry out previous activities and also may be correlated with loss of confidence and fear of future falls.

Item 5: "Are you in good spirits most of the time?" was endorsed positively by all participants, which is in direct contrast to the elevated depression scores of six of the ten participants.

Item 14: "Do you feel that your situation is hopeless?" received no positive endorsements.

Item 1. "Are you basically satisfied with your life?" Item 7. "Do you feel happy most of the time?" and Item 11. "Do you think it is wonderful to be alive now?" were all endorsed positively by nine out of ten participants. Again this is in contrast to a general understanding of depressed mood indicated by elevated scores, and may indicate that where there is indication of depression in the current sample, it would seem to be a form of reactive depression (more specific to limitation imposed by hip fracture and related trauma), rather than endogenous (global) depression.

The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; APA, 1994) criteria for major depressive episode excludes symptoms attributable to a general medical condition. The GDS may not be an accurate measure of depressed mood in older people who have sustained a hip fracture. Items relating to psychomotor activities reflecting reduced activity levels (inherently a component of depression) in the current sample are more likely to be indicative of a physiological limitation rather than a psychological correlate of depression. Those items which would seem to be more indicative of global depression and which may be a more direct indication of depressed mood did not reveal depressed mood in the present study. An alternative explanation of this could be that the present sample was recruited from the community, with all but three participants living with their spouse. The presence of strong social support (whether perceived or otherwise) has been a well researched protective factor from depression. Had the sample been recruited from a nursing home (as with many previous studies), it is likely that items

reflecting components of depression other than decreased activity levels would be scored in the opposite direction to the present sample.

According to Gallo and Rabins (1999), another explanation for not detecting depression include a lack of awareness that depression is a distinct and treatable illness and a reluctance to divulge psychological symptoms perceived by them as shameful. According to Dick and Gallagher-Thompson (1996), many older adults are not socialised to discuss their difficulties in psychological terms: “a phenomenon that may reflect their cohort’s beliefs about the reputation of psychology and psychiatry when they were young adults” (p. 88). Poor mental health may hold negative connotations for older cohorts who grew up in an environment in which institutionalisation was the norm, rather than the present outpatient and client centred focus on mental health issues. Participants may have been reluctant to give an honest answer to items they perceived as being socially or morally unacceptable or as being a source of distress to those present. During the present study, only two of the participants had no-one else present during the interview and administration of the GDS; seven participants had their spouse present and in one case the daughter of one participant was present. It is acknowledged that this could have exerted influence over responses, especially those for the GDS.

Implications For Future Studies

Future studies could include information from the families (particularly spouses) or friends of those elderly people living in the community who have suffered a hip fracture. This would be helpful in amplifying knowledge surrounding the impact of hip fracture on the elderly, but was beyond the scope of the present study. Those

members of the family who *were* present during the current study tended to want (and indeed, felt they needed) to contribute to the interview. Although they were allowed to be present (which seemed to help participants to relax and make the interview appear less formal), it was the subjective responses of the actual participants which was the target of the current analysis. This is not to diminish by any means the apparent impact of hip fracture on spouses and family members, who obviously felt very much part of, and affected by the whole experience.

Tinetti and Powell (1993) suggest that fear may be under reported in relation to falling, as dichotomous measures of fear are ineffective in eliciting a clear description of the psychological effect. Tinetti and Powell (1993) developed an instrument measuring efficacy (The Falls Efficacy Scale), based on Bandura's theory of self-efficacy (Bandura, 1982; Bandura, Adams, & Beyer, 1977). Bandura's theory postulates that it is not only a person's true capability that determines the performance of specific behaviours, but also the perceived capability (i.e. level of confidence) that influences behaviour. In the present study, participants readily identified a fear of falling when provided with adequate scope to respond in a face to face interview. Self-efficacy was implicated frequently in reports of current functioning in the present qualitative study and suggests that the level of confidence in performing certain tasks without falling is a major correlate of the actual performance of those and related physical and social tasks (Tinetti & Powell, 1993). In accordance with these authors, an efficacy measure rather than a fear measure would seem preferable for use in future epidemiological and intervention studies, in particular research which is reliant upon quantitative measures.

General Discussion

Findings from the present study, in particular information which relates to care and caution which restricts movement and activities, support previous research showing that after falling and sustaining a hip fracture, fear of falling again and fear of additional fractures are common. These findings relate to the current research questions which seek to identify the impact of falling and sustaining a hip fracture upon the lives of older people and whether there are any subjectively appraised psychological and/or social consequences of hip fracture. An enduring fear of future falls both explicitly and implicitly was evidenced both by overt statements by participants in the present study and was also apparent in curtailment of activities including housework, gardening, hobbies, shopping and social outings. Most participants in the present study rated their ability to function as far inferior since their hip fracture and have reappraised themselves as frail and aged whereas before they perceived themselves as relatively high functioning for their age, compared to some peers.

Previous research (Lord et al., 1993, Tinetti & Powell, 1993) has found that compared with non-fallers, fallers are more likely to rate their health as fair or poor and to subjectively assess their balance as unsteady, and their risk of falling as moderate or high. The present study supports research which suggests that although this may be expected in the light of having experienced a fall, it could also be attributable to eroded confidence and self-efficacy leading to increased dependence and loss of mobility.

Debilitating effects from hip fracture included emotional and psychological problems such as depression, anxiety, sleeplessness, feelings of vulnerability, reduced sense of confidence and competence in performing activities that are inherent in mediating self-efficacy. Current findings concur with previous research (e.g. Commodore, 1995, Tennstedt et al., 1998, Tinetti et al., 1994) that found falls to impact on self confidence and cause people to avoid previously performed activities. This sequence of reactions results in participants becoming more house-bound. According to Commodore (1995), up to 25% of those who have fallen limit their daily living activities either by becoming less mobile as a result of their fall or by increased dependence upon others to assist out of fear of future falls. The percentage in the current study is estimated to be much higher, with eight out of ten participants reporting either a cessation or curtailment of activities.

Increased dependence upon family was an outcome for five participants and although positive social support can be beneficial, studies have concluded that fallers who depend more on others to assist with daily living activities in an attempt to reduce their risk of falling perversely predispose themselves to future falls (Commodore, 1995, Tinetti et al., 1994). Reduction in self-efficacy is likely to be attributable to an enduring sense of vulnerability and lack of opportunity to develop a sense of confidence and competency in ability to perform ADLs. Rather than reducing their risk, by depending on others and not having the opportunity to develop and build upon their own competencies, participants may actually be increasing their likelihood of falling again.

There is a substantial need for strategies to enhance post-fall rehabilitation and facilitate more effective re-integration into the community for those elderly people

who sustain hip-fractures. The aim of this study has been to provide a primary source of information to determine the impact of falling and sustaining a hip fracture in a sample of community living older people. This is in order to establish appropriate target areas for intervention as defined by subjective accounts of post-fall sequelae and functioning. In the present study, self-efficacy would appear to be the psychological attribute mediating optimal return to pre fall functioning levels, and an identifiable area for enhanced rehabilitative interventions by health practitioners especially physiotherapists, occupational therapists and psychologists. This would increase confidence in physical capabilities and enhance bodily self-esteem with a resultant positive impact on self-concept.

The psychological impact of falling and sustaining a hip fracture cannot reasonably be addressed during the acute hospitalisation period. The need for prompt mobilisation and re-establishment of independent living for those patients living in the community, together with consideration of the cost of acute medical care and the need to free facilities for other patients who are in need of treatment have to be considered. However the present findings support previous research which concludes that the psychological ramifications of a fall that results in hip fracture amongst older people cannot be underestimated. Self-efficacy would seem to be a powerful influence in restriction or curtailment of activities after a fall. Diminished confidence and sense of competence may be built upon as recommended by Tinetti and Powell (1993) by commencing with simple tasks to make personal accomplishment an achievable reality. Self-efficacy is then increased to lead to the attempt of more complicated tasks and a sense of personal achievement and mastery over feelings of vulnerability and dependence.

A holistic approach to treatment and rehabilitation which incorporates a cognitive behavioural approach has been found to be effective in reducing fear of falling and associated restrictions in physical and social activity (Tinetti et al., 1994). Using this approach, cognitive restructuring in relation to attribution (e.g. maladaptive thoughts such as negative expectancies and self-blame for the hip fracture), may also help in alleviating depressed mood (Lindsay & Powell, 1994).

The provision of psychosocial support by way of information and education, and the dissemination of information and vicarious experience by peer support groups and leadership could also be beneficial. Older adults should have the opportunity to be exposed to positive role models who have experienced falls and effectively coped with their fear of falling by remaining active. Education strategies such as video or audio tapes on loan upon discharge from a hospital library and ongoing physiotherapy would all seem to be appropriate rehabilitative strategies for this population. A knowledge of expected outcomes, supportive and empathic therapy and access to information and services would all lead to improved outcomes following hip fracture as evidenced by greater self-efficacy, a reduction of fear of subsequent falls and a much higher proportion of those affected able to return to a closer approximation of pre-fracture status.

The Health Department of Western Australia recently implemented a collaborative falls prevention program for older people called "Stay on Your Feet" based on a similar program operating in New South Wales. This would appear to be an important step in dissemination of information relating to falls. The program includes information relating to falls including major causes, and fall prevention strategies. Results from the present study indicate that participants had no prior

knowledge of fall prevention campaigns. This reflects the need for wider promotion of such campaigns, perhaps by way of leaflets which can be readily available at medical and community centres etc.

The discourse from the participants contained in the present study provides accurate accounts of personal experiences of older people who, living in Australia in the 21st century, are facing a health issue over which they feel a lack of autonomy. In order to address this comprehensively, information rich data which are not subject to the statistical interpretation of quantitative research and extrapolated into generalised information, has been sought. Together with the substantial insight quantitative previous research provides, the present study makes a significant contribution to the area of hip fractures in the elderly.

Considerations

In interpreting the findings from the present study, there are some considerations to be noted. The study is limited to information obtained from ten older people, some of which is anecdotal. According to Cohen et al. (1996) although smaller sample sizes in qualitative research may somewhat compromise generalisability, this focus presents information which provides greater understanding of the complexity of the studied phenomenon and is considered important when a great deal of personal information is sought.

The incidence of co-morbidity in the current sample was high (though representative of this population) and consistent with previous research (e.g. Howland et al., 1998) that frail older adults are much more prone to falling than their healthier counterparts. In the present sample, two participants had type II diabetes (one also had urinary incontinence), three had respiratory impairments (two had

emphysema and one participant had part of one lung removed as a result of cancer). Two participants had osteoarthritis and two had undergone heart surgery (one having had previous bypass surgery and a pacemaker and one a first degree heart block). The occurrence and degree of co-morbidity could be expected to influence the impact of hip fracture and subsequent rehabilitation. Therefore in some instances within the present study, the impact of falling and sustaining a hip fracture, together with subsequent ability to function, cannot be evaluated independently of other confounding health variables.

There was some variance in time passed between the hip fracture and interview; the longest was 42 weeks and shortest was 15 weeks. Time since hip fracture could have exerted some influence on participant's degree and self evaluation of their subsequent psychological and physical functioning. Generalisability may be constrained by the current sample which was one of convenience, with all participants recruited from the same metropolitan public hospital in Western Australia. Some degree of variation in the nature of medical advice, treatment and post-operative care for hip fracture patients is present between hospitals in Australia and between that received in hospitals in other countries. This may relate to variation in the prescribed length of hospital stay, inpatient care such as physiotherapy treatment; follow up hospital appointments and other treatment and rehabilitative strategies. Information from medical staff during primary care (as highlighted within the present study) may also mediate self-efficacy, exerting an influence upon patient expectancies and their subsequent psychological and/or physical rehabilitation. Although this could have implications for the generalisability of the current study, research shows that the incidence and characteristics of post fall

sequelae following hip fracture) are analogous, regardless of possible environmental inconsistencies involved in health practices amongst different countries.

There were no pre and post measures for depression, and it is therefore unknown to what extent responses to the GDS reflected effects of falling and sustaining a hip fracture. Previous research has shown that although depression in the elderly is fairly common, with prevalence rates reported as high as 30% (Pinkowish, 1999), lack of recognition and treatment of depression in the elderly is common and decrements in functioning may also be assumed (including by the elderly themselves) to be an inevitable part of the ageing process. It is not clear therefore whether current indications of depression are pre-morbid, attributable to the sudden change in health status, or specifically related to the fall and hip fracture.

Conclusion.

Investing time and expense into prevention of falling and hip fracture and rehabilitation practices following hip fracture would seem to have significant influence over the quality of life remaining for older people for whom quality is dependent upon health and functioning and maintaining independence. According to research (Salkeld et al., 2000) for many older people, it is the quality of life left to live which appears to determine the desire for quantity. In particular, the goal is a life which is not dependent upon others for assistance. A reduced quantity of life left to live by no means diminishes the significance or prioritisation of interventions to improve health and functioning in older people. This is particularly relevant in the case of hip fracture, when research shows that adverse outcomes may be potentially modifiable. Intervention strategies that may be effective in reducing falls, fall related injuries and subsequent adverse physical and mental sequelae, may contribute

globally to important reductions in death and disability. The considerable psychological impact of hip fracture may be attenuated by a co-ordinated multi-factorial approach to prevention, treatment and rehabilitation, promoting independence and an enhanced quality of life during older age.

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Appendix A

Information Sheet

QUALITATIVE STUDY OF THE IMPACT OF HIP FRACTURE IN THE ELDERLY POPULATION

My name is Stephanie Price and I am undertaking a research study as part of a Master's degree at Edith Cowan University. The study seeks to gather information regarding the impact of falling resulting in hip fracture. The study has been approved by the Fremantle Hospital & Health Services and also by Edith Cowan University-Human Research Ethics Committee.

If you decide to participate, it is important that you understand the purpose of the study and how you may contribute. Please take the time to read the following paragraphs, which provide further information.

Nature and Purpose of the Study

Your contribution to this study is invaluable in gaining a personal perspective of the experience of falling and how it has impacted on your quality of life. Falls amongst the elderly are an increasingly common experience. My interest in this study is as a Clinical/Geropsychology student completing a Master's research thesis. Geropsychology focuses on issues pertaining to the elderly population and seeks to understand the lived experience in order to provide information on improving quality of life for this important and growing sector of our society.

The aim of the study is to gain greater understanding of fear of falling, the experience of falling, and quality of life after hip fracture once returning home. Information of this nature will help advise and inform health providers such as Physiotherapists, Occupational Therapists and Psychologists. These health disciplines each have an interest in contributing to the prevention of falling, reducing the physical and psychological impact of falling and in effective rehabilitation.

Selection Process

We intend to study people aged 65 or older who have sustained a hip fracture after falling, are English speaking and living in the community.

What the Study Will Involve

You will be contacted by telephone within one week of receipt of this information- sheet to ascertain your willingness to take part in the study. If you decide to participate, a convenient time will be arranged for the researcher to come to your home (or to meet elsewhere if you prefer) and ask some questions. The questions are designed to allow you to speak freely of your experience, relating such things as circumstances surrounding the fall, ability to perform daily activities since the fall and general information related to the impact the fall has had on you personally.

The interview will need to be taped on an audio- tape, in order that all of the information can be captured and transcribed. The tape will be destroyed (or returned to you if requested) after transcription and no identifying features will be used in the written report.

Expected Duration of Interview

The interview is expected to last approximately one hour. However this is flexible and your own personal story may take longer if you wish. A separate short questionnaire will also be administered which helps to identify the presence of depression. This is to further identify and inform practitioners of the needs of people who have experienced a hip fracture.

Benefits

A potential benefit of participating in this study is that the opportunity to talk in detail about your fall to the researcher (who has counselling experience) may be therapeutic. Appropriate referral can also be made if any areas of need are identified.

Discomforts and Risks

The study is not anticipated to have any adverse effects or associated risks. Relating an unpleasant experience *may* be stressful for *some* people. If this proves to be the case then counselling can be undertaken, together with referral to community resources where appropriate.

Voluntary Participation and Withdrawal from Study

Your participation in this study is entirely voluntary. Your agreement to participate or your declining to participate in this study will not in any way interfere with any ongoing or future treatment at Fremantle Hospital and Health Services or any other Medical Centre. You may withdraw from this study at any time, for whatever reason. Such withdrawal will not in any way influence any present or future treatment you may require.

Any concerns or complaints you may have about the way in which the study is being conducted, may be directed to the Chairman of the Fremantle Hospital and Health Service Human Research Ethics Committee on **9431 2929** or to Professor David Bruce, Head of the Department of Community and Geriatric Medicine - Fremantle Hospital and Health Services on **9431-2673**. My own contact number should you have any questions about the study now or whilst it is being conducted is **9400-5022**. Alternatively you may direct any queries to Associate Professor Helmes (Project Supervisor) at the School of Psychology, Edith Cowan University on **9400-5543**.

Stephanie Price
Graduate Trainee

Assoc. Prof. Ed. Helmes
Project Supervisor
Clinical/Geropsychologist

Appendix B

Consent Form

<p style="text-align: center;">CONSENT FORM</p> <p style="text-align: center;">QUALITATIVE STUDY OF THE IMPACT OF HIP FRACTURE IN ELDERS</p>
--

I agree voluntarily to take part in the above study. I am over 18 years of age. I have been given information from the researcher – Stephanie Price, providing a full explanation of the purpose of the study and any associated benefits and risks.

I understand that I am free to withdraw from the study at any time and that this withdrawal will not affect any present or future treatment I may require at Fremantle Hospital and Health Services or any other Medical Centre.

I understand that it is necessary to obtain such information from my medical records as is relevant to the study (e.g. nature of injury). I agree to the release of this information to the researcher on the understanding that it will be treated confidentially.

I understand that I will not be referred to by name in any report concerning this study. I understand that the results of the study may inform and enhance future health provision in relation to falls in the elderly and therefore I will not restrict their use. I have been given and read a copy of this Consent Form and Information Sheet.

Name.....

Signature.....

Date.....

Appendix C

Open response interview to assess the subjective experience of falling and sustaining a hip fracture

(1). Is this the first time you have fallen?

If no, obtain relevant information on prior occurrences.

If yes, ask if the participant had ever thought about the possibility of falling, or how likely they would have estimated themselves to be at risk of falling.

(2). Do you know either directly or indirectly, any other person who has sustained a hip fracture?

If yes, how do you feel they have recovered from this? (As well as prior to fall, not recovered well etc. etc.)

(3). Can you describe the circumstances surrounding your fall?

(Place, time, alone or not, feelings at time, how managed to alert help if alone etc.)

(4). What do you feel contributed to your fracture? (If not already mentioned in above)- Footwear, medication, uneven floor, dizziness, poor light/sight, tripped, inattention etc.

(5). What was returning home from hospital like for you?

(Relieved, scared, worried about ability to manage/ being left alone, confidence level, memories of fall if fall occurred at home etc.)

(6). Pre and post fall comparisons:

Sleeping (flashbacks/nightmares disturbances in general?)

Appetite (eating more/less/same?) Exercise (general activity level more/less/same?)

(7). Has anything been put in place as a direct result of your fall?

(Lighting, rails, commode, alarm, dietary modifications - calcium, vitamin D, more phone-calls, visitors, etc.)

(8). What support do you have inside home/outside home such as family/friends?

Has this changed as a result of your fall?

(9). Do you use any support services (Silver Chain etc.)

If yes - ask has this changed as a result of your fall?

(10). Do you use any physical aids (walking stick/frame etc.)

If yes - ask is this only post hip-fracture?

(11). How would you compare your ability to manage daily living activities pre and post fall?

(bathing, dressing, getting out of bed, toileting, getting outside, walking, meal preparation, shopping, housework, etc.)

(12). Have you stopped or started any medications since your fall?
(pain-killers, psychotropic medicine, anxiolytics, sleeping tablets)

(13). Do you perceive your self in any way differently now since your fall?
(lower ability, less confidence, more cautious, more restricted, older, more frail etc.)

(14). Do you believe your family/ friends view you any differently since your fall?
If yes - ask participant to elaborate and also ask - how do you feel about this?

(15). Reflecting back to prior to your fall, do you feel any differently about the level
of your health, and your general capacity to get around?
If yes -ask participant to elaborate

(16). How often do you think about your fall?

(17). Has the experience of falling and sustaining a hip fracture impacted on you in
any other way that we have not already discussed?